Hoffman | Controls
Product Data

870-10D
Fan Cycle Switch

Description

The NEW 870-10D Electronic Head Pressure Control is a pre-programed design that requires no adjustments. All other control parameters are embeded pre-set. This factory calibrated design is specifically applicable only for TV thermal expansion type devices for any refrigerant type. The control cycles the condenser fan motor in low ambient temperatures to regulate head pressure. This model's sensor input allows for the control of a single refrigerant circuit, sharing the same condenser fan motor(s).

The Controller's operation is dependent on the equipment's proper refrigerant charge and resulting liquid subcooling of the liquid refrigerant resulting in 4ºF to 6ºF subcooling at ARI conditions at 95ºF ambients. This subcooled value must be sensed at the exit of the condenser, and the sensor should be insulated and weather protected.The Controller monitors the liquid line temperature(degrees of excessive sub-cooling) which is directly proportional to the head pressure. Power to the motor is removed at 60°F (40ºF ambients) and below liquid temperatures. At 80°F liquid line temperatures the fan re-starts at full speed. When ambient temperatures are at or below approximately 40ºF(60º liquid temperature), the condenser fan motor will cycle "off" to maintain adiquate head pressure. As ambient continues to fall, the motor remains OFF for longer and longer periods of time, until the liquid line temperature remains below 60ºF. At this condition, air flow is discontinued and ambient control ends. The above describes a 20ºF span (80ºF to 60ºF) function; for expansion valve systems.

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

a) for maintaining adequate pressure differential between Hi & Low side pressures for the TXV expansion devise.

b) assure an adequate suction pressures to preclude freezing of the DX coil for A/C applications.

c) eliminate oil foaming (oil migration) and/or liquid slugging.

The 815-10D control **does not** include a transformer within the controller and **will** require an external 24VAC power souce. Important: It is extremely IMPORTANT that when installing any HCC Low Ambient Controllers, the installing technician evaluate the systems. a) Liquid Line temperature for the current Ambient temperature b) Measure and determine the Liquid Subcooling for the Ambient temperature c) Adjust units Refrigerant change to obtain Liquid Line & Subcooling values on "Low" Ambient vs. Condensing temperatures, subcooling, and liquid line temperatures ºF chart.

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Features

- One control for every refrigerant.
- A fixed span range allows for thermal expansion valve TXV applications for optimum low ambient performance.
- Multi voltage model.(115/208-230/460 / 600 VAC)
- Applicable for all refrigerant types.
- Eliminates the need for system penetration.
- Monitors liquid line temperature (liquid subcooling).
- Single Sensor only applications.
- Full voltage start ensures proper fan rotation.
- Fan cycles "OFF & ON" at various durations at Full speed.
- Eliminates compressor "slugging" and oil migration.
- Simple field installation.
- Replaces fan cycling pressure controls.
- Optional **Adjustable Sensor Simulator** — Part Number 510-0027-000 is available for manual evaluation of motor control.
- 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:

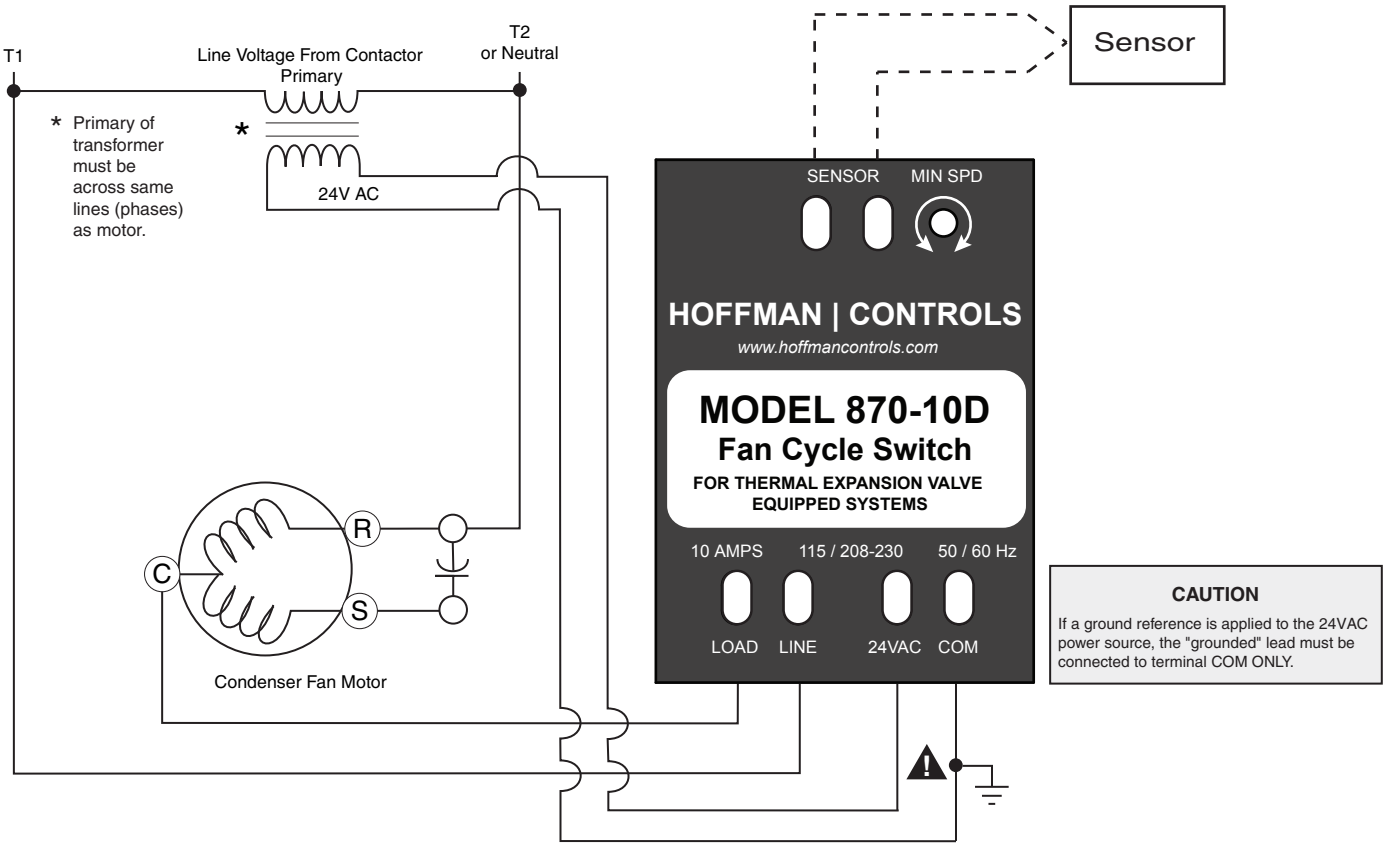
- Single Phase, single speed
- Sleeve or ball bearing, direct drive only
- Open frame — PSC or Shaded Pole
- Enclosed Motors (TEC) with 60°C ambient rating may be applicable.

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	10 Amps
Frequency	50/60 Hz
Inputs	
Sensor (strap on)	10K ohm @ 77°F 24V AC
Outputs	
Condenser Fan Motor Control–Single Phase 115V–208-220V AC	
Adjustments	None
Span 20°F	(60°F-80°F)
Environment	
Operating, non-condensing	–30°F–+160°F
Dimensions (L x W x H)	5.56" x 3.32" x 1.25"



Wiring Diagram for the 870-10D
Figure 1

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