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Distribution: LHA development, Rickard engineering, Rickard support

Topic: Implementing the RH wallstat operation

Description: This document describes the operating procedure for the RH WS as implemented on the mlm 24 system. As much as possible use is made of the existing functionality in the mlm system. 'RH operation' is implemented as a secondary control function, i.e. when an upper RH threshold is reached the control system enters manual override to open the control disk. This will increase the supply of dry air through the AC system. When the RH level reduces to an acceptable lower level the system will revert to normal temperature control.

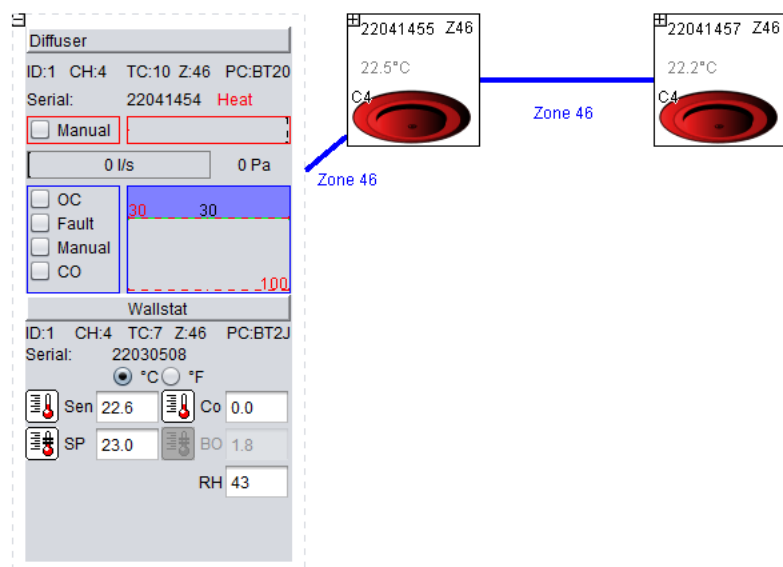
The following software code revisions must be used:

- Mlm Tool – V8.17 U11
- WS 2 RH variant – V04.30(.zip)
- MCU 2 BW2011-2B firmware rev 6.47K
- Hardware version: BT2J11E-5 ,RH sense (Rickard stock code CONT/0100/00350)

Setup:

Before starting the setup procedure, ensure the latest mlm Tool application is downloaded from the trac website. During the first time run the user will be prompted to update the Data Description file. This is required to enable the new commands available to the system.

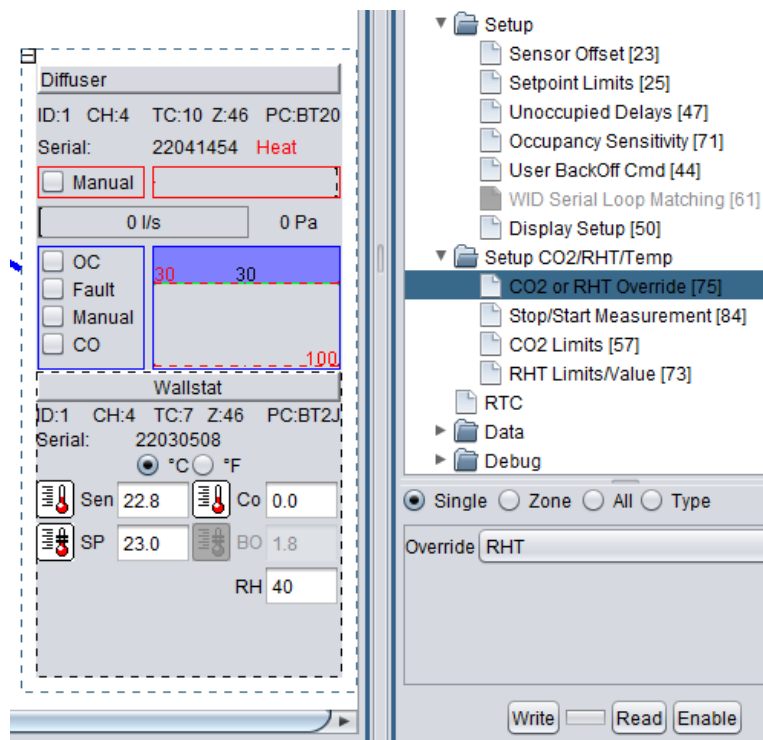
Once the mlm diffuser network is installed, ensure the RH WS is configured and zoned for normal operation as indicated. Note the RH display at bottom. For correct operation only one RH wallstat is allowed to be installed per zone.



