

Advanced Ventilation Controller (TC-AVC) Installation Instructions

WARNING - THIS IS A HIGH VOLTAGE PRODUCT ONLY (110/220V AC)

- DO NOT CONNECT TO LOW VOLTAGE DEVICES - ALL RELAYS OUTPUT 110/220V AC
- CONNECTING LOW VOLTAGE DEVICES/RELAYS WILL DAMAGE THE EQUIPMENT

GENERAL OVERVIEW:

This is an overview to fundamentally understand this product. It cannot be stressed enough that this is purely a high voltage AC controller; there are no low voltage contacts. **Do Not Connect Low Voltage Relays or Contact Closures.** Another important note is that while there are Low, Medium, High indicators, this is **Not a Speed Controller** - no matter the relays used, the fan will operate at a single speed. The intention is that additional fans can be used to increase airflow or a separate speed controller may be available in the future that utilizes the additional relays.

The unit functions using 5 relays: three of the relays are assigned to different fan modes and 2 are associated to alarm functions. Each relay's output is identical (110/220V AC) so how the relays are configured can vary which is discussed later in the 'Advanced Applications' section. The alarm relays work in conjunction with a separate user defined set point and are for use with high voltage devices only (audible alarms, strobes).

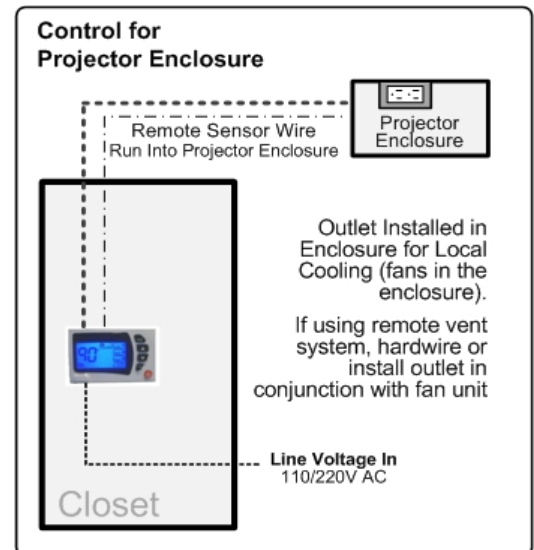
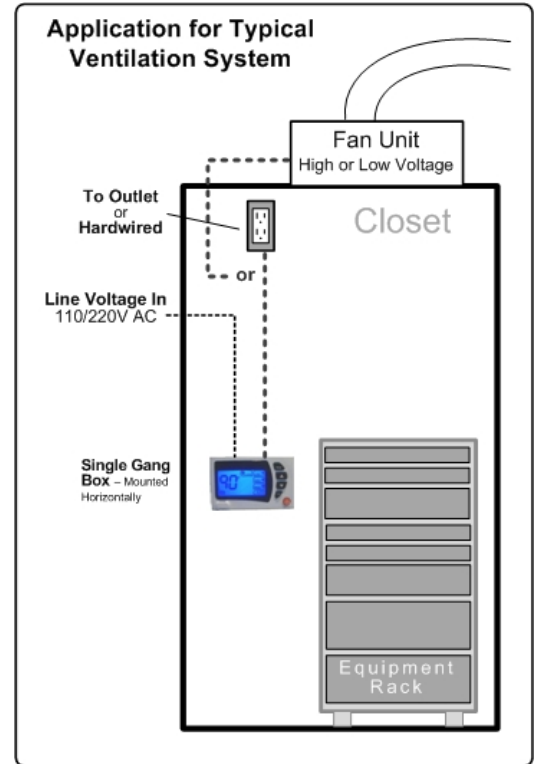
The functionality of each relay is as follows: Relay 1 'triggers' in relation to the primary user defined setpoint. Relay 2 triggers approximately 6°F above the primary setpoint, and Relay 3 triggers approximately 15° above the primary setpoint. Relay 4/Alarm 1, is triggered in relation to the alarm setpoint (also user defined), and Relay 5/Alarm 2, is triggered 10°F above the alarm setpoint.

Standard Application: For normal use and the most common application, a high or low voltage fan will be connected to the primary (#1) relay and other relays will not be used. Low voltage fans are connected by installing an outlet that is fed through and automated by the controller.

Advanced Applications: The relays can be used to trigger different banks of fans. One scenario is that one set of fans can be connected to relay 1 and trigger at the primary setpoint. Additional fans can be connected to relays 2 and 3 to turn on as the system temperature increases and the additional points are reached in the controller (the settings for relays 2, 3, & 5 (Alarm 2), cannot be changed; they are relative to the user defined setpoints. This configuration will provide additional cooling as the system temperature increases and can be used to aid efficiency by only running fans when necessary.

