



AirMaster Digital BMS Programming Guide

This document provides guidance on the most effective way to programme a BMS system for the optimal operation of AirMaster MVHR units.

While this is a recommendation, following this method should allow the units to self-regulate effectively. It also enables the BMS to control the units according to a timer schedule, calendar, and receive fault indications.

The goal is for the AirMasters to operate on a daily schedule, modulating based on demand via CO2 sensors, and enabling nighttime cooling during warmer weather. They should also be off when the building is unoccupied.

We recommend, as far as possible, allowing the units to self-regulate.

This document should be read in conjunction with the “AIRLINQ – DIGITAL BMS GUIDE,” which can be supplied by SAV Systems. Reviewing this document is recommended to ensure the programming meets your specific requirements.

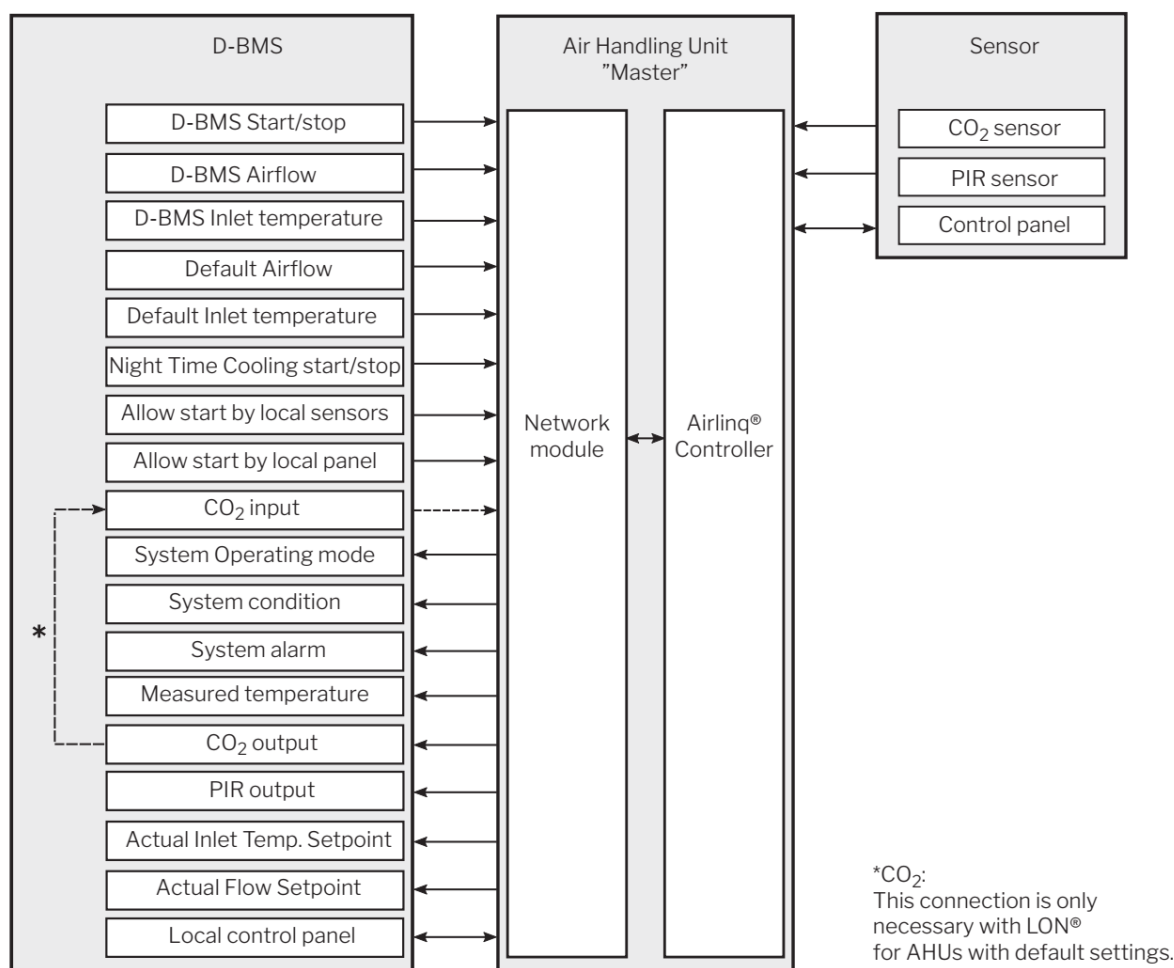
Many settings will be factory set or adjusted by our Site Engineers during the commissioning of the units. Therefore, it is not necessary to have control over every available operating condition.

BACnet and MODBUS are the two main types of Digital BMS that connect to these units. This guide reflects these standards. However, the Digital BMS Guide also includes values for LON and KNX, which are available if needed.



Parameters for Control

The intention is to match the following diagram from the Digital BMS Guide, which should achieve the operation detailed above:



Note that you will be unlikely to have a PIR sensor on site, so this will be ignored.



To achieve this, the following input programming is required:

BMS Name	BACnet Index	MODBUS Register	Setting
D-BMS start / stop	122	40004	0 = No / Stop 1 = Yes / Start
D-BMS airflow	125	40005	30
Nighttime cooling start/stop	123	40008	0 = No 1 = Yes
Allow start by local CO ₂	119	40043	0 = No 1 = Yes
Allow start by local panel	121	40045	0 = No 1 = Yes
CO ₂ concentration input	127	40007	0

D-BMS start / stop should be programmed such that the units operate when the rooms are occupied, and follow any calendar when there are prolonged periods where the rooms are unoccupied.