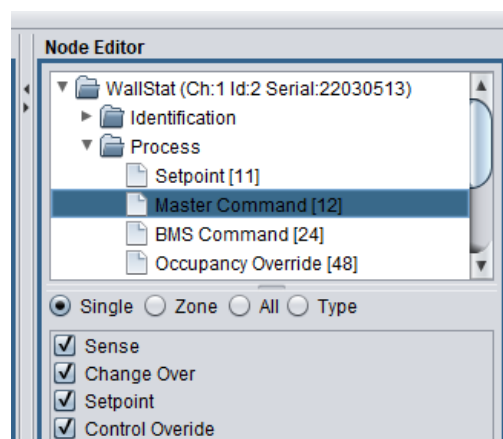
It must be noted that RH control is only available on the BT2J11E-5 wallstat device. The CO2 wallstat, BT2J11C-4 contains CO2 as well as RH measurements, with RH as a read only function. On the CO2 wallstat display in the mIm Tool, the CO2 value will be displayed in a block to the left of the RH value.

The following setup must be done using the mIm Tool:

Click on the WS icon. In the control panel select the 'CO2 or RH Override' tab (command 75). Enable the RH control function by selecting and writing RH override. The zone is now set up for RH control.



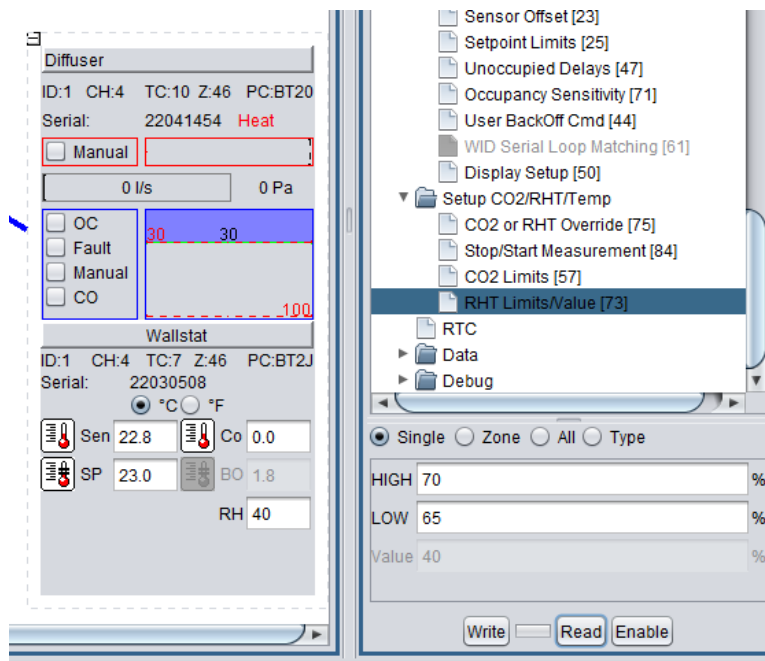
Under Process/Master command(12), tick the Control Override box and write.



The following setup can be done by using either the mlm Tool or by BACnet RH setpoint command:

To set the RH threshold values, click on the WS icon.

