BACnet to Modbus gateway

The Anybus BACnet to Modbus gateway allows Modbus devices to communicate on a BACnet network. The gateway works as a translator between the two networks allowing Modbus RTU, ASCII or TCP-devices to show up as individual BACnet-compliant devices on a BACnet/IP network. This enables central control and supervision of Modbus devices in a building for example.

Features and Benefits

- Handles conversion between Modbus (RTU, ASCII, TCP) and BACnet/IP.
- Manages Modbus TCP and Modbus serial simultaneously.
- Connects up to 30 Modbus serial devices to BACnet (processing up to 1000 Modbus registers).
- Each connected Modbus device appears as an individual BACnet-compliant device.
- Excel tool and instructions for creating Modbus Device Profiles are available on Anybus.com.
- A resident web server allows for commissioning, and troubleshooting via a standard web browser.
- Comes in a rugged IP30 metal housing that mounts on 35-mm DIN-rail.
- A reset switch is provided for returning to the factory default IP address.
- LED indicators provide communication status on both the Ethernet and serial ports.
- External terminating resistors are included in the package. (No termination by default in the product.)

What is BACnet?

BACnet is a data communication protocol mainly used in the building automation and HVAC industry (Heating Ventilation and Air-Conditioning).

The most common serial version is called BACnet MS/TP while the dominant Ethernet version is BACnet/IP.

Example 1: Connecting Modbus-TCP to BACnet/IP

In this application, the Modbus TCP connection is called a “one-armed gateway” because both Modbus TCP and BACnet/IP messages transfer through the same Ethernet port.

Example 2: Connecting Modbus RTU to BACnet/IP

Here, each Modbus device on the serial network must be configured for the same Modbus serial protocol (RTU or ASCII), the same data rate (2400–115200 baud), and the same parity (ODD, EVEN or NONE).

Typical industries

- Master functionality:
  - Modbus-RTU
  - Modbus ASCII
  - Modbus-TCP

- Slave functionality:
  - BACnet/IP

- Routing functionality:
  - Modbus-RTU to Modbus-TCP

Order number:

024090-B

HMS provides a full 3 year product guarantee.

How it works

Modbus RTU and Modbus ASCII networks are connected to the serial port of the gateway, while Modbus TCP and BACnet/IP networks are connected to the Ethernet port. You will need to create a device profile for each Modbus device and upload this to the gateway. HMS offers a library of common device profiles. If one is not available for your device, HMS provides a tool and instructions on how to create a device profile for your Modbus device. You can then do commissioning and troubleshooting in the included web interface.
## Technical Details

<table>
<thead>
<tr>
<th>Dimension (LxWxH)</th>
<th>100x41x131</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection class</td>
<td>IP30</td>
</tr>
<tr>
<td>Enclosure material</td>
<td>Metal housing</td>
</tr>
<tr>
<td>Mounting</td>
<td>DIN rail (35 mm)</td>
</tr>
</tbody>
</table>

Serial port:
- (for Modbus RTU and ASCII)
- Optically-isolated allowing for connection to either 2-wire or 3-wire EIA-485 networks using a removable 5-pin terminal block.

Ethernet port:
- (for Modbus TCP and BACnet/IP)
- Shielded RJ-45 connector. Through auto-negotiation and Auto-MDIX, it automatically matches connections to the attached equipment. Therefore, either CAT5 straight-through or crossover cable can be used to attach to the BACnet/IP or Modbus TCP network at either 10 or 100 Mbps speed.

### Certifications

- CE: CFR 41, Part 10 Class A; RoHS
- UL: UL 508; C22.2 No. 142-M1987

### Electrical Characteristics

- Power:
  - 24 VAC ± 10% 10 VA ± 6 W
  - 24 VDC ± 10% 6 W

- Internal jumpers allow flexible bias and termination options. They can be removed for mid-span installations.

### Environmental Characteristics

- Operating temp: 0 to 60 °C, 32 to 140 °F
- Storage temp: -40 to 85 °C, -40 to 185 °F
- Relative Humidity: 10-95 % non condensing

### Communication

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Supported Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet</td>
<td>Modbus, HTTP, IP, UDP, TCP</td>
</tr>
<tr>
<td>Modbus RTU</td>
<td>Modbus ASCII, BACnet/IP</td>
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### Technical Specifications

**REDUNDANT POWER INPUT**

24 VAC/VDC 10 VA half-wave regulated design allows power sharing with other half-wave devices

**POWER LED**

- Power OK indicator

**RESET IP**

- Switch returns gateway to default IP address

**ETHERNET**

- 10/100 Mbps Ethernet with auto-negotiation and Auto-MDIX
- Protocols supported include HTTP, IP, UDP, TCP, Modbus TCP and BACnet/IP

**MODBUS LEDS**

- Monitor Modbus transmit and receive activity

**MODBUS PORT**

- Removable 3-wire isolated EIA-485 connection with support for 2-wire non-isolated devices supporting Modbus RTU or Modbus ASCII

In the resident web server, you can do commissioning and troubleshooting via a standard web browser.