Armstrong Series GFH UPC Installation

Armstrong®

Installation Guide for BACnet MS/TP with Gas Fired HumidiClean™

This guide will aid in setting up the Gas Fired Humidifier for use with BACnet MS/TP to your Building Management System (BMS). The Unitary Protocol Converter (UPC) will be factory installed and wired to the Gas Fired Humidifier (GFH) with 24VAC for power and communication to the RS485 Modbus board.

1. Shut power off to the GFH unit.

2. Unplug the 24VAC connector from the UPC board. (Two wire connector on top right of the UPC). See figure 4-1.

3. Restore power to the GFH unit with the 24VAC to the UPC disconnected.

4. On the GFH display navigate to menu 234. See menu changing guide 234 located in the GFH IOM.

5. Scroll through menu 234 to "Identification of GFH". Change Identification of GFH to 1. Save the parameter.

6. Scroll to "Baud Rate" in menu 234. Change Baud Rate to 9600. Save the parameter NOTE: Do not change the Baud Rate to your BMS system. This will be done later on the UPC.

7. Shut power off to the GFH unit.

8. On the UPC board set the device ID using the rotary switches (lower right corner of UPC) to desired ID for the GFH on your BMS. This can be set from 0-99. See figure 4-1.

9. Set the Baud Rate on the UPC to match your BMS using the dipswitches 1 and 2.

10. Dipswitches 3 and 4 in the ON position and switch 5 through 8 in the off position.

11. Connect BMS wiring to Port 2 on the UPC. (Middle connector on left side of the UPC). See Port 2 Chart in figure 4-1 for wiring schematic.

