



Aprilaire Scheduling Module v2

Module Application Guide

Description

The module emulates the familiar 5 day-2 day scheduling functions that consumers have used in the past. Each zone can have 4 distinct time, temperature and mode settings for the weekday and weekend periods of time. All of the settings are stored in NVRAM or on Compact Flash (if available) and therefore will be preserved on reboot or reloading of the program.

Supported Processors

This module is supported on any 2-Series processor with an available com port.

Compatibility			Processor Requirements	
 2-Series Compatible	 NOT CNMSX Compatible	 NOT System Builder Compatible	 Ethernet NOT NEEDED	 Compact Flash NOT NEEDED

Module Application

This module can be used to schedule an Aprilaire 8870 thermostat or an older Enerzone StatNet model.

Typically the processors com port is connected to an Aprilaire 8811 protocol adapter. This adapter converts RS-485 to RS-232 for use on the Crestron com port. We have successfully used a Crestron com port in RS-422 mode connected directly to the thermostat network as well. Aprilaire does not recommend this application. If using this approach be sure to follow the non-standard pin-out wiring needed on the Crestron end of your cable.

You will need an instance of this module for each thermostat that you wish to schedule. The example program demonstrates how to interlock the logic for setting only one zone at a time. For control and feedback of the thermostat functions (modes, fan, etc.) you will need to use the thermostat emulation module in the Crestron database.

There are a total of 8 timed events that can be used for each zone. There is a 9th event which is not schedule based which is used for the away mode. You must select each of these events and set a corresponding time and temperature that you wish to use for each event. If you don't wish to use an event then select that event and then press "remove event". The "away" event is something that is typically used when the user wants to leave the house for a period of time and have the stats go to a specified time and have the schedule not run. Typically programmers tie all the away inputs to a stepper or button presser so each stat in the system goes into hold. Pulsing the [Run_Program](#) input will take the module out of away and will run the next stored event when that event time comes up next.

You can use Toolbox to change the time to test the module with your stats. The current day and time is show on the panel.

Important notes about NVRAM and Compact Flash

You will note that the module has two parameters at the bottom. If either of these parameters is incorrect then the module will not function.

NVRAM usage

If you would like to use NVRAM then the parameter labeled [_File Location_](#) needs to look like this [\\NVRAM\\](#). Then in Toolbox you need to connect to the processor with a text console and initialize the ramdisk. This can be done by typing NVRAMDISK 64K or NVRAMDISK 128K. This will set aside a portion of the memory space for NVRAM that will be used to save all of the zone settings.

Compact Flash usage

If you would like to store the zone settings on a CF card then the parameter labeled [_File Location_](#) needs to look like this [\\CF0\\](#). Obviously you need to make sure that you have a CF card inserted in the processor. Crestron recommends the use of Sandisk brand media.

Signal and Parameter Descriptions

Bracketed signals such as “[signal_name]” are optional signals

DIGITAL INPUTS

Enable	enables the current zone
Run_Program	runs the schedule, takes the module out of the away setting
Away	halts the schedule and sends the away temperature
Edit_Weekday_*	selects the event to edit
Edit_Weekend_*	selects the event to edit
Edit_Away	selects the away event for temperature and mode editing
Remove_Schedule	removes currently selected event
Schedule_Heat_Setpoint_Up	adjusts heat setpoint up
Schedule_Heat_Setpoint_Down	adjusts heat setpoint down
Schedule_Cool_Setpoint_Up	adjusts cool setpoint up
Schedule_Cool_Setpoint_Down	adjusts cool setpoint down
Schedule_Hour_Up	increments schedule hour
Schedule_Hour_Down	decrements schedule hour
Schedule_Minute_Up	increments schedule minute
Schedule_Minute_Down	decrements schedule minute
Schedule_Heat	sets heat mode for the selected event
Schedule_Cool	sets cool mode for the selected event
Schedule_Auto	sets auto mode for the selected event
Refresh	pulse when viewing this zone to update fields

ANALOG INPUTS

This module does not utilize any analog inputs

SERIAL INPUTS

This module does not utilize any serial inputs

DIGITAL OUTPUTS

Enable_fb feeds back that current zone is enabled
Away_fb feeds back that away is enabled
Run_fb feeds back that the schedule is running

ANALOG OUTPUTS

Schedule_Heat_Setpoint current value of heat setpoint
Schedule_Cool_Setpoint current value of cool setpoint
Current_schedule_heat_setpoint current selected events heat setpoint
Current_schedule_cool_setpoint current selected events cool setpoint

SERIAL OUTPUTS

Edit_Schedule_Name\$ name of current schedule that is selected
Edit_Schedule_Time\$ currently selected event time value
Edit_Schedule_Mode\$ displays the mode associated with the event
Current_Schedule\$ current schedule
Current_Day_Of_Week\$ current day
Hvac_module_tx\$ serial string to tie to Aprilaire_String_Queue_v2
"module_tx" input

PARAMETERS

_File_Location_ Drop down to select NVRAM or CF as a storage option
{{ Instance ID}} Each instance of the module needs to have a unique
number here. So if you have 4 zones you should use
1d, 2d, 3d and 4d as examples.

