



ELECTRONIC THERMOSTATS C1011

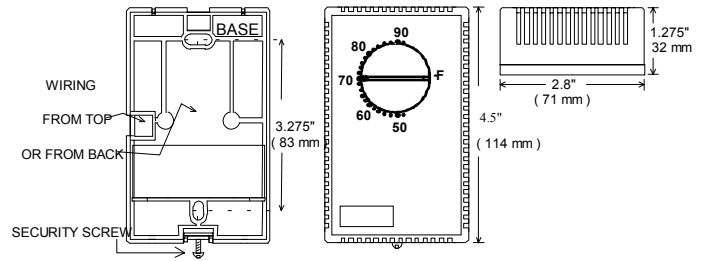


- One floating output
- Supply air temperature auto changeover input

DESCRIPTION

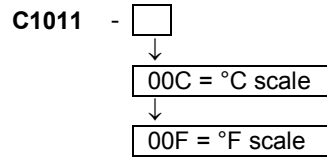
The C1011 series thermostats are microcomputer-based, proportional and integral (PI) devices with one floating (incremental) output. It can be used with most controlled devices in the HVAC industry that are compatible with this signal. Typical applications would be to control a floating VAV or valve actuator. The thermostats also contain a berg jumper for the actuator stroke time from full open to full close.

DIMENSIONS



Type of output	In cooling	In heating
Modulating floating	Modulating devices Floating damper actuator Floating valve actuator	Modulating devices Floating damper actuator Floating valve actuator

HOW TO ORDER



Notes:

- Order changeover sensor separately.
- Vertical mounting is standard.

SPECIFICATIONS

Operating Conditions:	0 °C to 50 °C (32 °F to 122 °F) 0% to 95% R.H. non-condensing
Sensor:	Local 47 K NTC thermistor
Resolution:	± 0.1 °C (± 0.2 °F)
Control accuracy:	± 0.2 °C (± 0.4 °F) (calibrated)
Ranges:	10 °C to 32 °C (50 °F to 90 °F)
Proportional band for room temperature control:	1.8°C (3.2°F)
Floating output:	Non isolated triacs: 30 Vac, ½ A max.
Power:	24 Vac -15%, +10% 50/60 Hz; 2 VA

MODULATING FLOATING OUTPUT

This output is designed to give true PI modulation out of floating actuator for VAV dampers and valves.

The thermostat is designed for operation with actuators that have a running time of 1.5 to 2.5 minutes for the full open / close stroke time.

The output is normally cooling but can be reversed to heating mode with 2 different methods:

- **Auto changeover to heating mode with a supply sensor.**
A remote supply sensor can be used for each thermostat.
Supply temperature > 78°F (26°C) = heating mode
Supply temperature < 75°F (24°C) = cooling mode
Hysteresis is 3°F (2°C)
- **Auto changeover to heating mode with a dry contact.**
A closed contact on the changeover input will change operation of the floating output to heating mode.
Open contact = cooling mode
Closed contact = heating mode

Characteristics of changeover sensor 47 KΩ

Temperature °F	Temperature °C	Sensor resistance
150.0 °F	65.6 °C	9.610 Kohm
140.0 °F	60.0 °C	11.700 Kohm
130.0 °F	54.4 °C	14.342 Kohm
120.0 °F	48.9 °C	17.682 Kohm
110.0 °F	43.3 °C	21.940 Kohm
100.0 °F	37.8 °C	27.412 Kohm
90.0 °F	32.2 °C	34.483 Kohm
80.0 °F	26.7 °C	43.704 Kohm
70.0 °F	21.1 °C	55.834 Kohm
60.0 °F	15.6 °C	71.866 Kohm
50.0 °F	10.0 °C	93.340 Kohm
40.0 °F	4.4 °C	122.298 Kohm

THERMOSTAT INSTALLATION _____

Important.

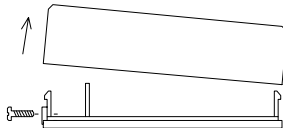
Electronic controllers require special care for wiring and startup. To avoid problems, carefully follow the procedures below.

Be sure to have all the literature on hand for all components installed: controller, actuators, relay, etc...

Look at the wiring diagrams, and study them carefully. Be sure that you understand how the system is supposed to work.

Make the wiring according to the wiring diagrams. Respect polarity for power terminals # 3 & # 4 between multiple controllers if the same transformer is used.

- Remove security screw on left side of thermostat cover.
- Open up by pulling on the bottom side of thermostat.