The alarm relays can be used for separate high voltage alarms or for additional fan units. This will provide a second user defined setpoint and the potential for 5 banks of fans and/or different degrees of alarms.

With being high voltage relays, one or more relays can be used for any purpose as long it corresponds to a high voltage device or connection. It is limiting to only consider them appropriate for Fans and Alarms but it cannot be stressed enough that they cannot be used for contact closures or any device that is not rated for the specified voltage – either 110/220V AC.



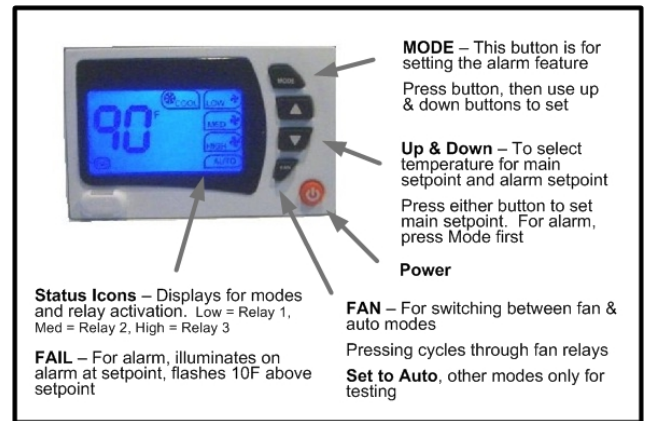
BUTTONS

MODE – The mode button is used for programming the alarm feature.

FAN – The fan button is used to determine Auto versus Manual Modes. Manual modes are for testing the unit as the unit should always be in Auto mode for normal operation. When pressing the fan button, the unit moves between the different relays and cycles to Auto mode. The corresponding icons will illuminate and trigger the appropriate relays (detailed below).

Low = Relay 1
Med = Relay 2
High = Relay 3

Auto = Normal operating mode
Fail = Alarm 1
Fail (Flashing) = Alarm 2



When cycling through the Fan modes, all relays will turn on (High, Med, Low) which indicates that all relays are activated. When pressed again, the relays will be turned on and off. Note: The 'Low' relay may not go off if the unit's setpoint is lower than the ambient temperature.

LOCATING THE UNIT

Ensure to locate this controller where it will not be confused with HVAC thermostats. The ideal location will be inside electronic closets or of course the rack versions will be mounted on the front or back of the rack. If using the built-in temperature sensor, ensure it is in a position where AC or Heat is not being blown onto the unit and avoid sunlight and areas in general where temperature may not be accurate.

For wall/closet applications, the unit should be installed in a single gang electrical box turned sideways.

CONNECTING THE UNIT

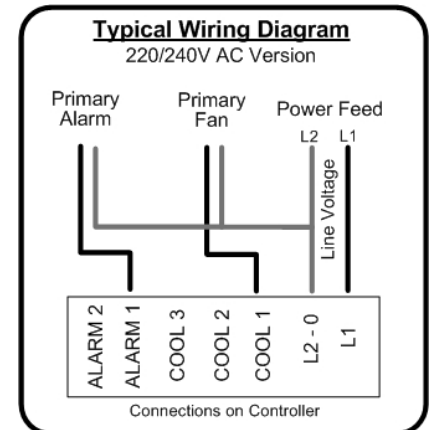
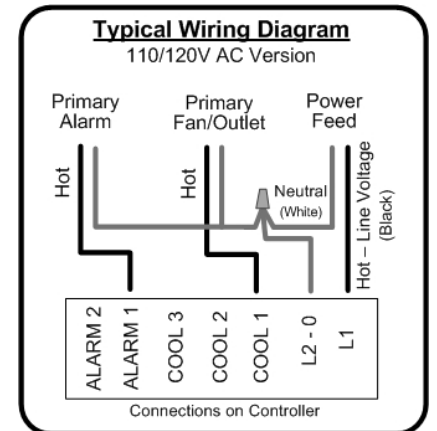
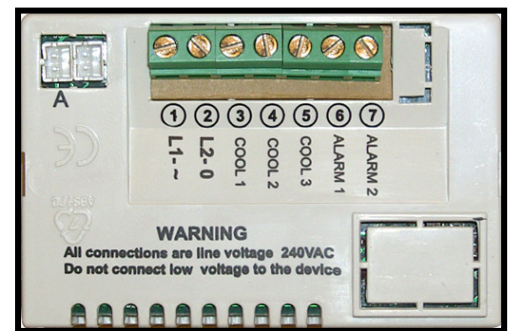
Note: This unit should only be connected by a qualified and licensed electrician. This is a high voltage device; mis-wiring will cause serious injury and/or damage the unit. Check and follow all local and applicable building codes.

Wiring Incoming Power: 110/120V: Connect the Line Voltage to L1 & L2 – typically black (hot) wire to L1 and white (neutral) wire to L2-0. The unit does not require a ground. 220/240V: Connect power feeds to L1 & L2.

Wiring Fan: 110/120V: If only one fan is being powered, connect the hot lead to COOL 1 (location 3) and connect the neutral to L2. You will have to connect all neutral wires together and then supply a single lead to L2.

If connecting more than one fan that will be triggered separately, connect the hot wire for each fan to the corresponding and desired relays. Cool 2 = Relay 2 = The second point where a fan will turn on (approx 6°F above the setpoint). Cool 3 = Relay 3 = the 3rd point where the fan will turn on/off (approx 15°F above the primary setpoint).

Alarm Wiring: High Voltage Alarms can be wired to the unit but **ONLY HIGH VOLTAGE, DO NOT CONNECT TO LOW VOLTAGE CONTACT CLOSURES OR OTHER DEVICES!!!** This may include alarms, buzzers, strobes, etc.



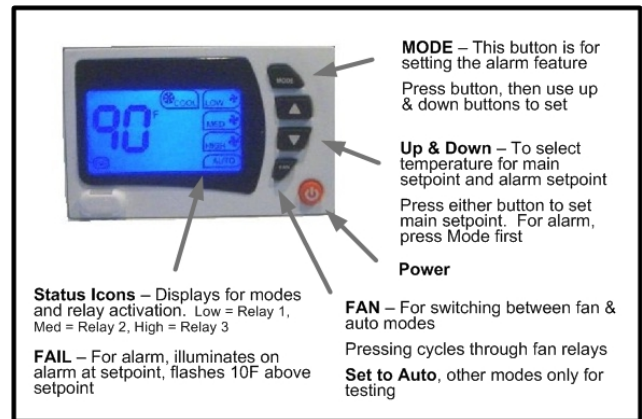
Connect the primary alarm to Alarm 1 and the secondary or critical alarm that will be activated approx 10°F above the Alarm setpoint, to ALARM 2. Again, all neutral wires will be connected together and run to L2.

Notes: A high voltage relay can also be used to then trigger a low voltage device (must be purchased and configured separately). Support is not available for such configurations.

External Sensor: An optional external sensor is available and plugs into the connector in the upper left corner on the back of the unit, designated on the controller as 'A'. If the external sensor is not connected, the internal sensor is utilized by default. Connect the sensor prior to powering up the unit and the unit will automatically recognize it. If wanting to add the sensor after powering the unit, simply remove power, add sensor, and re-power the unit. The sensor can be extended if necessary by using 22ga, 2 conductor wire (22/2) but follow typical low voltage wiring practices. Typically the external sensor would only be used for remote installations such as projector enclosures or where the temperature monitoring and controlling is separate from where the controller is positioned.

CONFIGURING & PROGRAMMING THE UNIT

Primary Setpoint: The primary setpoint is programmed by simply pressing the up or down buttons. Simply press one of the buttons and the unit will enter programming mode represented by the flashing display. Select the desired setpoint and the unit will automatically exit programming mode after 3 seconds. Once set, the first relay will turn on when that setpoint is reached. The fan will then turn off at 2°F below the setpoint which prevents the unit from frequently cycling on and off.



Alarm Programming: The alarm setpoint is determined by simply pressing the Mode button. When pressed, the unit goes into programming mode. Simply select the alarm setting by pressing the Up or Down buttons. The unit will exit programming mode after 5 seconds if no buttons are pressed.

At this point the unit is programmed and ready for use.

Note: If using additional fans, Fan 2 & 3 are turned on at set points relative to the primary setpoint and cannot be adjusted independently. If a critical alarm is being connected utilizing Alarm 2, that is also a point relative to the alarm setpoint as described above.

Display: To change between Celsius and Fahrenheit, simply press and hold the power button for approximately 10 seconds.

Unit Not Working?

Do not Return Damaged or Defective Products to Point of Purchase. If the unit arrived non-functional or damaged, we will resolve the issue quickly and hassle-free. Contact us on the web at www.coolcomponents.com/warranty

Warranty Information

This unit is guaranteed to be free of defects for a period of one year from the date of purchase. This warranty excludes damage caused by misuse or for applications other than the intended use of the products.

Feedback

We truly value feedback on this and all of our products. We strive to provide the best products possible so it is important that we learn from our customers. If you have any ideas or suggestions that could improve this or any of our other products, please let us know. Thank you in advance for sharing your experience. Please send feedback to feedback@coolcomponents.com