Support

This module is supported by ControlWorks Consulting, LLC. Should you need support for this module please email support@controlworks.com or call us at 440-449-1100. ControlWorks normal office hours are 9 AM to 5 PM Eastern, Monday through Friday, excluding holidays.

Before calling for support, please ensure that you have loaded and tested operation using the included demonstration program and touchpanel(s) to ensure that you understand the correct operation of the module. It may be difficult for ControlWorks to provide support until the demonstration program is loaded.

Updates, when available, are automatically distributed via Email notification to the address entered when the module was purchased. In addition, updates may be obtained using your username and password at <http://www.controlworks.com/customerlogin.aspx>

Distribution Package Contents

The distribution package for this module should include:

ControlWorks_Aprilaire_Scheduler_v2.umc.....	Crestron User Module
ControlWorks_Scheduler_v2.usp.....	SIMPL+ file used within the module
ControlWorks_Scheduler_v2.ush.....	SIMPL+ header file
Aprilaire string queue.usp	SIMPL+ file used within the queue module
Aprilaire string queue.ush	SIMPL+ header file
Aprilaire_String_Queue_v2.umc.....	Crestron User Module
Aprilaire_Scheduler_Demo_XPanel_v2.vtp.....	Demo touchpanel file for 800x600 Xpanel
Aprilaire_Scheduler_Test_Program_v2.smw.....	Demo program for PRO2 processor
Aprilaire_Scheduling_v2_Help.pdf	Help file for this module
Aprilaire_String_Queue_v2_help.pdf.....	Help file for the queue module

Revision History

V2 bob@controlworks.com 2010.04.06

- Fixed issue where values were not being recalled from CF properly on larger programs
- Removed clock set functions from each module
- Added mode functions to the scheduling functions

V1 bob@controlworks.com 2005.09.08

- Initial release

Development Environment

This module version was developed on the following hardware and software. Different versions of hardware or software may or may not operate properly. If you have questions, please contact us.

Aprilaire	Firmware Version
Aprilaire 8870 thermostat	v1.3
Crestron Hardware	Firmware Version
Crestron PRO2 Processor	4.001.1012
Software	Software Version
Crestron SIMPL Windows	2.11.27
Crestron Vision Tools Pro-e	4.0.11
Crestron Database	21.01.014.00
Crestron Symbol Library	644
Crestron Device Library	644

ControlWorks Consulting, LLC Module License Agreement

Definitions:

ControlWorks, *We*, and *Us* refer to ControlWorks Consulting, LLC, with headquarters located at 701 Beta Drive, Suite 22 Mayfield Village, Ohio 44143-2330. *You* and *Dealer* refer to the entity purchasing the module. *Client* and *End User* refer to the person or entity for whom the Crestron hardware is being installed and/or will utilize the installed system. *System* refers to all components described herein as well as other components, services, or utilities required to achieve the functionality described herein. *Module* refers to files required to implement the functionality provided by the module and may include source files with extensions such as UMC, USP, SMW and VTP. *Demo Program* refers to a group of files used to demonstrate the capabilities of the Module, for example a SIMPL Windows program and VisionTools Touchpanel file(s) illustrating the use of the Module but not including the Module. *Software* refers to the Module and the Demo Program.

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We provide limited levels of technical support only for the most recent version of the Module as determined by Us. We do not provide support for previous version of the module, modifications to the module not made by Us, to persons who have not purchased the module from Us. In addition, we may decline to provide support if the Demo Program has not been utilized. We may withdraw a module from sale and discontinue providing support at any time and for any reason, including, for example, if the equipment for which the Module is written is discontinued or substantially modified. The remainder of your rights and obligations pursuant to this license will not be affected should ControlWorks discontinue support for a module.

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You may not decrypt (if encrypted), reverse engineer, modify, translate, disassemble, or de-compile the Module in whole or part. You may modify the Demo Program. In no event will ControlWorks Consulting, LLC be liable for direct, indirect, incidental or consequential damages resulting from You modifying the Software in any manner.

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