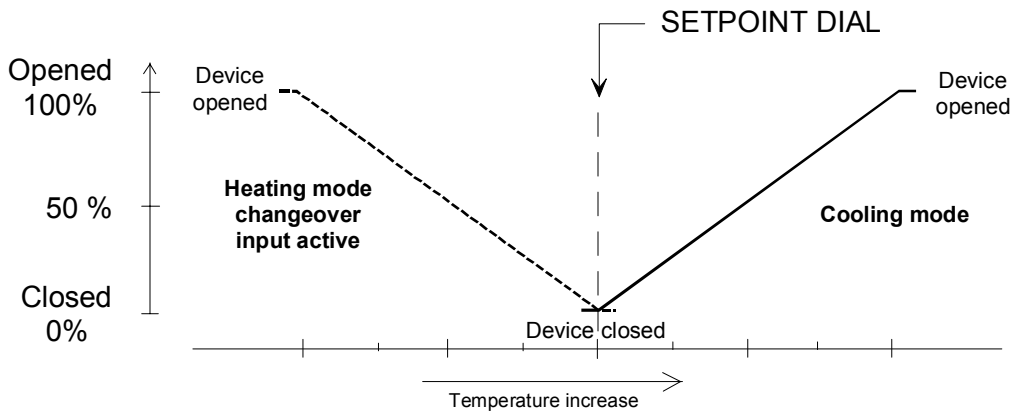
A) Location:

- 1- Shouldn't be installed on outside wall.
- 2- Must be installed away from any heat source.
- 3- Shouldn't be affected by direct sun radiation.
- 4- Nothing must restrain vertical air circulation to the thermostat.

B) Installation:

- 1- Pull out cables 6" out of the wall.
- 2- Wall surface must be flat and clean.
- 3- Separate the thermostat and the base by pulling the cover by the bottom (same as the security screw.)
- 4- Insert cable in the central hole of the base.
- 5- Align the base and mark the location of the two mounting holes on the wall. Install proper side of base up.
- 6- Install shields in the wall.
- 7- Insert screws in mounting holes on each side of the base. **DO NOT OVERTIGHTEN!**
- 8- Strip each wire 1/4 inch.
- 9- Insert each wire according to wiring diagram.
- 10- Reinstall the cover (top side first) and gently push back extra wire length in the hole in the wall.
- 11- Install security screw.

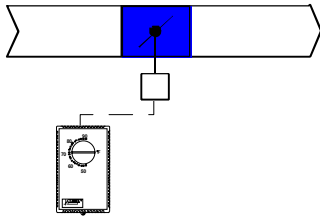
CONTROL CURVES AND SEQUENCE _____



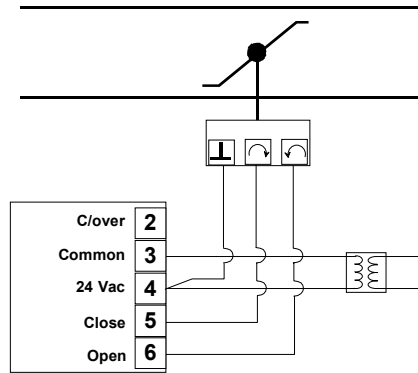
TYPICAL APPLICATIONS

Pressure Dependent VAV

Modulating Floating VAV Actuator

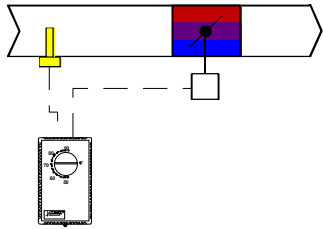


Room Temperature Control
Minimum & Maximum Position
Adjusted on the actuator

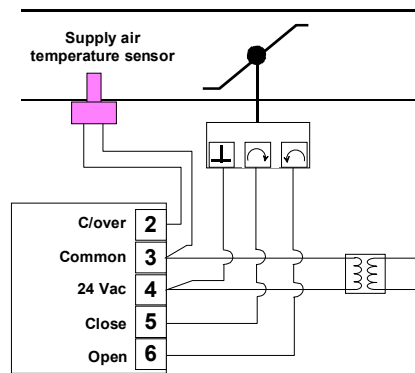


**Pressure Dependent VAV With:
Cool / Heat Auto Changeover Input**

Changeover Modulating Floating Sensor VAV Actuator

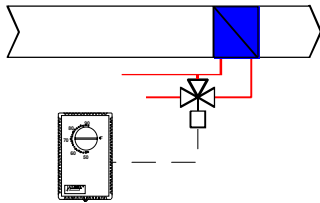


Room Temperature Control
Minimum & Maximum Position
Adjusted on the actuator

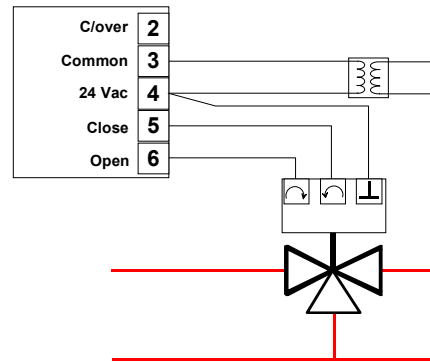


Valve Control With Room Thermostat (Cooling Only)