D-BMS airflow is the minimum airflow rate, which is 30%.

Nighttime cooling start / stop enables nighttime cooling when certain temperature conditions are met. This should always be enabled so that the process can automatically start if required.

Allow start by local CO₂ allows the unit to start automatically should the room CO₂ level exceed the default setpoints and should be enabled.

Allow start by local control panel allows local users to start the units if the units are off but the room is occupied and should be enabled.

CO₂ concentration input allows the unit to modulate the ventilation rate based on room CO₂ level and should be enabled.



The following output programming is required:

BMS Name	BACnet Index	MODBUS Register
System operating mode	20	40027
System condition	21	40028
System alarm	22	40029
Measured room temperature	1	40017
Measured inlet temperature	2	40018
Measured outside temperature	7	40023
CO2 output	9	40014
Actual Inlet Temp. Setpoint	16	40038
Actual Flow Setpoint	17	40039

The above are ready-only parameters and allow you to record operational data to the BMS for reporting or otherwise.

NB. there are other parameters for this setup detailed in the Digital BMS Guide. However, these will be configured during commissioning or left as the factory default.

This guide details recommendations for the BMS setpoints. However, the following are already set in the control box during commissioning:

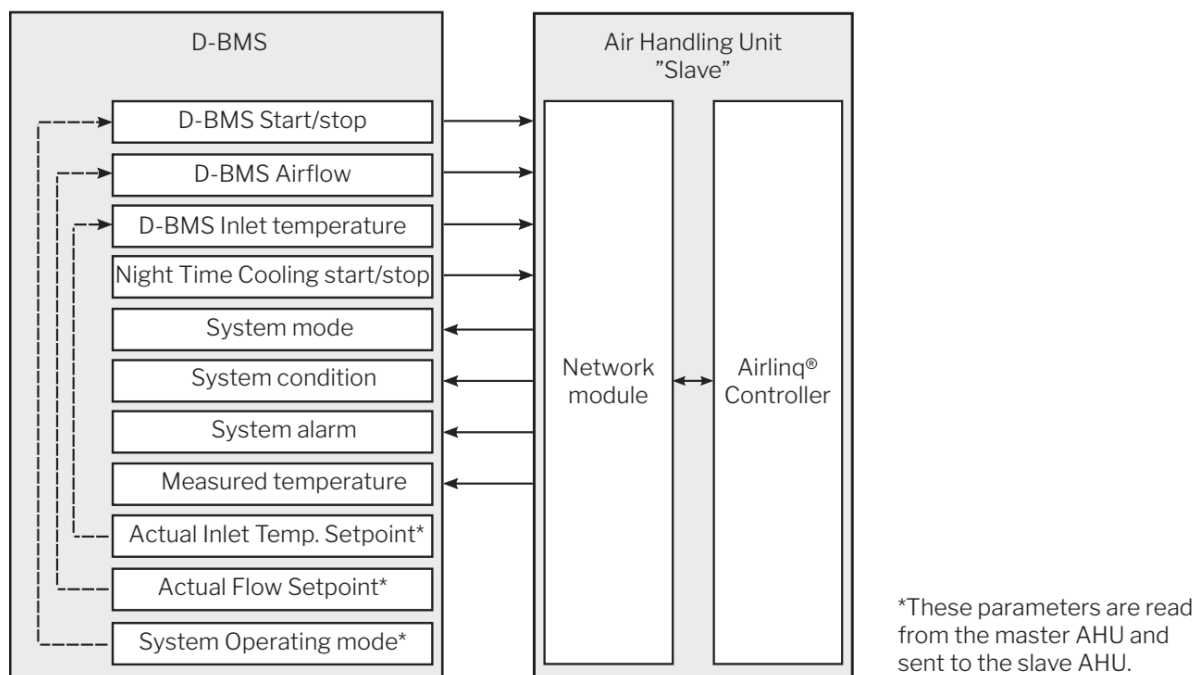
Name	Default Value
Minimum air flow rate	30%
Maximum air flow rate	100%
Inlet temperature	19°C
Minimum room CO2 level	400 ppm
Maximum room CO2 level	900 ppm

Please refer to section 4. Control Strategy in the Digital BMS Guide for more information.

Control of Slave Units

To control slave units, certain parameters from the Master must be converted to a binary value and sent to the Slave.

The intention is to match the following diagram from the Digital BMS Guide, which should achieve the operation detailed above:



Note that you will be unlikely to have a PIR sensor on site, so this will be ignored.

Input signals to Slave AHU for control of Slave AHU:

BMS Name	BACnet Index	MODBUS Register
D-BMS Start / stop	122	40004
D-BMS Airflow	125	40005
D-BMS Inlet Temperature	126	40006
Nighttime cooling start/stop	123	40008



Output signals from Slave AHU:

BMS Name	BACnet Index	MODBUS Register
System operating mode	20	40027
System condition	21	40028
System alarm	22	40029
Measured room temperature	1	40017
Measured inlet temperature	2	40018
Measured outside temperature	7	40023
Measured exhaust temperature	8	40024

Outputs from Master Ahu for control of slave AHU:

BMS Name	BACnet Index	MODBUS Register
Actual Flow Setpoint	17	40039
Actual Inlet Temperature Setpoint	16	40038
System Operating Mode	20	40027

Please refer to section 4. Control Strategy in the Digital BMS Guide for more information.

If you need further help, please contact SAV Systems.