

SIMPLWINDOWS NAME: Aprilaire 8870 64 Zone Full Control

MANUFACTURER: Aprilaire
MODEL: 8870

CATEGORY: HVAC

VERSION: 1.1

SUMMARY: Provides control of all standard functions in all 64 zones

GENERAL NOTES: This module will allow control of all standard functions on all 64 zones of an Aprilaire HVAC system. Parameters that can be set are heat setpoint, cool setpoint, mode, fan, and hold. True feedback from the Aprilaire will be reflected at the output of the module. This feedback will also include the current room temperature.

The module functions as follows:

1. Choose the zone to monitor/control
2. Settings for that zone will be requested automatically, and reflected at the output of the module.
3. Make any adjustments desired. They will be sent to the Aprilaire system immediately.

Any changes which occur on the Aprilaire zone currently being monitored will be reflected at the output of the module.

NOTE: When the thermostat is in Network Override(Hold On) changes made from the Crestron will be ignored by the thermostat. Also, when the menus are on, the Hold_On/Off will not operate.

NOTE: The Aprilaire 8870 Menu Parser and the Aprilaire 8870 Command Queue are not necessary if (and only if) the only Aprilaire module being used is one copy of the Aprilaire 8870 64 Zone Full Control module. If that is the case, the To_Command_Queue\$ output should be routed to the RS-422 comport and the From_Parser\$ input should be routed from the RS-422 comport. If more than one copy of the Aprilaire 8870 64 Zone Full Control module is being used or the Aprilaire 8870 Inside Temperature Monitor or the Aprilaire 8870 Remote Temperature Monitor or the Aprilaire 8870 Menu modules are being used the Aprilaire 8870 Menu Parser and the Aprilaire 8870 Command Queue MUST be used.

CRESTRON HARDWARE REQUIRED: CNCOMH-2, ST-COM, CNXCOM

SETUP OF CRESTRON HARDWARE:

RS-422
Baud Rate - 9600
Parity - None
Data Bits - 8
Stop Bits - 1

VENDOR FIRMWARE: P0.7 - RPC 2001

VENDOR SETUP: There is a setting in the Aprilaire menus for the maximum number of thermostats on the system. All thermostats on the Aprilaire system should be addressed sequentially. The setting for the maximum number of thermostats should be set to the highest thermostat number. This will allow better response times. If the maximum number is set to 64, it could take up to 17 seconds to get an update.

CABLE NUMBER:

Crestron	Aprilaire
DB9F	Bare Wire
Pin 1	B-
Pin 4	A+
Pin 5	REF
Pin 6	B+
Pin 9	A-

INPUT DESCRIPTIONS:

Name	Type	Description
Zone_*	D	Pulse to select which of the 64 zones will be controlled
Heat_Up/Down	D	Press and hold to adjust the heat setpoint up or down. The new setpoint will be reflected at the Heat_Setpoint output. This will be locked out when Hold_On_Fb is high.
Cool_Up/Down	D	Press and hold to adjust the cool setpoint up or down. The new setpoint will be reflected at the Cool_Setpoint output. This will be locked out when Hold_On_Fb is high.
Mode_*	D	Press to select the desired mode of the zone
Fan_On/Auto	D	Press to place the fan into always on, or auto mode
Hold_On/Off	D	Press to turn hold on or off. This corresponds to night mode and day mode respectively
Set_Up_Aprilaire	D	Pulse to send out initialization strings to the Aprilaire System. This may take several seconds.
Auto_Update_Enable	D	Place a 1 on this input to enable an automatic polling for status whenever a new zone is selected
Manual_Update	D	Pulse this input to request a status update for the zone previously chosen. This input should not normally be needed, and can be defined as 0
From_Parser\$	S	Serial data string to be routed from the Aprilaire 8870 Menu Parser

HEAT-UPPER-LIMIT+1 P Parameter to specify the upper limit of the heat setpoint. You must enter a value one greater than the desired maximum setpoint. For an upper limit of 85, enter 86D

HEAT-LOWER-LIMIT P Parameter to specify the lower limit of the heat setpoint.

COOL-UPPER-LIMIT+1 P Parameter to specify the upper limit of the cool setpoint. You must enter a value one greater than the desired maximum setpoint. For an upper limit of 85, enter 86D

COOL-LOWER-LIMIT P Parameter to specify the lower limit of the cool setpoint.

OUTPUT DESCRIPTIONS:

Name	Type	Description
Zone_*_Fb	D	Indicates which zone is currently being monitored/controlled
Current_Temperature	A	Indicates the current inside temperature of the selected zone
Heat_Setpoint	A	Indicates the current day mode heat setpoint for the selected zone
Cool_Setpoint	A	Indicates the current day mode cool setpoint for the selected zone
Mode_*_Fb	D	Indicates the mode of operation of the selected zone
Fan_On/Off_Fb	D	Indicates the fan state of the selected zone
Hold_On/Off_Fb	D	Indicates the hold state (day/night) of the selected zone
Update_Busy	D	High while the Aprilaire system is being polled for status
To_Command_Queue\$	S	Serial data string to be routed to the Aprilaire 8870 Command Queue

X-Gen OPS USED FOR TESTING: 5.12.26x
2 Series OPS USED FOR TESTING: 1.014

COMPILER USED FOR TESTING: SimplWindows 4.03.20

SAMPLE PROGRAM: Aprilaire 8870 v1.1 Demo PRO3

REVISION HISTORY:

version 1.1: Incorporated 3-series best practices to all Simpl+ modules.