Modulating Floating Valve Cooling

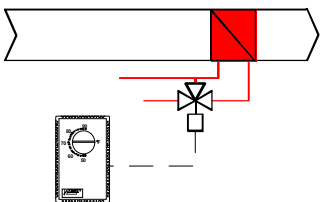


Room Temperature
Control Thermostat

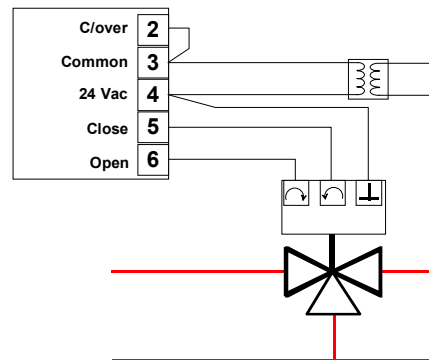


Valve Control With Room Thermostat (Heating Only)

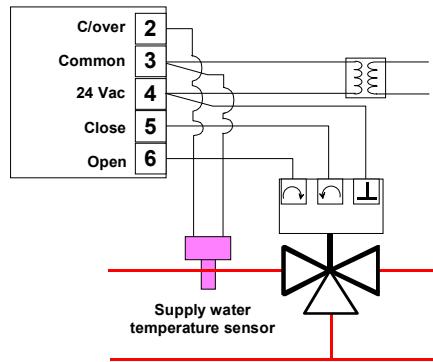
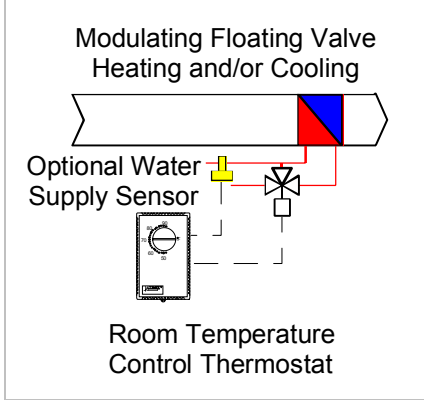
Modulating Floating Valve Heating



Room Temperature
Control Thermostat

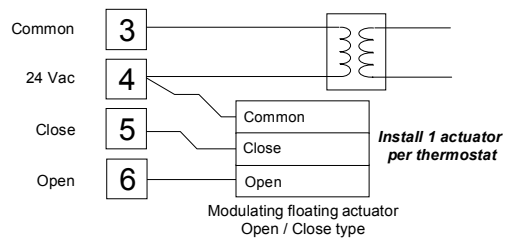


Valve Control With Room Thermostat With: Cool / Heat Auto Changeover Input



24 VAC POWER AND FLOATING ACTUATOR TYPICAL WIRING

- Power Supply 24 Vac -15% +10% 50/60 HZ 2 VA
- If operation of the actuator is reversed, flip the reversing switch on the actuator or reverse wires #5 & #6.
- Note: terminals 2 and 3 can be wired together between each thermostat if polarity is respected
- Important: if using a common transformer, respect polarity (Common and 24 Vac between thermostats and actuator)

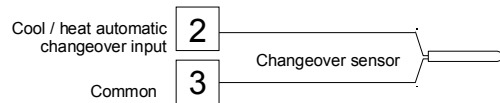


CHANGEOVER INPUT TYPICAL WIRING

1 SUPPLY CHANGEOVER SENSOR PER THERMOSTAT (1 SUPPLY SENSOR PER THERMOSTAT)

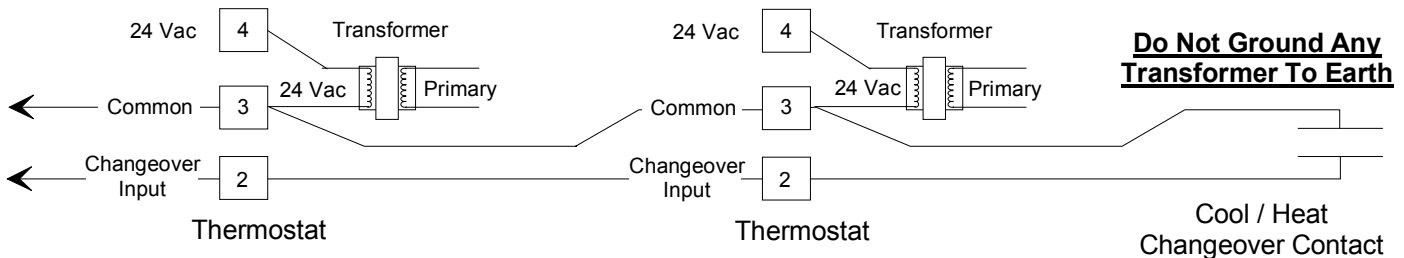
Auto changeover input using an S60, S70 duct supply sensor or S90 immersion supply sensor

- Supply temperature > 78°F (26°C) = Heating mode
- Supply temperature < 75°F (24°C) = Cooling mode
- Hysterisys is 3°F (2°C) between heating and cooling



MULTIPLE TRANSFORMERS (1 DRY CONTACT FOR ALL THERMOSTATS)

Open contact = Cooling mode. Closed contact = Heating mode



SINGLE TRANSFORMER (1 DRY CONTACT FOR ALL THERMOSTATS)

Open contact = Cooling mode. Closed contact = Heating mode