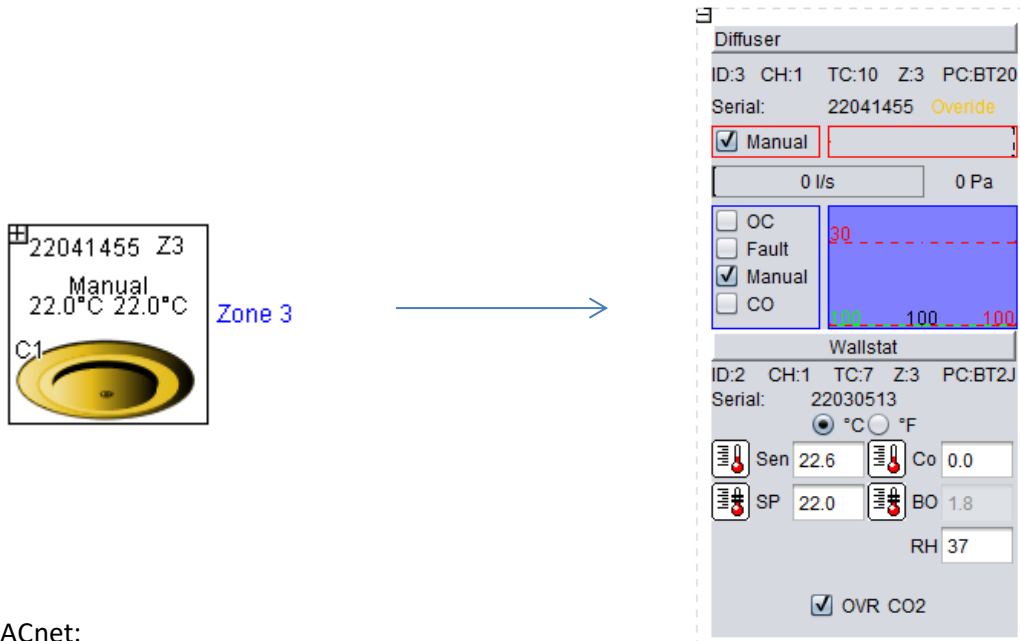
In the control panel select the RH limit function and write the required settings. Note these are the upper and lower RH thresholds as discussed in the description. Values are in %RH.



Note:

- i. To set up an entire section to the same values, select the 'all' button before write. This is applicable to all three the setup functions above. Press the 'Sync' button (top left in Section screen) for the new settings to be visible on BACnet.
- ii. When using the mlm Tool, the RH lower limit can be set to any unit value smaller than the RH high limit.
- iii. There is however only one BACnet point available for this setting. Therefore writing the RH BACnet setpoint sets the high limit, with the lower limit automatically set 10% below the high value.

Operation: When the diffuser is in control override it will be indicated as follows:



BACnet:

The RH current values are available at AV instances 420 through 459.

The setpoint value can be set and read at AO instances 120 through 159. Note this is the RH high limit. If the limit was set by writing the AO value, the lower limit will automatically be set 10% below this value.

Below is an extract of the MCU web page BACnet points list. Note the fields indicating the CO2/RH current values at AV420+ and the CO2/RH setpoint at AO120+.

The BACnet points are shared by the CO2 and RH values. The CO2 values will take precedence over the RH values if a CO2 wallstat, BT2J11C-4 is installed. The BT2J11E-5 is a RH only device and therefore RH values will apply to the BACnet points.

Diffuser		Room Temp		Supply Temp		Disk pos		Heat		Room CO2/RHT		Setpoint		CO2/RHT Setpoint			
Zone	Type	Serial	Name	AV	Value	AV	Value	AV	Value	AV	Value	AV	Value	AO	Value	AO	Value
1	D	22041457		0	21.8°C	60	0.0°C	120	30%	180	40%	420	37%	0	22.0°C	120	75%
2	D	22041454		1	21.9°C	61	0.0°C	121	30%	181	100%	421	38%	1	23.0°C	121	75%
3	D	22041455		2	22.1°C	62	0.0°C	122	100%	182	0%	422	37%	2	22.0°C	122	36%

As indicated in our example above, zone 3, serial number 22041455 has a RH setpoint (AO 122) of 36% and is currently reading 37% RH (AV 422) and is therefore in control override mode.