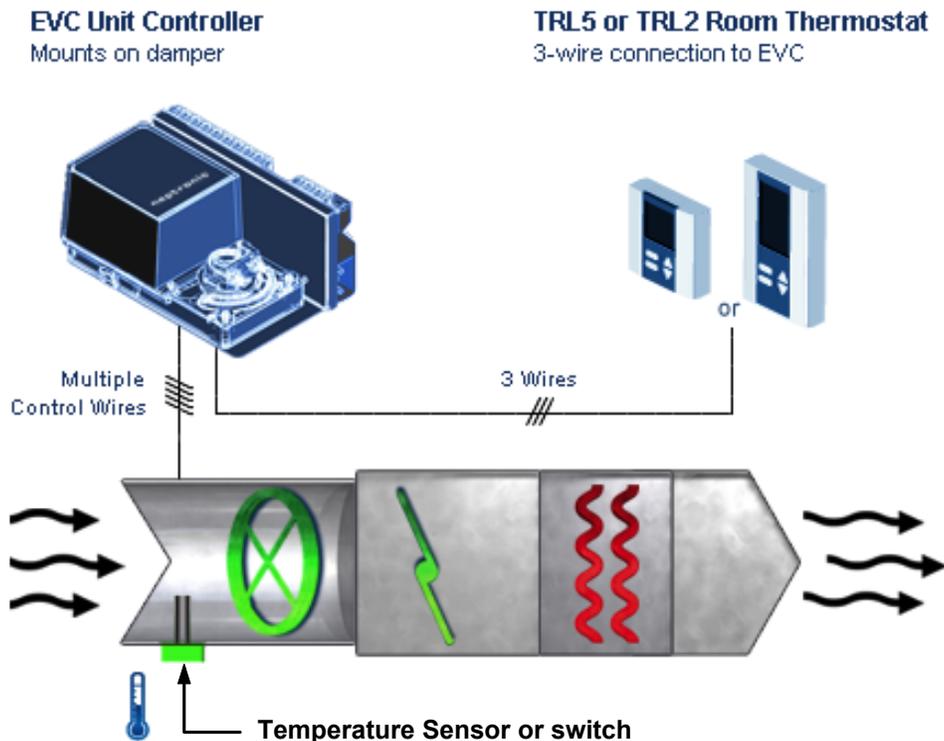




Sensor Vs. Switch Changeovers on the EVCB Series Controllers

When selecting a VAV box controller, it's important to know whether the central system operates in one mode (cooling or heating) or two modes (cooling & heating). With one-mode central systems, VAV controllers are set directly in the system's mode, but with two-mode central systems, VAV controllers need to know if the air is cool or hot. In order for the controller to know the difference, a changeover temperature sensor or switch is required.

Even though there is a difference between the sensor and the switch, the location is the same. It must be located before the VAV box (see illustration below).



Changeover Temperature Sensor

The Nepronic changeover temperature sensor [STC8-11](#) speaks for itself. It's a 10kΩ type 3 or G duct thermistor that senses the temperature of the air in the central system.

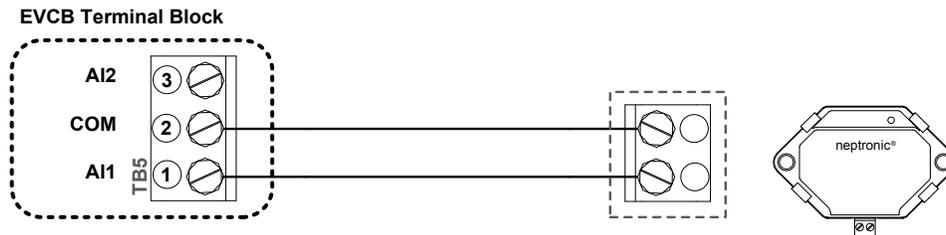
Advantages

- the setpoint is adjustable
- the wiring is very simple (no polarity, no power).

Disadvantage

- one sensor is required for each VAV box.

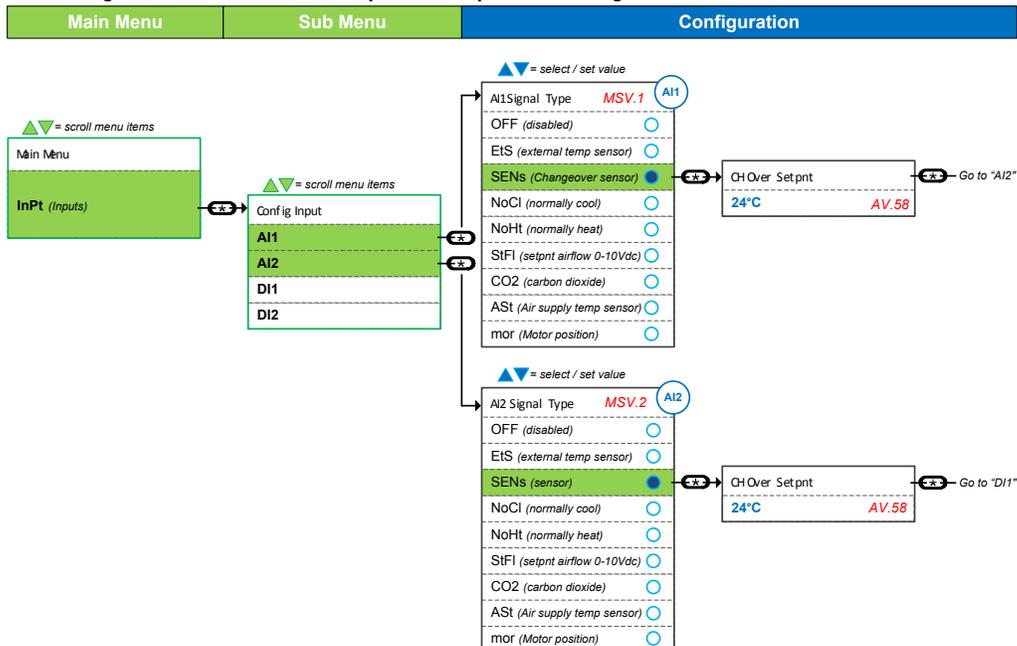
On the VAV controller there are two analog inputs that can be used; AI1 or AI2. The illustrations below show an example of the wiring and configuration steps of setting up a changeover temperature sensor.



Note that in the wiring diagram above, AI1 is used as an example but the wiring also applies if AI2 is used.

*** You must press the **⏏** button to save any changes ***

*** Pressing the **⏏** button returns to the previous step without saving ***



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Changeover Switch

The changeover switch is a SPDT (Single Pole, Double Throw) relay. The Neptronic [SCC80](#) is a thermistor with a fixed setpoint, which sends a digital signal to the controller. This means that there are no setpoints to adjust but requires a little more thought when doing the installation.

Advantages:

- the signal can be sent to several VAV boxes as long as the wiring distance does not exceed 300 feet.

Disadvantages:

- requires a power supply in order to operate, which means more wires

The changeover switch may be used with the VAV controller's analog inputs (AI1 or AI2) or digital input #2 (DI2).

SCC80 temperature and states

Temperature	N.C. (Normally Closed)	N.O. (Normally Opened)
Less than 23°C (73.4°F)	Opened	Closed
Greater than 26°C (78.8°F)	Closed	Opened
Between 23°C (73.4°F) - 26°C (78.8°F)	No state of change	

EVCB binary value input and states

EVCB Changeover Contact	Changeover Contact Status	Changeover Status (BV.5)
Normally Cool	Open Close	Cooling Heating
Normally Heat	Open Close	Heating Cooling

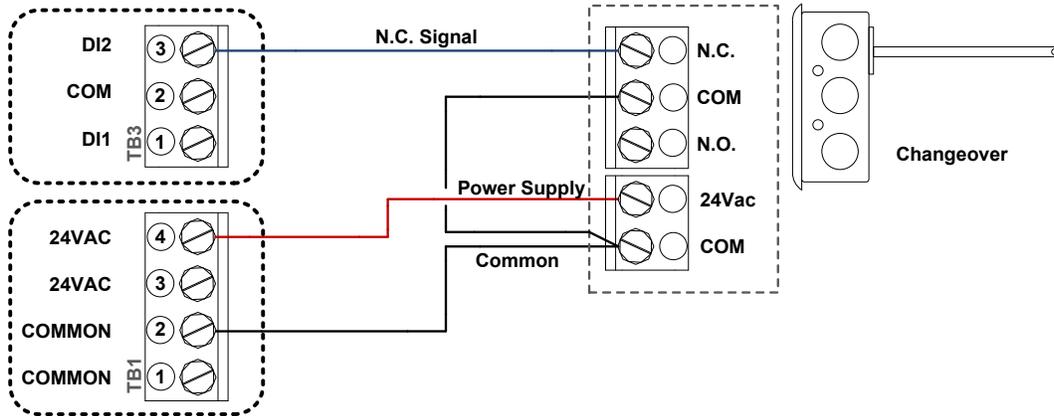
Note that Binary Values have no effect when selecting Normally Cool or Normally Heat.

When using the SCC80's Normally Closed contact, the EVCB controller should be configured as Normally Cool. Inversely, the Normally Opened contact of the SCC80 should be used with the Normally Heat of the EVCB.

The EVCB series controller can accept grounded or 24Vac binary signals.

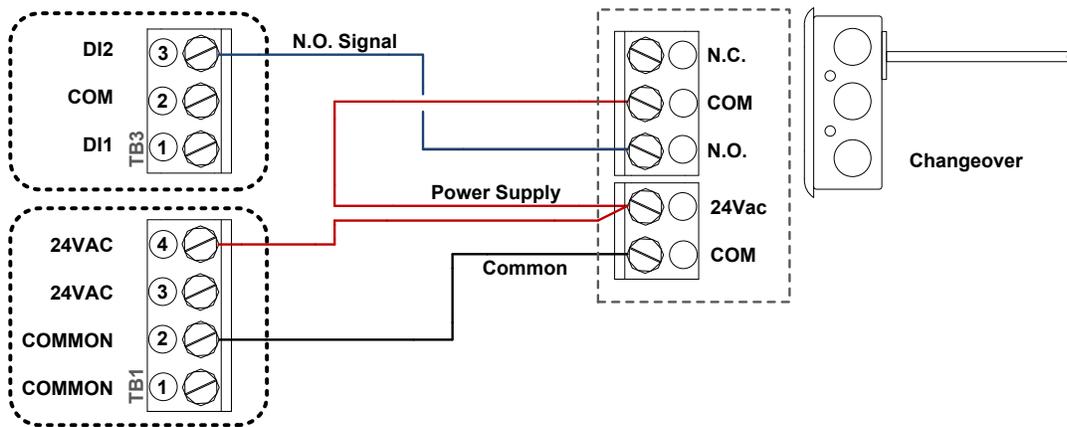
EVCB Terminal Block

Grounded signal setup as a Normally Cool contact.



EVCB Terminal Block

24Vac signal setup as a Normally Heat contact.

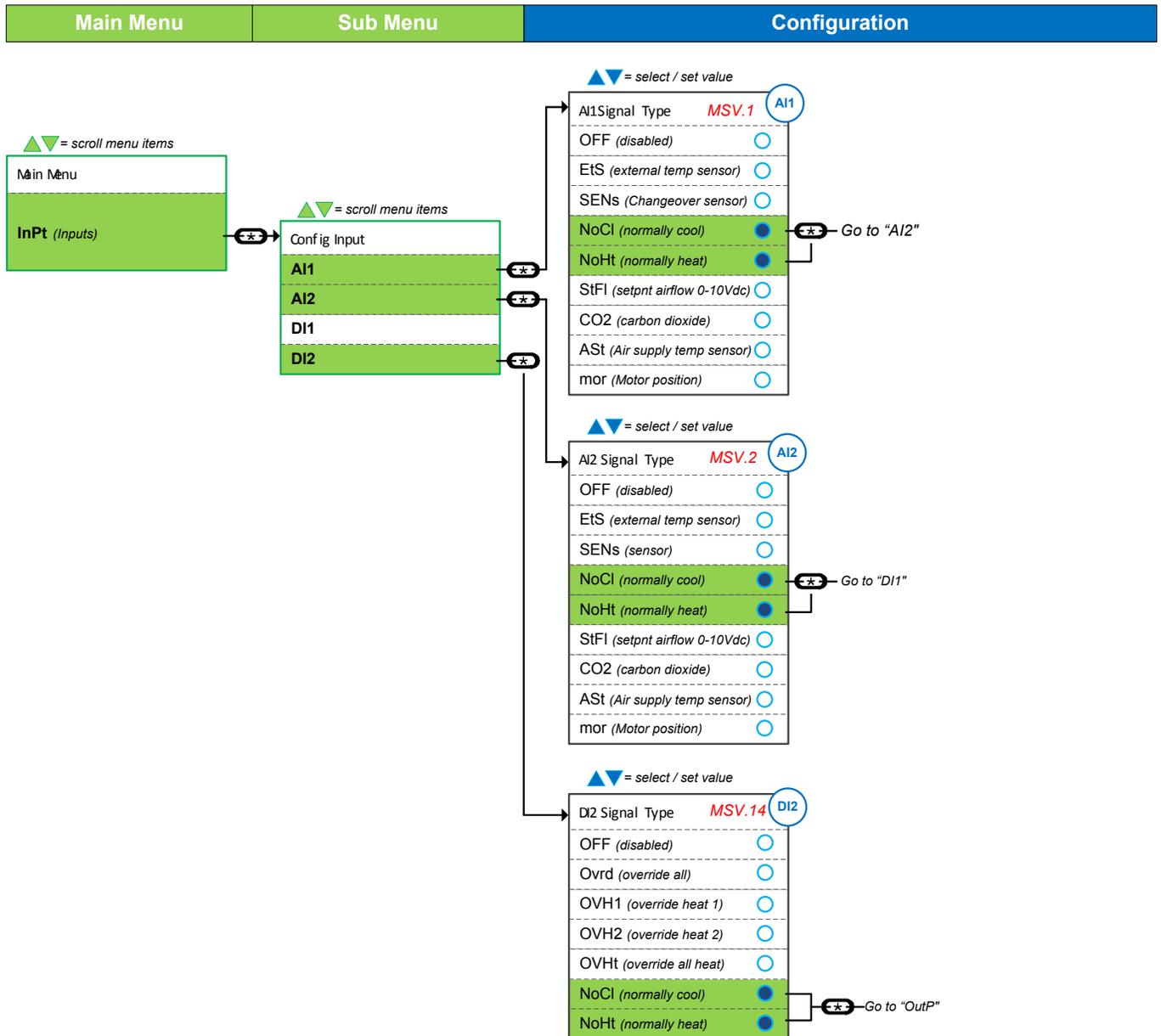


Note that in the examples above, DI2 is used but the same wiring applies to AI1 or AI2.

These are the configuration steps for the changeover switch.

*** You must press the **⏏** button to save any changes ***

*** Pressing the **⏪** button returns to the previous step without saving ***



To learn more about the changeovers on the EVCB series controllers, visit our [website](http://www.neptronic.com).

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