Aprilaire®

## HVAC AUTOMATION CONTROL SYSTEM

The control system shall:

• Be available as a complete package with the required input sensors and devices readily available

• Be capable of providing complete control of HVAC functions

• Be browser based to allow communication with a PC for remote programming of system operating setpoints and control parameters for energy management

• Be capable of remotely accessing via Local Area Network (LAN), external modem (Field Supplied) connection or via the TCP/IP protocol (Internet, Intranet or Extranet)

• Control humidification and dehumidification with the use of a humidity sensor connected to the control system

• Be easily installed by using standard Heating Ventilation and Air Conditioning (HVAC) industry nomenclature and simple contact closure relays

• Be universally compatible with virtually all HVAC equipment with non-proprietary controls

• Provide for stand-alone operation of the HVAC equipment in the event of a system controller failure

• Be capable of incremental expansion by adding additional system controllers

• Use industry proven components and warranted for a minimum of 2 years

HVAC AUTOMATION

Model 8825
System Controller
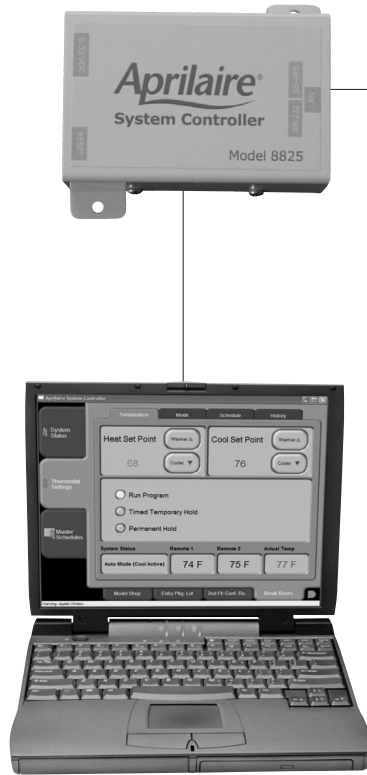
Temporary connection
LAN or Phone
TCP/IP protocol

Model 8818
Distribution Panel

SYSTEM CONTROLLER

The system controller shall:

- Control sixteen independent thermostats and be capable of being monitored and changed remotely over the Internet or by modem

- Provide energy management by limiting setpoint changes based on users' needs either globally or individually

- Have the following capabilities: independent heating, cooling and fan schedules for each thermostat. Include 3 weekly schedules with up to 4 events per day

- Include a configurator to allow for initial system setup

- Master schedules for schedules common to multiple thermostats

- Be browser based to allow access through a standard Web browser

- Be capable of programming fan operation on a timed schedule

- Include a system status main menu to allow the user to view the complete system at a glance

- Include temperature limits and override times to limit the amount of adjustments occupants can make at the thermostat

- Include a timed temporary hold feature that allows the user to determine how long temperature adjustments will be held

- Include a permanent hold feature that will overide the program or schedule of an individual thermostat

- Include an alert mode based on user slected high and low temperature range for each thermostat

- Include the ability to convert master schedules to individual schedules

- Have adjustable minimum and maximum heat and cool setpoints

- Be factory programmed with all standard/recognized holidays and be capable of having additional holidays scheduled into the program for setback purposes during unoccupied occasions

- Incorporate an auto recognition feature to lacte all thermostats and sensors on the system

- Be Model 8825, manufacturer, Aprilaire®

THERMOSTATS

The thermostat shall:

- Be one thermostat capable of heat/cool or heat pump, single or multi-stage operation

- Be capable of standalone operation, independent of the thermostat network

- Be capable of controlling space demand requirements by sensing space temperature and determining the heating or cooling demand with a control accuracy of 1 degree

CURRENT STATUS
Automatic Fan

68

68 ᴏ 71
HEAT

Aprilaire®

Model 8061
Optional Remote
Temperature Sensor

Model 8051
Optional Flush Mount
Temperature Sensor

HVAC Equipment
Split System

CURRENT STATUS
Automatic Fan

68

68 ᴏ 71
HEAT

Aprilaire®

CURRENT STATUS
Automatic Fan

68

68 ᴏ 71
HEAT

Aprilaire®

Model 8062
Optional Remote
Humidity Sensor

Model 8870
Aprilaire® Communicating
Thermostats

- Be capable of controlling temperature or relative humidity

- Be capable of password protection

- Be backlit with the option to disable back-lighting

- Have field adjustable differential control

- Have field offset capability

- Have the ability to be configured and addressed via a menu-driven interface

- Be capable of standalone operation, independent of the thermostat network

- Control dual-fuel heat pumps based upon outdoor high and low balance points

- Display setpoint(s) and room ambient simultaneously with option to hide setpoints

