

### Description

The NEW 816-10DH(DC) Microprocessor Electronic Head Pressure Control modulates (varies) condenser fan motor speed in low ambient temperatures, varying the air volume through the condenser to regulate head pressure. This model's 2-10V DC input allows for the control of a single refrigerant circuit. Only open, drip proof, PSC or Shaded Pole motors are applicable for motor speed regulation.

The controller will begin speed modulation as the DC input signal rises to 2.0V. Motor speed will be increased in proportion to the increase of the DC input signal. Maximum motor speed is reached when the DC input signal rises to 10.0 V DC.

As the demand for cooling is satisfying the DC input signal will begin to decrease. Full motor speed is held until the DC input signal reaches 9.0 V DC. At the 9.0 V DC level the controller will re-enter motor modulation.

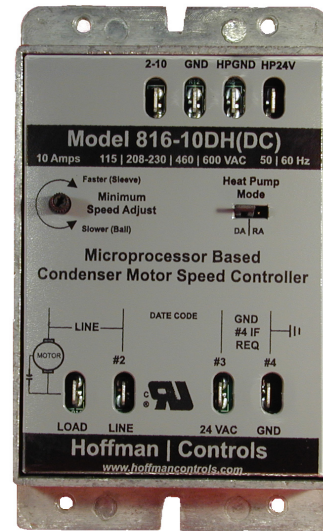
Motor speed will be decreased in proportion to the decrease of the DC input signal. Minimum motor speed is reached when the DC input signal drops to a 1.0 V DC level. As the DC input signal level drops below 1.0 V DC, the motor is turned (cycled) off.

The controls' purpose is to assure adequate pressure in low ambient:

- for maintaining adequate pressure differential for the expansion device, and control of super heat.
- assure an adequate pressure to eliminate freezing of the DX coil for A/C applications,
- eliminate oil foaming (oil migration) and/or liquid slugging.

For Heat Pump installations, the Heat Pump input is used to override condenser fan speed regulation. Heat Pump Mode Direct Acting "DA" and Reverse Acting "RA" jumpers are configured based on the manufacturer's method of energizing or de-energizing the reversing (changeover) valve. Properly configured, the Heat Pump will override speed regulation and allow full speed condenser fan operation when in the heating mode, or defrost cycle.

A variable Minimum Speed Adjustment is available to compensate for the bearing type employed by the fan motor. A minimum of 400-RPM for sleeve bearing motors, and 200-RPM for ball bearing motors is recommended. The primary of this 24V AC transformer must be the same line (phase) furnished to the motor.



816-10DH(DC)  
Electronic Head Pressure Controller

### Features

- Microprocessor Technology
- One control for every application and refrigerant.
- Multi voltage model.(115/208-230/460/600 VAC)
- Applicable for all refrigerant types.
- Eliminates the need for system penetration.
- Full voltage start ensures proper fan rotation.
- Cycles fan "OFF" once minimum flow is achieved.
- Eliminates compressor "slugging" (oil migration).
- Simple field installation.
- Replaces inferior fan cycling controls.
- Automatic minimum speed adjustment procedure by software.
- Optional **Weatherproof Kit** (NEMA 3R) — Part Number 545-0202-007.

# Application

The Controller is typically utilized on air-cooled condenser fan motors found in AC&R systems. They are used on the following motor types:

- Single Phase, single speed
- Sleeve or ball bearing, direct drive only
- Open frame — PSC or Shaded Pole
- Some Totally Enclosed Motors (TEC) with 60°C ambient ratings may be applicable (validate before use).

Minimum speed should be limited to approximately 400-RPM for sleeve bearing motors and 200 RPM for ball bearing motors.

