Aprilaire

Installation Instructions
## 8062 TrH Support Module

Application

The Aprilaire 8062 is designed to offer versatility in climate control. A set of onboard dip switches allows you to select whether you want as many as two sensor inputs per support module to control, monitor or even do a combination of both. This temperature/humidity data is sent by digital communications back to an Aprilaire 8870 Communicating Thermostat, allowing you to accurately control and monitor temperature/humidity in a given area or multiple areas. The Aprilaire 8870 Communicating Thermostat can support up to four Support Modules (TrH or TT).

Single Support Module Installation

Install the Aprilaire thermostat according to the instruction manual supplied with it. Check to ensure that thermostat is operating (display shows correct temperature).
CAUTION: Remove the thermostat from the subbase before wiring the support module to avoid damage from live wire.

2. Choose the wall location where the TrH module will be mounted. Locate in an area free from drafts. Do not mount support module on an exterior wall. Run CAT-5 wire from the thermostat to the support module location. Avoid routing wires near sources of electronic noise such as computer monitors, fan motors or fluorescent lights. Maximum distance from the thermostat is 1000 ft. (300m).

3. Open the support module case by pulling the cover straight forward.
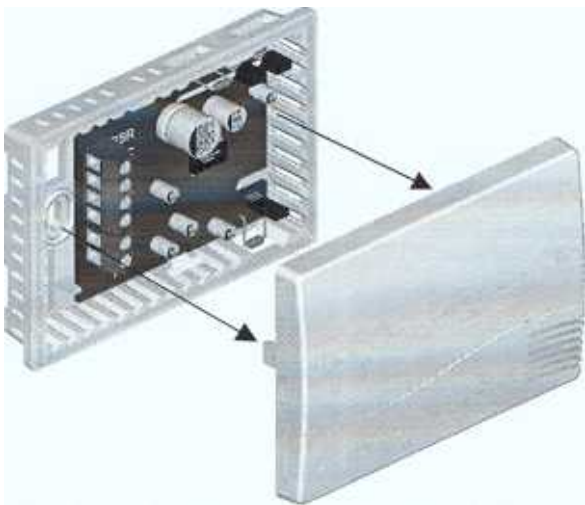
4. Remove the circuit board from the base by pulling back the latch that holds it at the bottom center.

Pull Down
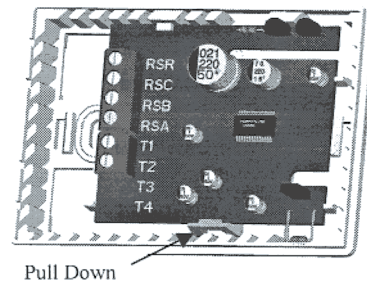
5. Use the subbase as a template to mark the mounting hole locations on the wall. The word "TOP" will be written in the subbase. Position the subbase so that the wires can be pulled through the hole in the top left-hand corner. Drill size for the wall anchors is 3/16 inch. Mount the subbase using the two #6 screws and anchors provided (larger screws will prevent the circuit board from properly snapping into place).

If side access is preferred for wiring, clip out the side vents at the locations shown below.

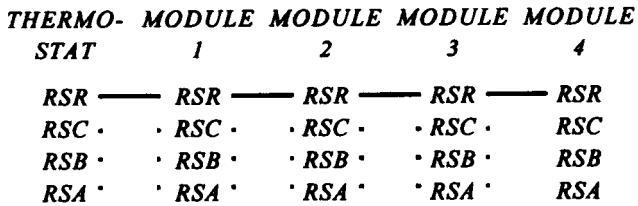LEFT SIDE VIEW:

Cut here for side access.
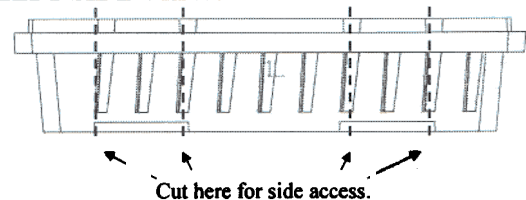
6. Snap the circuit board back into the subbase by sliding the top of the board in first and then snapping down on the bottom. Check to be sure that the latch holds the board properly.

