

# Aprilaire

## Installation Instructions 8061 TT Support Module

### Application

The Aprilaire 8061 is designed to offer versatility in climate control. A set of onboard dipswitches 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 data is sent by digital communications back to an Aprilaire 8870 Communicating Thermostat, allowing you to accurately control and monitor temperature in a given area or multiple areas. The Aprilaire 8870 Communicating Thermostat can support up to four Support Modules (TT or TrH).

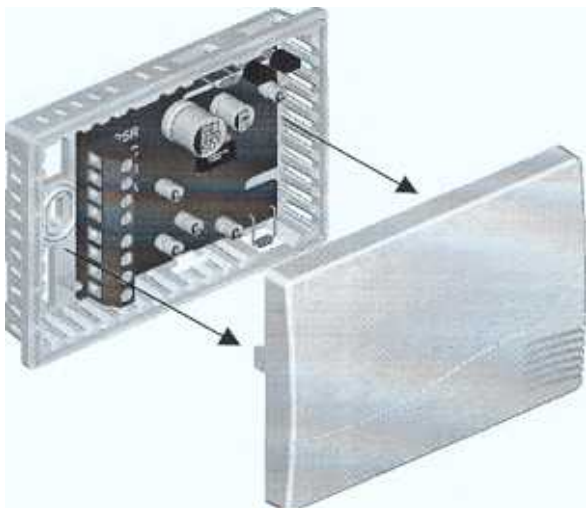
### Single Support Module Installation

Install the Aprilaire thermostat according to the instruction manual supplied with it. Check to ensure that thermostat is operating (display shows correct temperature).

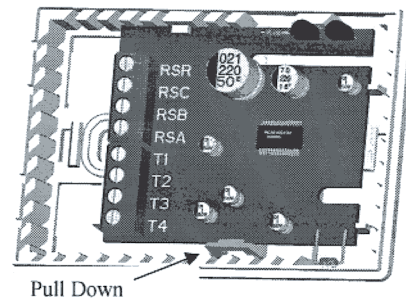
**CAUTION: Remove the thermostat from the subbase before wiring the support module to avoid damage from live wire.**

Choose the wall location where the TT 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).

Open the support module case by pulling the cover straight forward.



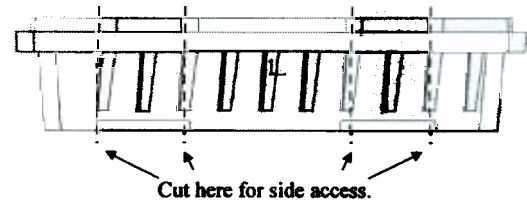
4. Remove the circuit board from the base by pulling back the latch that holds it at the bottom center.



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:



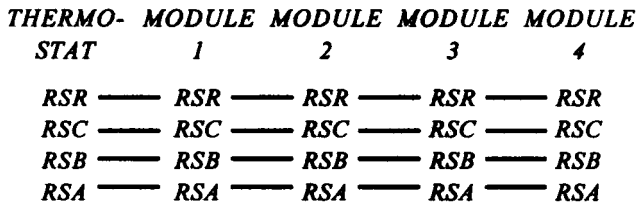
6. Snap the circuit board back into the subbase by sliding the top of the board in first and then snapping down on the bottom. Check to be sure that the latch holds the board properly.
7. Strip ¼ inch of insulation from the four wires at the support module. Install the wires in the terminals labeled 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 TT support module dipswitch 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.

## Multiple Support Module Installation

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

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

- Wired the first support module using the single support module instructions. Daisy chain the remaining support modules as shown below.

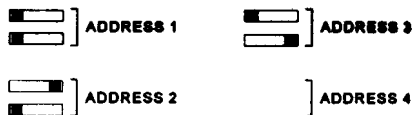


- Set the TT Support Module dipswitches.



### Dipswitches 1 & 2 - Address

The following diagram shows how to set the top two address dip switches. **EACH SUPPORT MODULE MUST HAVE ITS OWN ADDRESS, 1-4.**



### Dipswitch 3 - Temperature Sensor 1

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 the 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.

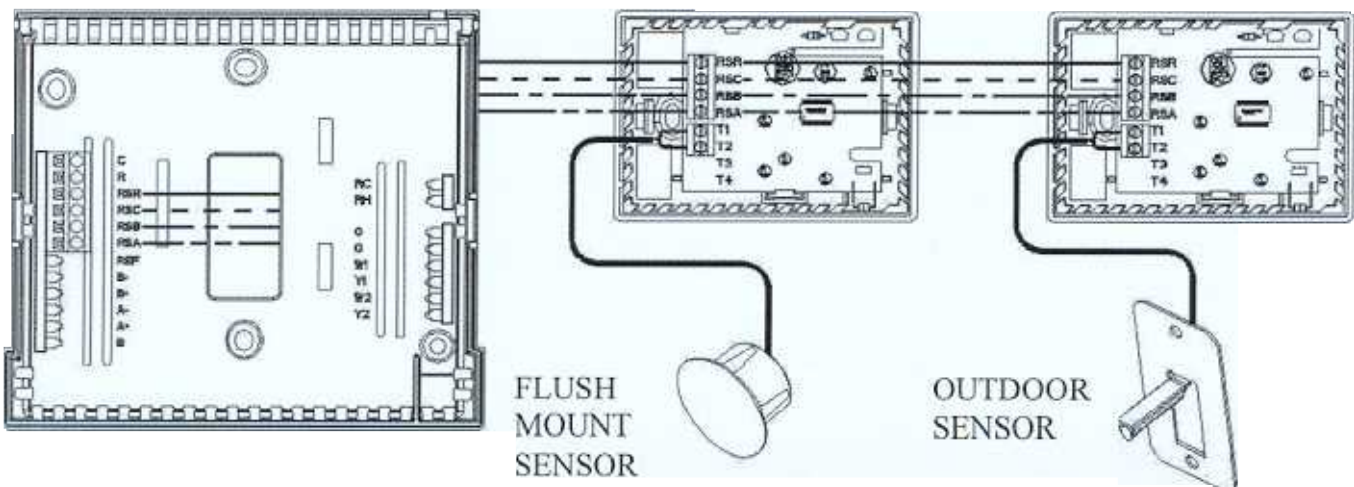
### Dipswitch 4 - Temperature Sensor 2

Determine whether you want the Sensor 2 input to monitor or control temperature. If dipswitch number 4 is in the "off" position, it will monitor the temperature.

If dipswitch 4 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 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 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 Sensor 2) values if dipswitch 6 is set to T1/T2 without wiring a sensor to the T1/T2 terminal.**



## Applications

### Heat Pump Applications

If the support module 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 support 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. If more than one support module is used, make sure that each one has a unique address.

**Thermostat displays very high temperature:** 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 (Sensor 1 or Sensor 2) 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 sensor properly. Check wiring.

**Thermostat doesn't display remote temperature:** 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.

## 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 Temperature Sensor:** 300ft

### Temperature

**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

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