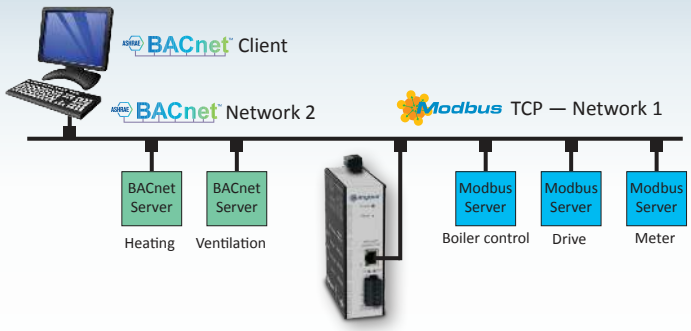
BACnet to Modbus gateway

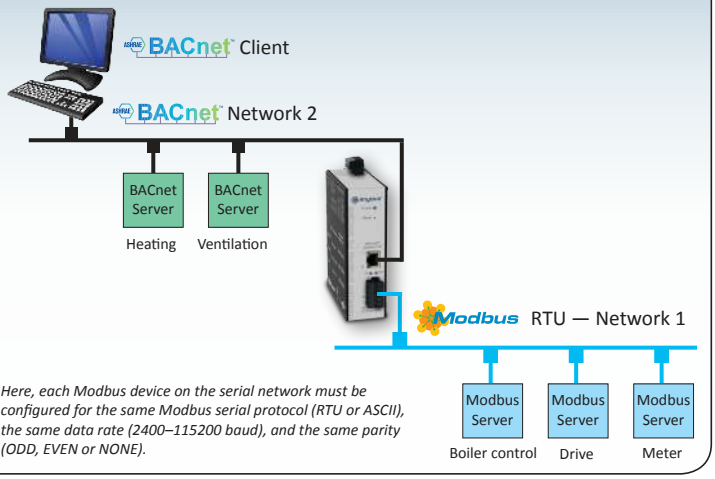
The Anybus BACnet to Modbus gateway allows Modbus devices to communicate on a BACnet network. The gateway works as a translator between the two networks allowing Modbus RTU, ASCII or TCP-devices to show up as individual BACnet-compliant devices on a BACnet/IP network. This enables central control and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

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 functionallity:
BACnet/IP

Routing functionallity:
Modbus-RTU to
Modbus-TCP

Order number:
024090-B

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.

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.

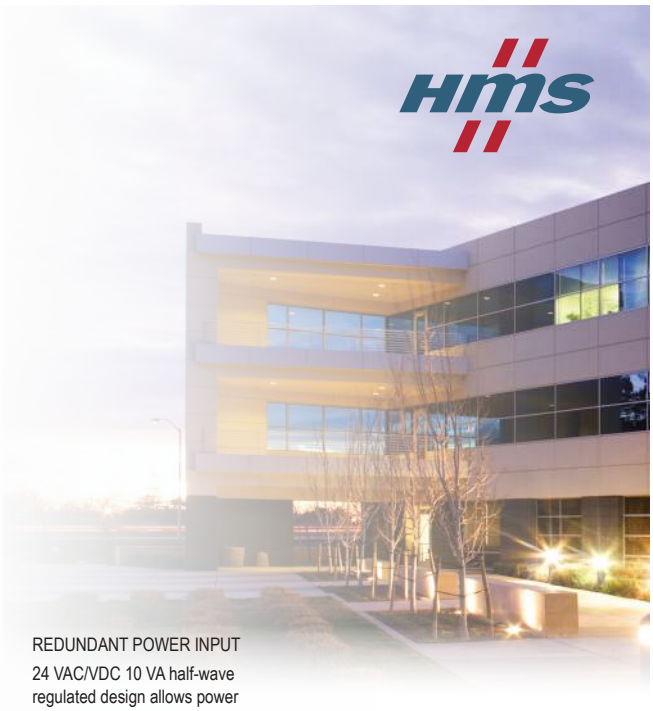
3 YEAR GUARANTEE

HMS provides a full 3 year product guarantee

TECHNICAL SPECIFICATIONS

Technical Details		
Dimensions (L•W•H)	100•41•131	
Protection class	IP30	
Enclosure material	Metal housing	
Mounting	DIN rail (35 mm)	
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 47, Part 15 Class A; RoHS	
UL	UL 508; C22.2 No. 142-M1987	
Electrical Characteristics		
Power	24 VAC ± 10% 10 VA 47-63 Hz 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	**Ethernet**	**EIA-485**
Compliance	IEEE 802.3	Modbus V1.02
Protocols supported	Modbus TCP BACnet/IP	Modbus RTU Modbus ASCII
Data rate	10 Mbps, 100 Mbps	2.4, 4.8, 9.6, 19.2, 38.4, 57.6, 115.2 kbps
Physical layer	10BASE-T, 100BASE-TX	EIA-485, 3-wire isolated
Cable length (max)	100 m	1200 m (or 1000 m if using 115.2 kbps)
Port connector	Shielded RJ-45	5-pin removable terminal
LEDs	L(Link) D(Duplex) Green = 100 Mbps Green = Full-duplex Yellow = 10 Mbps Off = Half-duplex Flash = Activity Flash = Collision	Tx Rx Green = Activity Green = Activity

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



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

MODBUS LEDS

Monitor Modbus transmit and receive activity

ETHERNET

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

MODBUS PORT

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

HMS Industrial Networks - Worldwide

HMS - Sweden (HQ)
Tel : +46 (0)35 17 29 00 (Halmstad HQ)
Tel: + 46 (0)35 17 29 24 (Västerås office)
E-mail: sales@hms-networks.com

HMS - France
Tel: +33 (0)368 368 034
E-mail: fr-sales@hms-networks.com

HMS - Italy
Tel : +39 039 59662 27
E-mail: it-sales@hms-networks.com

HMS - United States
Tel: +1 312 829 0601
E-mail: us-sales@hms-networks.com

HMS - China
Tel : +86 10 8532 1188
E-mail: cn-sales@hms-networks.com

HMS - Germany
Tel: +49 721 989777-000
E-mail: ge-sales@hms-networks.com

HMS - Japan
Tel: +81 (0)45 478 5340
E-mail: jp-sales@hms-networks.com

HMS - Denmark
Tel: +45 35 38 29 00
E-mail: dk-sales@hms-networks.com

HMS - India
Tel: +91 20 2563 0211
E-mail: in-sales@hms-networks.com

HMS - UK
Tel: +44 (0) 1926 405599
E-mail: uk-sales@hms-networks.com

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