7. Strip ¼ inch of insulation from the four wires at the support module. Install the wires in the terminals labeled RSR, RSC, RSB and RSA. One twisted pair of wires should be used for the RSR and RSC connection and another pair of twisted wires should be used for the RSB and RSA connection. Push the extra wire back into the wall cavity. Seal the hole in the wall around the cable to eliminate any draft that might affect the sensor.

8. Connect the wires on the thermostat subbase to the terminals labeled RSR, RSC, RSB and RSA. Make sure that each terminal on the support module is wired to the terminal with the same label at the thermostat.

9. If necessary, change the TrH support module dip switch settings. Note: switches must be set prior to powering the support module (support module is powered when thermostat is returned to its base). If switches need to be changed after powering the support module, the thermostat must be removed from its base for a minimum of 15 seconds to ensure proper reset of the support module.

10. Mount the thermostat on the subbase and confirm that it is displaying the correct temperature or humidity.

B2202777

Multiple Support Module Installation

Up to 4 support modules can be connected to provide temperature or humidity averaging in a large area or for several zones being controlled by the same system. The maximum cumulative distance of all of the support modules from the thermostat is 1000ft.

> **CAUTION: Make sure that there is no power to the support modules by removing the thermostat from the subbase.**

2. Wire the first support module using the single support module instructions. Daisy chain the remaining support modules as shown below.

THERMO-STAT	MODULE 1	MODULE 2	MODULE 3	MODULE 4
RSR ——	RSR ——	RSR ——	RSR ——	RSR
RSC ·	· RSC ·	· RSC ·	· RSC ·	RSC
RSB ·	· RSB ·	· RSB ·	· RSB ·	RSB
RSA ·	· RSA ·	· RSA ·	· RSA ·	RSA

3. Set the TrH Support Module dipswitches.

	OFF	ON
1	ADDRESS	ADDRESS
2	ADDRESS	ADDRESS
3	MONITOR (S1)	CONTROL (S1)
4	MONITOR (S2)	CONTROL (S2)
5	SPARE	SPARE
6	T1/T2 (S1)	ONBOARD SENSOR

Dipswitches 1 & 2 - Address
The following diagram shows how to set the top two address dipswitches. **EACH SUPPORT MODULE MUST HAVE ITS OWN ADDRESS, 1-4.**

ADDRESS 1 ADDRESS 3
ADDRESS 2 ADDRESS 4
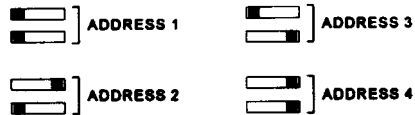
Dipswitch 3 - Temperature Input
Each support module has two sensors, Sensor 1 and Sensor 2. Determine whether you want the Sensor 1 input to monitor or control temperature. If dipswitch number 3 is in the "off" position, it will monitor the temperature.

If the support module is set to Address 1 and the Sensor 1 input is set to "monitor", then the monitored temperature will be displayed as the remote temperature in the lower left hand corner of the thermostat. Otherwise, the monitored value will only be available through software that supports this specific function.

If dipswitch 3 is set to the "on" position, it will use the reported temperature to control the thermostat. The sensor control temperature will be displayed on the thermostat. If multiple support modules are daisy chained together, all of the sensors set to control will be averaged and the average temperature will be displayed on the thermostat.

Dipswitch 4 -Humidity Input
Sensor 2 is an onboard humidity sensor. Determine whether you want the Humidity sensor input to monitor or control humidity. If dipswitch number 4 is in the "off" position, it will monitor the humidity level (%).

