

### Description

Variable Speed Drive of Blower or Propeller fans can provide the optimum temperature, volume, or pressure as may be required by an application. The 710-VDC Fan Speed Control accepts a 2-10 Vdc input signal to control the speed of a PSC or shaded pole motor. When the input signal is less than 2 Vdc the motor is off. At approximately 2.5 Vdc the 710-VDC Control will turn the fan motor on at high speed for about one second creating a "TORQUE START" to overcome the torque requirements of starting the blower wheel, and then slow the motor to minimum speed. As the input signal increases above 2.5 VDC the fan motor will increase speed proportionally. When the input signal reaches approximately 10.0 Vdc the fan motor will run at full speed. The fan motor will begin to modulate again when the input signal drops from 10.0 Vdc to approximately 9.4 Vdc. As the input signal continues to decline the fan motor will continue to slow down. When the input signal reaches 2.0 Vdc the fan motor will turn off.

A screw driver adjust Minimum speed pot is provided to adjust the fan motor's speed just prior to the motor turning off. Turning the "MIN SPD" pot fully counter clockwise sets the motor speed to approximately 100 RPM on a typical 1075 RPM motor. Turning the "MIN SPD" pot fully clockwise sets the motor speed to approximately 800 RPM.

The 710-VDC also includes a continuous flow switch. When switched "ON" the "CONT FLOW" switch will operate the fan motor at the selected minimum speed, set by the "MIN SPD" pot, without needing a 2-10 Vdc input signal. The "CONT FLOW" function can be used to select a continuous fan motor minimum speed whenever the input signal is below 2 Vdc. When the input signal rises above 2.5 Vdc, the 710-VDC will respond to the input signal's voltage level. When the input signal again drops below 2.0 Vdc the fan motor will continue to operate at the set minimum speed. The "CONT FLOW" function can also be used when setting up the 710-VDC Control's operation by turning the "CONT FLOW" switch "ON" and turning the "MIN SPD" pot to the desired minimum speed for the fan motor. No input signal is required when using this method to set the minimum fan motor speed.

The 710-VDC Controller requires an external 24VAC power supply. This 24 VAC power is typically supplied by a dedicated 24 VAC to line voltage transformer. **THIS 24 VAC SOURCE MUST BE IN PHASE WITH THE LINE VOLTAGE BEING SUPPLIED TO THE FAN MOTOR. THE 24 VAC TRANSFORMER'S PRIMARY WIRES MUST BE CONNECTED TO THE SAME CONTACTOR TERMINALS THAT THE FAN MOTOR'S WIRES ARE CONNECTED TO.**

The 710-VDC Fan Speed Controller is only available for use with 115V and 208-230V applications.