12. Ensure all wires to the UPC are secure and reinstall the 24VAC power connector to the UPC.

13. Restore Power to the GFH unit. The BACnet is now activated through the UPC.

14. Reference the BACnet Points List (Table 2-1) to setup required points for your BMS.

GFH Points List
Table 2-1

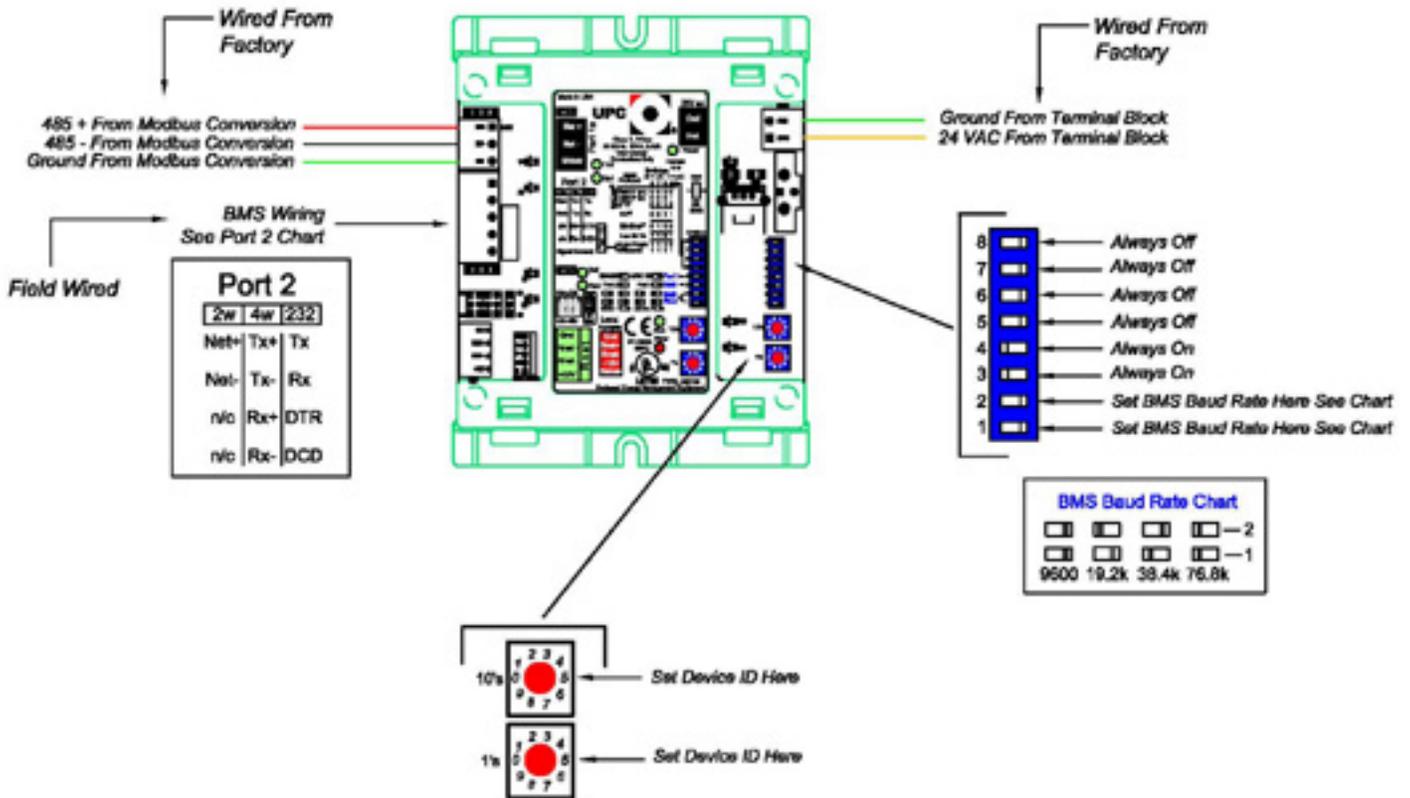| Name	Value	Type	Object ID	Device ID	Object Name
Aquastat Temp Setpoint	**25**	**BAV**	**AV:1**	**DEV:2402**	**aqua_set_1**
Bed Life	0.0	BAV	AV:2	DEV:2402	bed_life_1
Bed Life Setting	**5.0**	**BAV**	**AV:3**	**DEV:2402**	**bed_life_set_1**
demand level	0.0	BAV	AV:4	DEV:2402	demand_1
Drain Duration	**10.0**	**BAV**	**AV:5**	**DEV:2402**	**drn_dur_1**
Drain Frequency	**12.0**	**BAV**	**AV:6**	**DEV:2402**	**drn_freq_1**
End of Season Time	**72.0**	**BAV**	**AV:7**	**DEV:2402**	**eos_timer_1**
Failure	0.0	BAV	AV:8	DEV:2402	fail_mode_1
Idle Time	0.0	BAV	AV:9	DEV:2402	idle_time_1
Proportional Signal	0.0	BAV	AV:10	DEV:2402	prop_signal_1
Regulation Used	0.0	BAV	AV:11	DEV:2402	sig_type_1
Run Status	0.0	BAV	AV:12	DEV:2402	run_status_1
Run Time	0.0	BAV	AV:13	DEV:2402	run_time_1
Signal Simulation	**0.0**	**BAV**	**AV:14**	**DEV:2402**	**sig_sim_1**
Steam Capacity Limit	**100.0**	**BAV**	**AV:15**	**DEV:2402**	**stm_limit_1**
Steam Output	0.0	BAV	AV:16	DEV:2402	stm_out_1
Tank Temperature	0.0	BAV	AV:17	DEV:2402	tank_temp_1
Water Level	0.0	BAV	AV:18	DEV:2402	water_lvl_1
Water Type	0.0	BAV	AV:19	DEV:2402	wtr_typ_1
High Limit	Off	BBV	BV:1	DEV:2402	h_limit_1
Network Enable	**On**	**BBV**	**BV:2**	**DEV:2402**	**net_enable_1**
Remote Start Stop	**On**	**BBV**	**BV:3**	**DEV:2402**	**rem_strt_stp_1**
Safety Low Level Sensor	Off	BBV	BV:4	DEV:2402	low_lvl_1
Stack Pressure Switch	Off	BBV	BV:5	DEV:2402	stkpressw_1

- All bold points are writable

- All other points are read only

Points Breakdown

1. "Aquastat Temp Setpoint" - This point allows you to set the temperature inside the tank to prevent any freezing if an outdoor unit is being used. You can also use this point to create a faster response time for humidification by always keeping the tank at a warmer temperature then the inlet water. This value is displayed in Celsius and has a minimum value of 25 and a maximum of 85.

2. "Bed Life" - This point is a read only point displaying the current setting for the Ionic bed life of the unit. It is read with the number x 100 hours. (Example: if it displays a value of 5. The current Ionic Bed Life setting is 5 x 100 = 500 hours.)

3. "Bed Life Setting" – This point changes the Ionic Bed Life time using the same formula above. (Example: If 1500 hours is the value needed, the point would read 15.)

4. "Demand Level" – This will display the current demand on the unit.

5. "Drain Duration" – This will display the time in minutes of the drain valve on time during a drain cycle. This point can be changed to decrease or increase the drain valve on time during a drain cycle. It is defaulted at 10 minutes. Minimum value is 2 minutes maximum is 30 minutes.

6. "Drain Frequency" – This will display the time in hours the unit will go into a normal drain cycle. This point can be changed to a minimum of every 2 hours or to the maximum of every 24 hours. It is defaulted at 12 hours.

7. "End of Season Time" – This point displays the current time in hours that the unit will idle without a demand before going into a deep drain cycle and bed drying cycle. This can be changed to a minimum of 1 hour or to a maximum of 168 hours. Default setting is 72 hours.

