

## HTM FS-C Optional BACnet Module

### General Description

The Hybrid Thermal Mixing (HTM) system is designed to provide natural ventilation, hybrid ventilation (incorporating mixed tempered air for winter periods), secure night time cooling and boosted levels of ventilation during summer. The HTM FS-C units are typically installed in primary/secondary pairs, where all the control systems are located in the primary unit. With the addition of an internal LTHW coil, the HTM FS-C is able provide the primary heat and cooling source within the space removing the requirement for additional radiators and cooling systems.

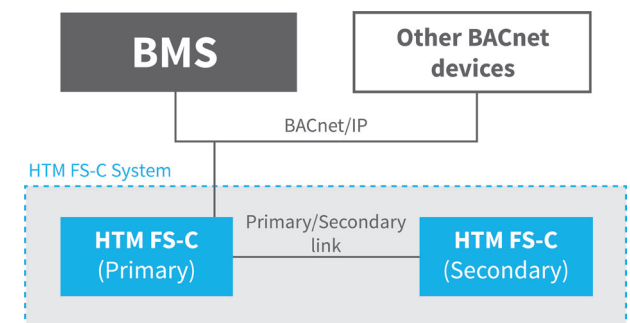
The BACnet module allows a HTM FS-C system to be installed on to a BACnet/IP network and make visible a number of system variables. These variables include the supply water temperature for coil and the external, recirculated and mixed air temperatures.

### Technical Details

The BACnet module for HTM FS-C is a Cimetrics EasyBAC module based on a Lantronix XPort device. This module plugs into the Control Board and interfaces with the on-board microcontroller to provide BACnet visibility of the HTM FS-C system.

Each HTM FS-C system has its own unique IP address on the BACnet/IP network. Where multiple HTM FS-C pairs are located in one room, the pairs may be linked in a Master/Slave configuration to form one system. If full visibility of every unit is required, then a BACnet module will be required in each primary unit.

The BACnet module requires an RJ45 Ethernet connection (by others) from the BACnet/IP network to the Primary HTM FS-C unit.



# HTM FS-C Optional BACnet Module

## BACnet DETAILS



### Wiring Requirements

10/100Base T Ethernet connection (RJ45 Terminated, CAT5 or better rated cable)



### Information Required

We require a fixed IP address to pre-programme into the BACnet module prior to delivery, specifically the IP address, sub-net mask and default gateway of each system in IPv4 format. This must be provided to Monodraught two weeks prior to delivery. If an IP address is not provided by the client, the default range of 192.168.0.100 – 192.168.0.200 will be used, with a subnet mask of 255.255.255.0. The default gateway will also be set to 192.168.0.1.

### Device Objects

Object Name	Value
Vendor Name	Cimetrics
Vendor ID	14
Model Name	Monodraught HTM FS-H
Instance Number	<serial number of unit*>
Firmware Revision	<various>
Application Software Version	<various>
Database Revision	<various>
* Unless otherwise explicitly requested when providing IP details	

### Binary Inputs

Object Name	Instance #	Description
FAULT	1	Fault found
LOUVRE_OVERRIDE	2	Manual VENTS AIR wall louvre position override

### Analogue Values

Object Name	Instance #	Description	Units
HTMFS_ID	1	Serial number	N/A
YEAR	2	Year	Years
MONTH	3	Month	Months
DAY	4	Day	Days
HOURS	5	Hours	Hours
MINUTES	6	Minutes	Minutes
FAULT_CODE	7	Fault code	N/A (See †)

### Analogue Inputs

Object Name	Instance #	Description	Units
ROOM_TEMP	1	Room temperature	°C
ROOM_CO2	2	Room CO <sub>2</sub>	ppm
EXTERNAL_AIR_TEMP	3	External air temperature	°C
RECIRC_AIR_TEMP	4	Recirculated air temperature	°C
MIXED_AIR_TEMP	5	Mixed air temperature	°C
PRI_EXTERNAL_DAMPER_FB	6	Primary external air intake damper feedback	%
SEC_EXTERNAL_DAMPER_FB	7	Secondary external air intake damper feedback	%
PRI_RECIRC_DAMPER_FB	8	Primary recirculated air intake damper feedback	%
SEC_RECIRC_DAMPER_FB	9	Secondary recirculated air intake damper feedback	%
EXHAUST_DAMPER_FB	10	Exhaust air damper feedback	%
WALL_LOUVRE_FB	11	Wall louvre feedback	%
LTHW_SUPPLY_TEMP	12	LTHW supply temperature	°C

# HTM FS-C Optional BACnet Module

## BACnet DETAILS

### Analogue Outputs

Object Name	Instance #	Description	Units
PRI_FAN_SPEED	1	Primary fan speed	%
SEC_FAN_SPEED	2	Secondary fan speed	%
PRI_EXTERNAL_DAMPER	3	Primary external air intake damper	%
SEC_EXTERNAL_DAMPER	4	Secondary external air intake damper	%
PRI_RECIRC_DAMPER	5	Primary recirculated air intake damper	%
SEC_RECIRC_DAMPER	6	Secondary recirculated air intake damper	%
EXHAUST_DAMPER	7	Exhaust air damper	%
WALL_LOUVRE	8	Wall louvre	%

### (#) OPERATING\_MODE Object Values Description

Number	Mode
0	Unknown
1	Off
2	Idle
3	Natural Ventilation Mode
4	Natural Ventilation + Windows Mode
5	Boost Mode
6	Mixed Mode
7	Seasonal Night Cooling Mode
8	Slave mode
9	Acoustic Test Mode
10	Self-Test Mode
11	Control Mode
12	Shut Down Mode
13	Pre-Heat Mode
14	Heating Mode
15	Cooling

### (+) HTMF\_OPEN\_WINDOWS Object Values Description

Number	Mode
0	Unknown
1	No
2	Maybe
3	Yes

### (†) FAULT\_CODE Object Values Description

The FAULT\_CODE object is a numeric value that indicates any fault present on the system. Each fault has a unique code allocated to it (2(n-1) where n is the fault number) which are added together to form the FAULT\_CODE. So if there was a fault with the SD card, UI and Heater, the fault code would be 4101 (1 + 4 + 4096).

Fault Number	Hex Code	Decimal Code	Fault
1	0x0001	1	SD card
2	0x0002	2	Header file
3	0x0004	4	User Interface
4	0x0008	8	Primary fan
5	0x0010	16	Secondary fan
6	0x0020	32	T5 (external air temperature sensor)
7	0x0040	64	T6 (recirculated air intake damper)
8	0x0080	128	T7 (mixed air temperature sensor)
9	0x0100	256	Servo 1 (primary external air intake damper)
10	0x0200	512	Servo 2 (primary recirculated air intake damper)
11	0x0400	1024	Servo 3 (secondary external air intake damper)
12	0x0800	2048	Servo 4 (secondary recirculated air intake damper)
13	0x1000	4096	Servo 5 (exhaust air damper)
14	0x2000	8192	Master unit
15	0x4000	16384	Slave unit





Halifax House, High Wycombe  
Buckinghamshire, HP12 3SE



+44 (0) 1494 897700



[www.monodraught.com](http://www.monodraught.com)



[info@monodraught.com](mailto:info@monodraught.com)

Follow us on:

