



## HVAC management module

The Embue HVAC Management Module™ is used to gather data and send commands to Modbus and BACnet enabled HVAC equipment such as boilers, cooling towers, zone controllers, and pumps. The module supports both full and half duplex RS485 multi-drop communication. With the optional temperature interface installed it can also read up to 7 NTC temperature probes. Probes are available to measure air temperature as well as water temperature both in thermo-wells and through external attachment to pipes.

Data from the Embue HVAC Management Module is sent to the Embue Super Cloud™ platform where it is used to monitor the system. All collected data is stored for use in various operating and monitoring models. Data from these models can be used to make operating decisions as well as to warn about malfunctioning equipment. Embue Super can send operating commands back to the monitored system allowing for remote control.

### BACnet

This is the communication protocol for Building Automation and Control (BAC) networks. BACnet was designed as the standard methodology for building management and control systems. It is used with applications such as heating, ventilating, and air-conditioning, lighting control, access control, and fire detection systems and their associated equipment. The BACnet protocol provides the mechanism for computerized building automation devices to exchange information, regardless of the particular building service they perform.



### Modbus

Modbus is a messaging structure used to establish master-slave/client-server communication between intelligent devices.

Modbus is used in multiple master-slave applications to monitor and program devices, and to communicate between intelligent devices and sensors and instruments.

# Technical Specifications

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## Physical

Dimensions	5.21" x 5.10" x 1.36" (LxWxH)
Weight	6.0 oz

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## Environmental

Operating Temperature	0°F - 160°F
Operating Relative Humidity	0-90% (non-condensing)

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## Communication

Wired Ethernet Connection	IEEE 802.3 ab Cat 5e
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## Power

24VAC (± 20%)

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## Approvals

FCC, UL

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## Management Protocol Supported

BACnet	ASHRAE/ANSI Standard 135 and ISO 16484-5 standard protocol
Modbus	Protocol Specification V1.1b3

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## BACnet/Modbus Interface Type

Serial Communications	RS485 full/half duplex
Line Termination	Built-in (jumper selectable)
RS-485 Line Distance	Can span distances up to 1,200 m (4,000 ft)
Connection Topography	Line/bus (first and last node require termination)
Number of Nodes	247
Wire Specification	UL CM/CL2 or AWM Style 2919

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## Temperature Measurement Module

Number of Channels	7
Temperature Range	0 - 220°F
Probe Specification	NTC 10K ohm
Probe Types	Thermo-well, duct, and pipe clamp-on
Accuracy	± 1°F



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hvacmanagementmodules012417