

Hoffman|Controls

Installation & Operating Instructions

710-VDC

Electronic Fan Speed Controllers



General

CAUTION



Failure to read and understand the accompanying instructions and diagrams or failure to complete the "Checkout Procedure" prior to energizing the Control may result in permanent damage to the Control.

The 710-VDC Electronic Fan Speed Controller is a "General Purpose" fan speed controller for typical single phase, open frame, direct drive, permanently split capacitor or shaded pole motors. Motors are to be selected or designed for continuous variable speed drive applications.

The 710-VDC has a "CONTINUOUS FLOW" switch that allows the fan motor to run at the selected minimum speed between calls for the fan motor to be activated. The "CONTINUOUS FLOW" switch may also be used to set the minimum motor speed just prior to motor cutoff without using an input signal. (See below).

Pre-Installation Information/Instructions

- When shipped from the factory the 710 VDC Control has received the following standard calibration.
 - The minimum motor speed setting ("MIN SPD") is adjusted to approximately 400 RPM for a typical 1075 rpm sleeve bearing motor.
 - The 710 VDC Control's "CONTINUOUS FLOW" switch is set to the "OFF" position.
- Line Voltage Range: 115V AC and 208-230V AC.
- Wiring must comply with Local and National Electrical Codes.
- One Controller may control more than one motor.
 - Max. running amps under all conditions not to exceed 10 Amps.
 - Locked Rotor Amps (LRA) not to exceed 30 Amps for 1 second.
- Do not mount the Controller in an airtight cabinet/compartment or on/near a heat generating surface.
- Application Limitation:** Speed regulation and performance characteristics will vary with motor design and motor ventilating capability. Motors used should be designed for continuous variable speed operation and should be evaluated for suitability and acceptability. TEC (totally enclosed types) are not recommended or not generally suitable.

Installation

WARNING



Disconnect power from the unit and electrically disable the compressor prior to installation.

Insure that all power sources have been disconnected.

If mounted outdoors, install the controller in a weatherproof control panel or use HCC's **NEMA 3R Weatherproof Kit (Part Number 545-0202-007)**. **Note:** Controller must be protected from moisture and condensation.

Secure the controller via the heat sink mounting tabs.

Transformer Phasing (See Figure 1)

NOTE: The model 710-VDC Electronic Fan Speed Control requires an external 24 VAC source. 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.

Motor Line Voltage Wiring (See Figure 1)

NOTE: The 710-VDC Control is wired in series with the fan motor.

Disconnect the fan motor's common wire from the contactor's unpowered "T1" terminal (See Figure 1).

Connect the fan motor's common wire to the 710-VDC Control's "LOAD" terminal.

Connect a wire from the contactor's unpowered "T1" terminal to the 710-VDC Control's "LINE" terminal.

Verify the wire from the contactor's unpowered "T2" or Neutral terminal to the fan motor's run wire and run capacitor is still present.

24 Volt Wiring (See Figure 1)

IMPORTANT: Verify the primary side of the 24 VAC transformer is wired to the same T1 & T2 or Neutral contactor terminals that the fan motor wires go to (See Transformer Phasing above & Figure 1).

Connect the 24 VAC transformer's secondary leads to the 710-VDC Control's "24 VDC" and adjacent "COM" terminals. The "COM" terminal allows for a grounded secondary of the 24 volt transformer, if required. *Do not share this AC GND with DC signal sources, use a separate wire connection for dc signal ground.*

2-10 Vdc Control Signal (See Figure 1)

The 710-VDC Control accepts industry standard 2-10 Vdc input signal. Connect the 2-10 Vdc input signal and its GND reference


to the 710 Vdc Control's "VDC" and "GND" terminals..

Checkout Procedure

Step 1

With power disconnected and the control wired:

1. Measure the ohms across the unpowered contactor's "T2" terminal and the control's "LOAD" terminal using an ohm meter.
2. If you read 1 ohm or less for a 115 VAC operating voltage, or 5 ohms or less for a 208/230 VAC operating voltage, the controller is improperly wired.