8. "Failure" – This will display a number ranging from 0-16. 0 is normal operation. Refer to the Modbus Variables Chart for other possible numbers.

9. "Idle Time" – Displays in hours the unit has been sitting idle with no demand.

10. "Proportional Signal" - Displays the demand signal the unit is receiving through a voltage or current signal.

11. "Regulation Used" – Displays the type of external controller being used for the demand signal. See Modbus Variables List address 30012 for more detail.

12. "Run Status" - Displays the current status of the unit. See Modbus Variables List address 30004 for possible values.

13. "Run Time" – The amount of time in hours the unit has been operational.

14. "Signal Simulation" – This point is displayed as a percentage and writable to give the unit a demand through the BMS. Minimum value is 0% maximum is 100%.

15. "Steam Capacity Limit" – This point is used to cut the total steam output to a desired maximum. (Example: If the unit is a GFH 300 with a maximum output of 300 lbs./hr. This point can be changed to 50% to give a maximum output of 150 lbs/hr.) This value is defaulted to 100%.

16. "Steam Output" – This value is displayed as lbs./hr of current output of the unit.

17. "Tank Temperature" – Displays the current temperature inside the tank in Celsius.

18. "Water Level" – This will display the current water level inside the tank. Possibilities are 0 through 3. See Modbus Variables List address 30003.

19. "Water Type" – Displays the water type being used. This value is determined by the user input on the GFH unit in Menu 152. This value is defaulted to 1.

Points Breakdown (cont'd)

20. "High Limit" - This point will display the current condition of the high limit sail switch. On = Closed and Off = Open.

21. "Network Enable" – This point displays the current status of the network. This must be enabled to control the unit through BACnet. If using an external controller this should be disabled. Enabled = On Disabled = Off.

22. "Remote Start Stop" – This point is used to enable (on) or disable (off) the unit at anytime when "Network Enable" is on.

23. "Safety Low Level Sensor" - This will display the current status of the safety low probe inside the tank. 0 = Closed and 1 = Open. This must be closed for the unit to be operational.

24. "Stack Pressure Switch" – This will display the current status of the stack pressure switch. 0 = Closed and 1 = Open. This must be closed for the unit to be operational.

Modbus Variable List

Address	Description	Value	Function	Address Data
10001	Stack Pressure Switch	0 = Closed / 1 = Open	Code 2 Read Only	0
10002	Safety Low Level Sensor	0 = Closed / 1 = Open		1
10003	High Limit	0 = Closed / 1 = Open		2
1	Start – Stop Unit	Run = On / Stop = Off	Function 1 - Read Only Function 5 - Write	0
2	Signal Simulation	Auto = On / Manual = Off		1
30001	Demand	%	Code 4 - Read Only	0
30002	Steam Output	Lbs/Hr.		1
30003	Water level	0 = Low / 1 = Heat 2 = Fill / 3 = High		2
30004	Run Status	0 = Idle / 1 = Steam Gen 3 = End of Season Drain 4 = Bed Drying / 5 = Failure / 7 = Heat 8 = Manual Drain / 12 = Maintenance		3
30005	Bed Life	Hours		4
30006	Run Time	Hours		5
30007	Idle Time	Hours		6
30008	Proportional Signal	V or mA		7
30009	Tank Temperature	Celsius		8
30010	Failure	0 = Normal Operation / 1 = E1 Error 2 = E2 Error / 3 = E3 Error / 4 = E4 Error 6 = E6 Error / 7 = E7 Error / 8 = E8 Error 9 = E9 Error / 10 = E10 Error / 11 = E11 Error 12 = E12 Error / 13 = E13 Error / 14 = E14 Error		9
30011	Water Used	1 = Tap Water / 2 = Softened Water 3 = Slight Demineralized Water 4 = Demineralized Water		10
30012	Regulation Used	20 = On/Off / 21 = 0-10V / 22 = 0-20V 23 = 0-20mA / 24 = 1-5V / 25 = 2-10V 26 = 4-20V / 27 = 4-20mA 28 = Devatec Sensor / 29 = 0-10V Sensor	Code 4 - Read Only	11
40001	Aquastat	Minimum = 25°C / Maximum - 85°C	Function 3 - Read Only Function 6 - Write	0
40002	Bed Life	Hours x 100 / Minimum = 1 / Maximum = 200		1
40003	Drain Cycle	Hours / Minimum = 2 / Maximum = 24		2
40004	Drain Duration	Minutes / Minimum = 2 / Maximum = 30		3
40005	Idle Time (End of Season)	Hours / Minimum = 1 / Maximum = 168		4
40006	Steam Capacity Limit	% / Minimum = 20 / Maximum - 100		5
40007	Signal Simulation	Minimum = 0 / Maximum = 100		6

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