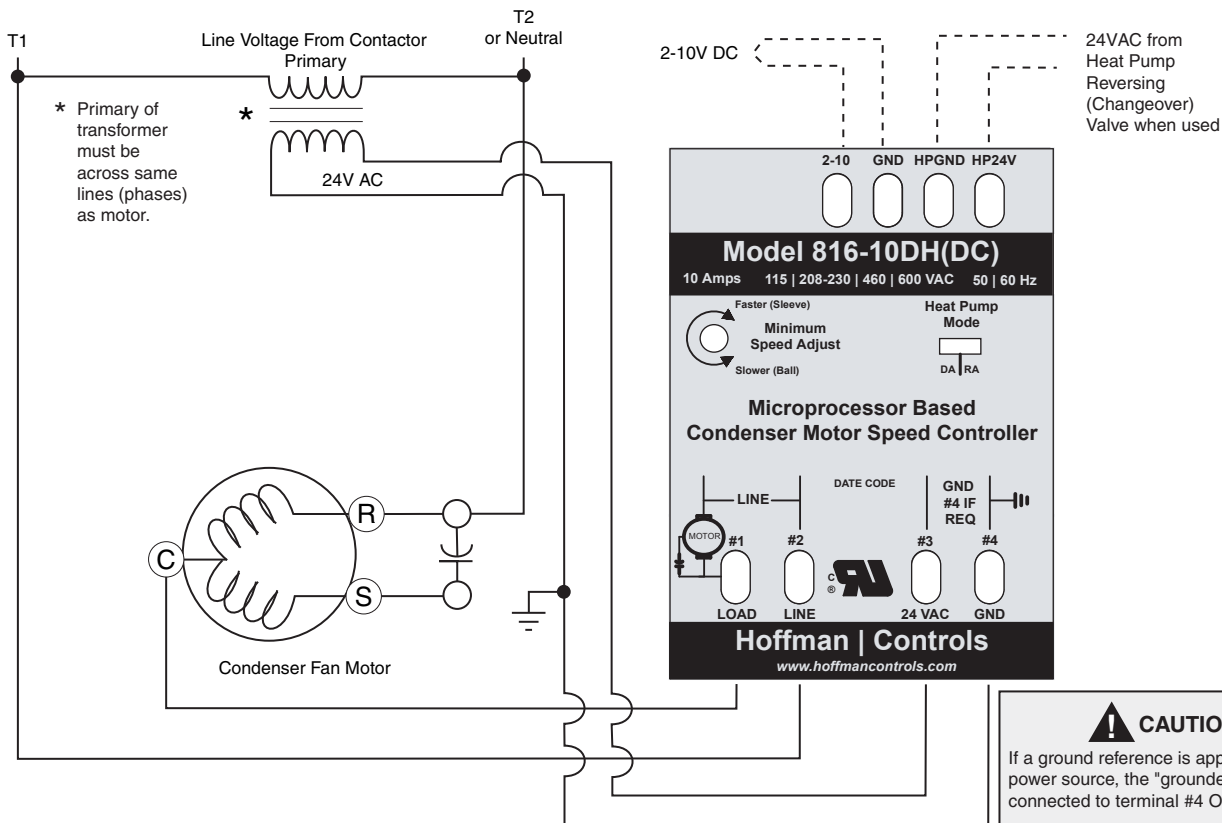
**Motors used should be designed for Phase Proportioning and should be evaluated for suitability and acceptability. TEC (totally enclosed types) are not generally suitable or recommended.**

## Typical Air Conditioning and Refrigeration Applications

- Commercial air conditioning
- Supermarkets
- Computer rooms
- Frozen food storage
- Humidity control
- Glycol coolers
- Hospitals
- Any low ambient application

# Specifications

Voltage Range (Nominal)	115/208-230/460/600
Current,	
FLA	10 Amps
LRA (Non Repetitive) at 25°C, 50/60Hz, 2 Secs	40 Amps
Frequency	50/60 Hz
Inputs	
External	2-10V DC
Heat Pump	24V AC
Outputs	
Fan Motor Control—Single Phase	115V-600V AC
Adjustments	
Min. Speed Adjust	Ball Bearing—200 RPM Sleeve Bearing—400 RPM
Heat Pump Mode Jumper	DA or RA
Environment	
Operating, non-condensing	-30°F+160°F
Dimensions (L x W x H)	5.56" x 3.32" x 1.25"
Weather Proof Kit (NEMA3R)	545-0202-007
UL Recognized	File #SA5917



Wiring Diagram for the 814-10DH(DC)  
Figure 1

## Hoffman|Controls