- Be one thermostat capable of heat/cool or heat pump, single or multi-stage operation

- Have a mode button for selecting heating, cooling or automatic changeover mode of operation

- Have a button to allow the system fan to operate in continuous or automatic mode

- Display multiple remote temperatures

- Be capable of connecting to a remote flush-mount temperature sensor in order to hide the thermostat from view

- Control space temperatures to maintain individual heating and cooling setpoints

- Be Model 8870, manufacturer, Aprilaire®

REMOTE SENSORS

The sensors shall:

- Have model available to monitor or control temperatures or humidity

- Include flush mount type able to be painted to match the wall surface. The device shall be no greater than 1.5 inches in diameter and require a 1" hole for mounting. It shall not protrude past 1/32"

- Be capable of either daisy chain wiring or star topography back to the thermostat

- Be addressable and be visible through software

- The control module shall be able to handle two sensors

- Have model available to monitor or control temperatures or humidity

- Be Model 8051 sensor with support module (Model 8061 or 8062), manufacturer, Aprilaire®

APRILAIRE COMMUNICATING THERMOSTAT COMPONENTS AND SPECIFICATIONS

SYSTEM CONTROLLER MODEL 8825
- Each system controller is preloaded with operating software to control up to 16 thermostats. Multiple controllers can be used to control systems with more than 16 thermostats
- Does not require a computer to be connected continuously for operation, but does require a PC as an interface console to set up and make changes in software
- Includes 12VDC,1200 mA power supply
- LAN connection (RJ45)
- External modem connection (RJ45)
- Connection cable for distribution panel (RJ45)

PC Requirements for System Controller:
- Any type of computer with JAVA enable web browser
- Network card or modem

COMMUNICATING THERMOSTAT MODEL 8870
Control Voltage:
24VAC ±20%
Switched Voltage:
18 to 30VAC
Maximum Operating Current:
2.0A total at rated voltage, through all outputs
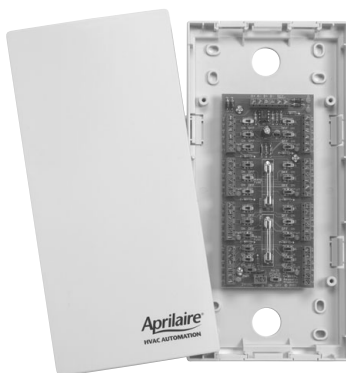1.0A through any one output
Maximum Surge Current: 2.0A
Control Accuracy: ±1.0°F
Temperature Control Range: 40° to 90°F
Humidity Control Range: 10% to 90%
Operating Range: 32° to 99°F
Dimensions: 5.01" H x 5.52" W x 1.15" D

DISTRIBUTION PANEL MODEL 8818
Electrical Ratings: Power Supply 24VAC, 60Hz Fuse protected LED indicators are provided for power and communications
Wiring:
Distribution Panel to Thermostats: CAT 5 Communication Wire
Construction:
The control panel enclosure is injection molded High Impact Polystyrene plastic
Dimensions:
10.5" H x 5" W x 1.75" D

Electrical Specifications
Power Supply Specifications:
24VAC 40VA floating ground (Aprilaire Model 8027)
Distribution Panel Specifications
1 24 VAC input
1 RS 422 serial output
8 thermostat inputs for serial input and voltage outputs

FLUSH MOUNT TEMPERATURE SENSOR
MODEL 8051 provides option to have virtually invisible appearance on the wall (paintable).

TT (Temperature / Temperature) SENSOR MODULE MODEL 8061 provides one built-in temperature sensor or supports up to two remote sensors.

TrH (Temperature / Humidity) SENSOR MODULE MODEL 8062 provides a built-in humidity sensor, but also supports an additional temperature sensor.

DUCT MOUNT OR OUTDOOR TEMPERATURE SENSOR MODEL 8052
used for temperature control or monitoring

MODEL 8062 TrH SENSOR MODULE HUMIDITY SPECIFICATIONS ONLY:
Maximum Relative Humidity:
90% (non-condensing)
Maximum Displayed Range: 0% to 90%
Accuracy:
Comfort Range (10% to 45%): ±3%
Control Range (10% to 90%): ±5%

SENSOR MODULES SPECIFICATIONS
Maximum Cable Length Between Module and Thermostat: 1000 ft.
Maximum Cable Length Between Module and Remote Temp. Sensor: 300 ft.
Temperature Accuracy:
Comfort Range (60°F to 80°F): ±1°F
Control Range (40°F to 100°F): ±2°F
Operating Range (-40°F to 185°F): ±3°F
Maximum Display Range: -40°F to 185°F