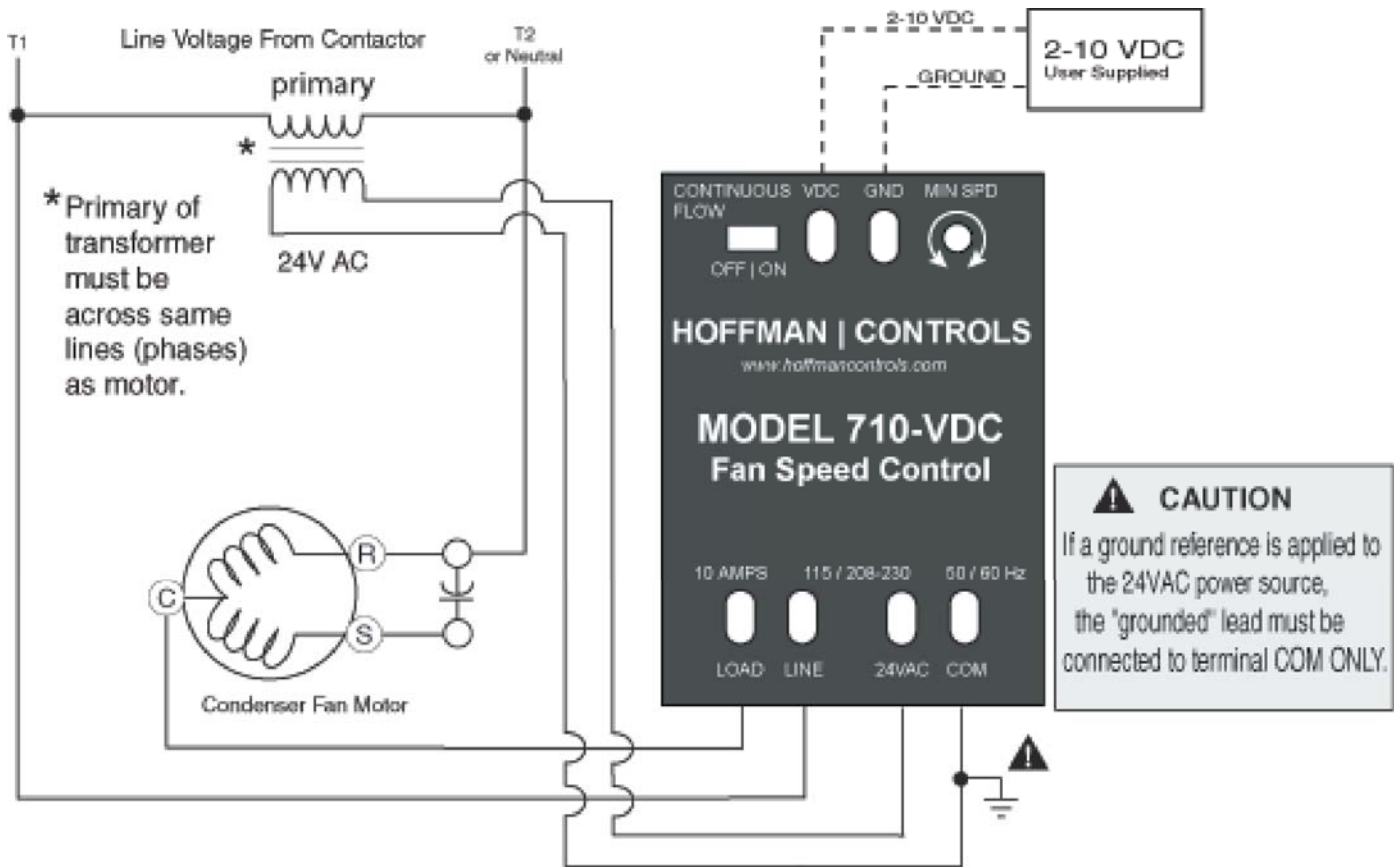
710-VDC  
Fan Speed Control

### Application

The 710-VDC can control the flow of conditioned air or fluids to maintain temperature, pressure or flow rate. The temperature, pressure or flow rate are controlled by providing a proportional 2-10 Vdc output signal from a building automation system. The building automation system would handle the thermostat, pressure or flow inputs as well as the PID function if necessary. The 710-VDC controller will only accept a 2-10 Vdc input.

### Features and Benefits

- Applicable for controlling direct drive shaded pole or permanent split capacitor motors.
- Supplies up to 10 amps to the fan motor without having to derate the control.
- Multi-voltage applications (115/208-230).
- Accepts a proportional 2-10 Vdc input signal.
- Minimum speed adjustment.
- Full voltage "TORQUE START" ensures proper fan start up and rotation.
- Continuous minimum speed flow option.
- 50/60 Hz operation.
- Simple field installation.



**710-VDC Wiring Diagram**  
Figure 1

## Specifications

Input Voltage	710-VDC (24V AC)	22 - 30 VAC
Power		1.0 VA
Frequency		50/60 Hz
Line Voltage (+/- 10%)		115, 208-230 VAC
Current (No Derating)	710-VDC	10 Amps
Input Signals		
DC Volts		2-10V DC
Load Impedance		10,000 Ohms Min.
Adjustments		
(On a typical 1075 PSC blower motor)		
MIN SPEED range		100-800 RPM
Operating Ambient		-30°F to +160°F
Humidity		95%, Non-condensing
Dimensions (L x W x H)		5.56"x3.32"x1.25"

**Optional**  
Weatherproof Kit (NEMA 3R) Part Number 545-0202-007

## Hoffman|Controls