If dipswitch 4 is set to the "on" position, it will control the humidity level and the value will be displayed on the thermostat (with a % sign to indicate humidity). Up to 4 support modules can be daisy chained together. All humidity sensors that are set to control will be averaged and the average humidity will be displayed on the thermostat. **Note: If any of the remaining temperature sensors are also set to "control", the temperature control averaging will override the humidity control averaging and humidity control values will be ignored by the thermostat. To ensure that the thermostat recognizes humidity control values, make sure that all temperature sensors (for this thermostat) are set to the "Monitor" mode.**

Dipswitch 6 - T1/T2 or Onboard Sensor
Determine whether you want the Sensor 1 input to use the temperature sensed by the onboard thermistor or to use the input from a remote sensor (i.e. flush mount sensor or duct/outdoor sensor). If dipswitch number 6 is in the "off" position it will use the remote sensor inputs that have been wired to the T1/T2 terminals. If the dipswitch is in the "on" position, it will use the temperature input from the onboard thermistor. This option only exists for the Sensor 1 input and can still be configured to monitor or control. **The thermostat will not display temperature (Sensor 1) or humidity (Sensor 2) values if dipswitch 6 is set to T1/T2 without wiring a sensor to the T1/T2 terminal.**

Applications

Humidity Control

B220 FLUSH MOUNT SENSOR OUTDOOR SENSOR
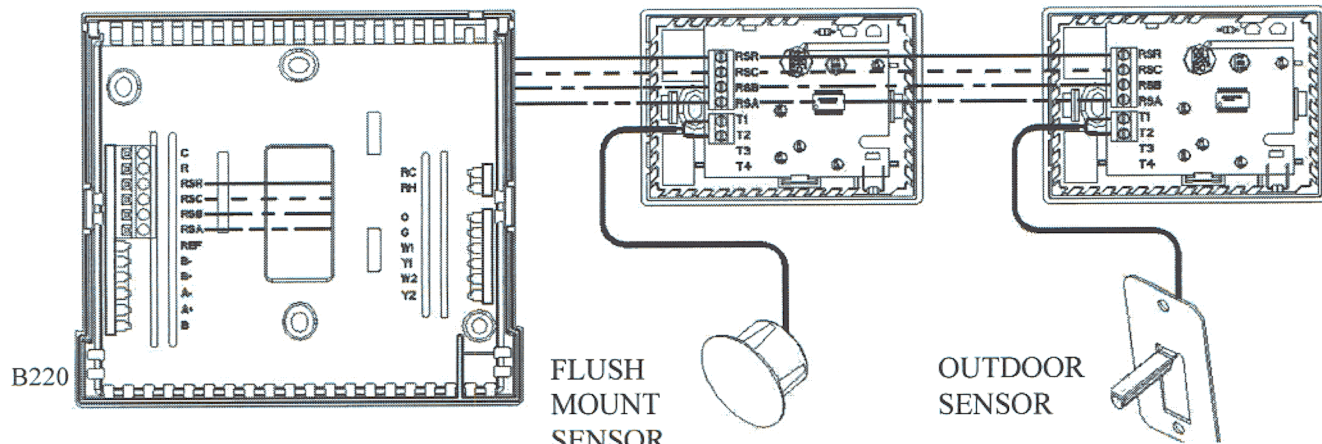
In order to set your thermostat up as a humidity controller, you will need at least one (up to four for averaging) temperature/humidity support module(s) wired to the thermostat.

Locate the temperature/humidity support module in the area that you want to control humidity. Set the T3/T4 sensor (Humidity) Input to "Control" by moving the # 4 dipswitch to the "on" position. Up to four T3/ T4 humidity sensors can be set to control and the reported values will be averaged and displayed on the thermostat. **Important: <u>None</u> of the temperature sensors connected to this thermostat can be set to control because a control temperature input to the thermostat will override a control humidity input. Make sure all temperature sensors are set to "Monitor".**

Once the humidity control sensor(s) have been wired to the thermostat, the thermostat display will change to indicate % RH instead of °F/°C. The thermostat mode selections will also change to reflect humidity control. The modes will be "Humidify", "Dehumidify", "Humidify or Dehumidify" and "Off". Humidification/Dehumidification set points are changed the same way that temperature control set points would be changed.