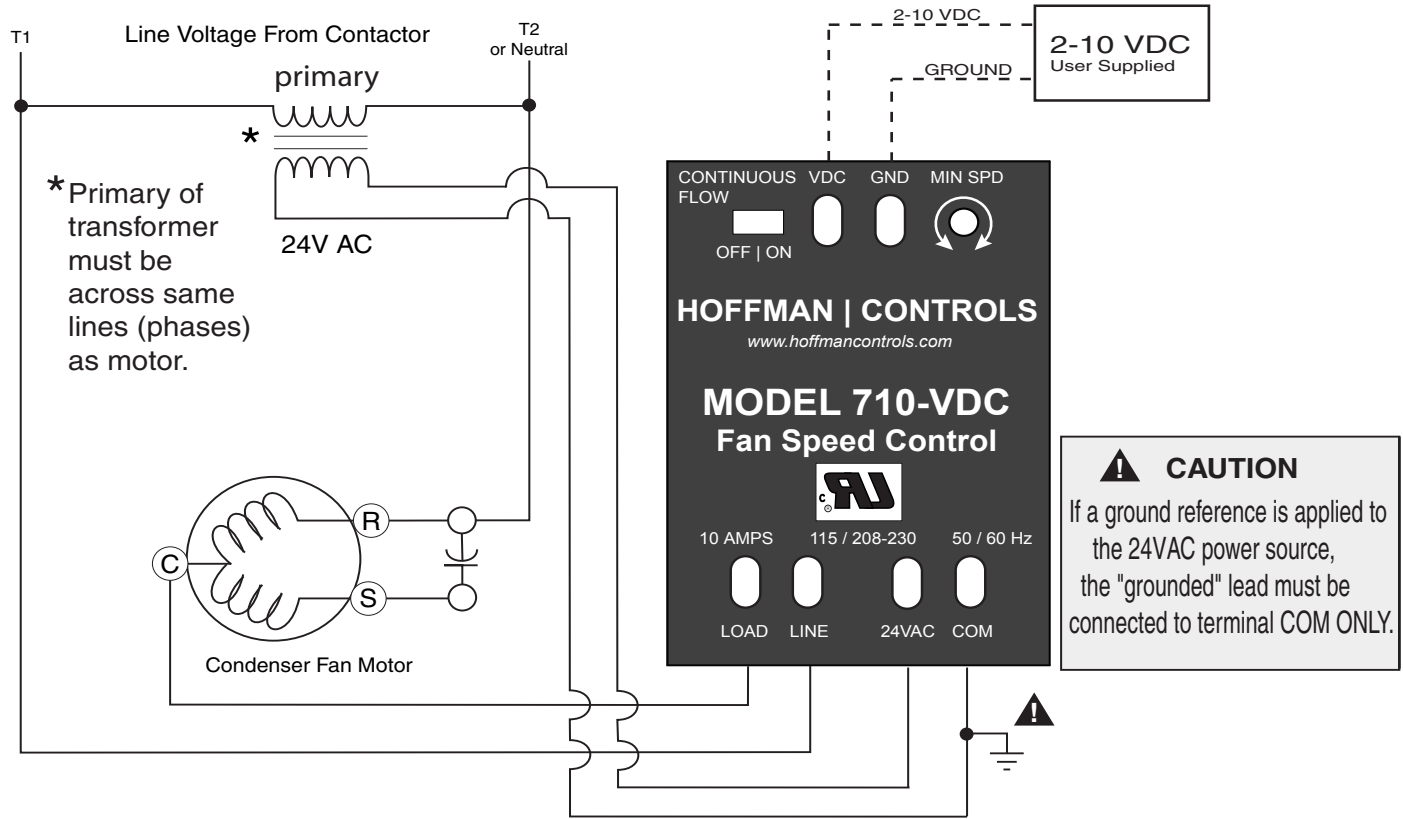


CAUTION

Correct wiring error(s). Do not apply power to the controller if incorrect ohm values were measured during checkout. The load is shorted, applying power will destroy the controller.

Step 2

Setting Minimum Speed Adjust: An adjustment is provided to accommodate the slowest allowable speed for ball bearing or sleeve bearing type motors.



Wiring Diagram for the 710-VDC
Figure 1

Recommended Minimum Speed

Ball Bearing Motors	200 RPM
Sleeve Bearing Motors	400 RPM

MIN SPD Calibration:

- A. Power up the 710-VDC Control.
- B. Using the 2-10 Vdc input signal. Increase input signal to 2.6 Vdc to start motor. Decrease input signal to 2.2 Vdc then turn the MIN SPD pot to the desired RPM.

OPTIONAL MIN SPD Calibration Method:

- A. Power up the 710-VDC Control.
- B. With no input signal present, set the CONTINUOUS FLOW Switch to "ON". Turn the MIN SPD pot to the desired RPM.

Step 3

Operate the 710-Vdc using the 2-10 Vdc source. The motor will energize at approximately 2.5 Vdc and will increase speed as the input signal increases toward 10 Vdc. At 10 Vdc the motor will run at full speed. When the CONTINUOUS FLOW Switch is "OFF" the motor will turn off at 2.0 Vdc. With the CONTINUOUS FLOW Switch in the "ON" position the motor will run continuously, at minimum speed, between calls for the fan to operate.

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