<u>Mode of Operation Set to "Humidify"</u>
The B terminal is continually energized in the "Humidify" mode. When the thermostat calls for humidity, the W1/HUM terminal will energize. If the minimum off time of 2 minutes has not elapsed since the previous call, no terminals will energize until it has. All energized terminals will remain energized for the minimum on time of 2 minutes.

<u>Mode of Operation Set to "Dehumidify"</u>
The O terminal is continually energized in the "Dehumidify" mode. When the thermostat calls for dehumidification, the Y1/DEHUM terminal will energize. If the minimum off time of 4 minutes has not elapsed since the previous call, no terminals will energize until it has. All energized terminals will remain energized for the minimum on time of 4 minutes.

Heat Pump Applications

If the sensor is being used with a heat pump thermostat with auxiliary heat, the thermostat can be configured to disable the use of auxiliary heat during warm weather and to lock out the compressor when the outdoor temperature is too cold. This allows for the most efficient use of energy.

At warmer temperatures, a heat pump will operate much more efficiently than the auxiliary heat. It can save energy to disable auxiliary heat in some cases, for example, when returning from a setback on a mild day. The temperature above which auxiliary heat is disabled is the auxiliary lockout temperature or high balance point. Refer to the thermostat user manual for a detailed explanation.

Air-to-air heat pumps become less efficient as the outdoor temperature drops. The temperature at which it becomes more efficient to use auxiliary heat instead of the heat pump is the balance point or low balance point. Refer to thermostat user manual for a more detailed explanation.

Configure the temperature sensor (T1/T2) that you are using to sense outdoor temperature to the "Monitor" mode by setting the dipswitch 3 to the "off" position and the module address to number 1. The high and low balance points are set at the thermostat. Refer to the thermostat Installation Instructions for more details.

Troubleshooting

Thermostat has no display: Check 24 VAC supply. Check for incorrect wiring between the thermostat and support module. Incorrect wiring can damage the thermostat and transformer or blow a fuse in the equipment. Make sure all support modules have a unique address.

Thermostat displays very high temperature or humidity: Ensure that dipswitch 6 is set properly. If dipswitch 6 is set to T1/T2 and a sensor has not been wired to the T1/T2 terminal, no temperature or humidity readings will be displayed. Also, if dipswitch 6 is set to onboard and a sensor has been wired to the T1/T2 terminal, incorrect temperature readings will be displayed. Check wires on remote sensors (flush mount or outdoor/duct) to ensure that they are not touching. If they are, separate them.

Thermostat displays very low temperature: Remote sensor (flush mount or outdoor/duct) is not connected to support module properly. Check wiring.

Thermostat doesn't display remote temperature/humidity: Make sure that the support module is set to address 1. Reset support module after changing any dipswitches by turning off power for 15 seconds.

Thermostat displays RH instead of °F or °F instead of RH : Make sure that monitor/control dip switches are set correctly. Reset support module after changing any dipswitches by turning off power for 15 seconds.

Specifications

Power Supply: 18 to 30 VAC or DC (24 V Nominal)
Maximum Relative Humidity: 90% (non-condensing)
Max. Cable Length Between Module and TSTAT: 1000ft
    The maximum cumulative distance between multiple support modules and the thermostat is 1000 ft.
Max. Cable Length Between Module and Remote Temp. Sensor: 300ft

<u>Temperature</u>
Accuracy:
        Comfort Range (60°F – 80°F): ± 1°F
        Control Range (40°F – 100°F): ± 2°F
        Operating Range (-40°F – 185°F): ± 3°F
Maximum Display Range: -40°F – 185°F

<u>Humidity</u>
Accuracy:
        Comfort Range (10% - 45%): ± 3%
        Control Range (10% - 90%): ± 5%
Maximum Displayed Range: 0% - 90%