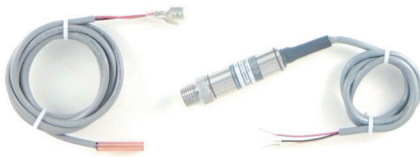
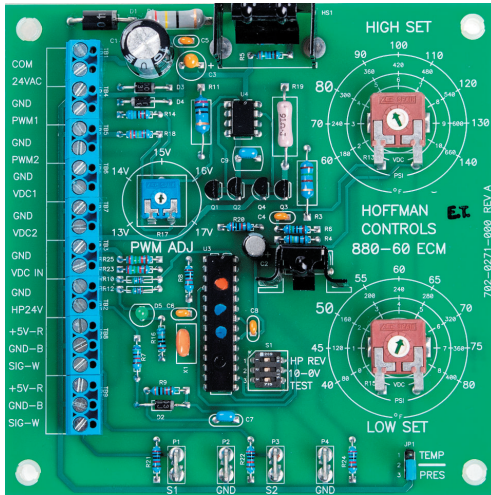


Hoffman|Controls

Product Data

880-60 Low Ambient Head Pressure Control for ECM Motors



Description

The 880-60 Low Ambient Head Pressure Control is designed to modulate energy efficient Electrically Commutated condenser fan Motors (ECM) in air conditioning and refrigeration systems. The 880-60 control varies the speed of the condenser fan ECM motor(s) to vary the air volume through the condenser consequently regulating head pressure for proper heat rejection in low ambient temperatures.

The 880-60 Head Pressure Control monitors the head pressure by sensing the sub-cooled liquid line temperature by placing a 10K sensor on the refrigerant liquid line. As the liquid line temperature drops, the motor speed will be reduced to prevent freezing of the coil. As minimum motor speed is reached, the control will cycle the motor off until the liquid line coil temperature has returned to safe operating levels. At this point, the motor will modulate back to full speed to maintain proper heat rejection. The 880-60 control provides an adjustable LOW SET point of 40°F to 80°F and an adjustable HIGH SET point of 60°F to 140°F for the ability to custom tune the control for any application.

The common settings for most applications is a LOW SET point of 50°F and a HIGH SET point of 80°F. In this example, the condenser fan(s) modulation from full speed occurs at 80°F liquid line (ambients above 60°F), and reaches minimum speed at 50°F liquid line (ambients below 30°F). The ECM condenser fan motor cycles "OFF" at liquid line temperatures below 50°F, and cycles back "ON" to minimum speed at 53°F liquid line temperature. The ECM condenser fan motor will modulate from minimum speed to full speed between 53°F and 80°F.

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The 880-60 Model includes two jumper selected liquid line sensor monitoring inputs with the hottest sensor controlling operation or two jumper selected pressure transducer inputs with the highest pressure controlling operation. The 880-60 Model also includes a 0-10VDC input control signal option, sensor temperature Low & High Set point adjustments with LED indicator, Self-Test mode, Hard Start feature and a 60ma (typically six) ECM motor drive capability. The 880-60 Model provides three ECM motor drive options: a switch selectable 0-10VDC or 10-0VDC (fail safe) signal and/or an adjustable 13-17VDC, 80Hz PWM signal. The control also has a switch selectable Direct or Reverse acting Heat Pump over-ride function and a +5Vdc 30mA power supply output to power up to two pressure transducers.

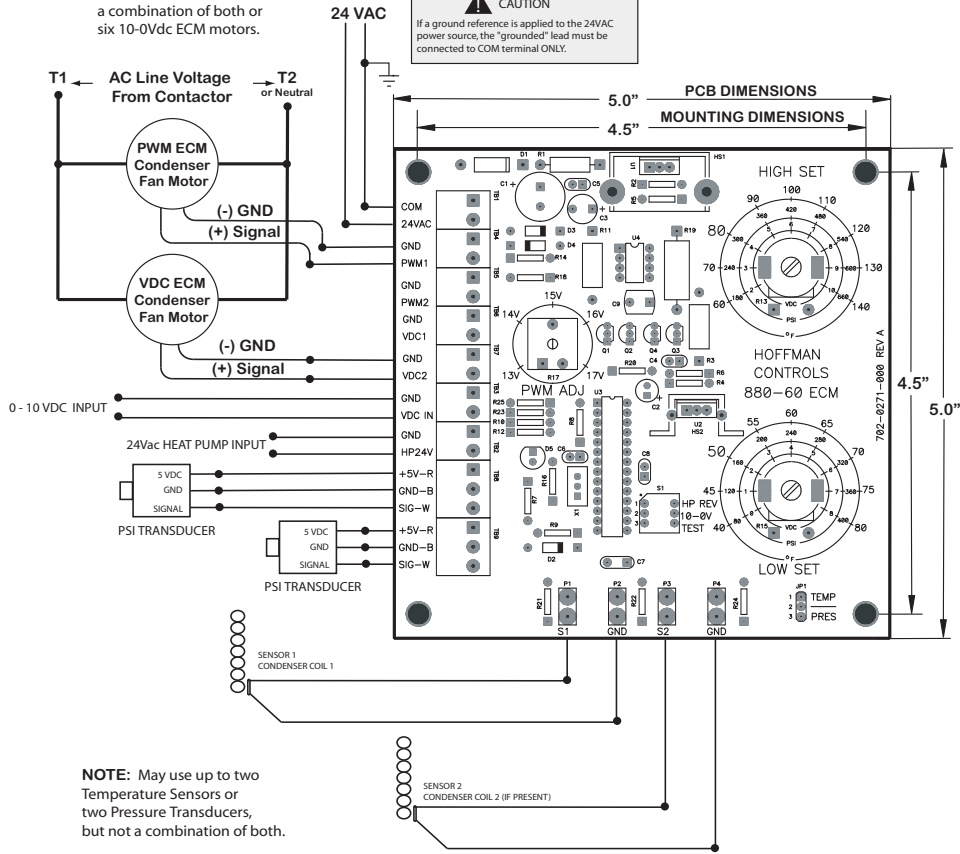
880-60 Features and Specifications

- Not refrigerant specific Class II Controller, conformal coated.
- Two selectable 10K liquid line temperature sensor or two 0.5- 4.5Vdc, 750psi pressure transducer inputs including a 0-10VDC input option with LED Set Point indication.
- Temperature input Low Set Point range 40°F to 80°F and High Set Point range 60°F to 140°F in 1°F increments.
- Pressure input Low Set Point range 80psi to 400psi and High Set Point range 180psi to 660psi in 2psi increments.
- 0-10VDC input Low Set Point range 0.5-8.0VDC and High Set Point range 2-10VDC in 0.1VDC increments.
- Hysteresis values: Temp - 3°F, Pressure - 6psi, VDC - 0.8V.
- Self-Test feature will check ECM motor operation.
- ECM motor drive options include adjustable 13-17VDC, 80Hz PWM and 0-10VDC or 10-0VDC (fail safe) signals with 60ma drive capability (typically six motors).
- 2.5 second full speed Hard Start.
- +5Vdc 30mA power supply output available to power up to two pressure transducers.
- Calibrated to accept P499 0.5-4.5Vdc, 750psi ratiometric pressure transducers.
- Operating Ambient -31°F to +160°F, Humidity 95%, Non-condensing, Dimensions 5.0L x 5.0W x 1.75H, Power supply 22-30VAC, 3VA.

880-60 WIRING DIAGRAM

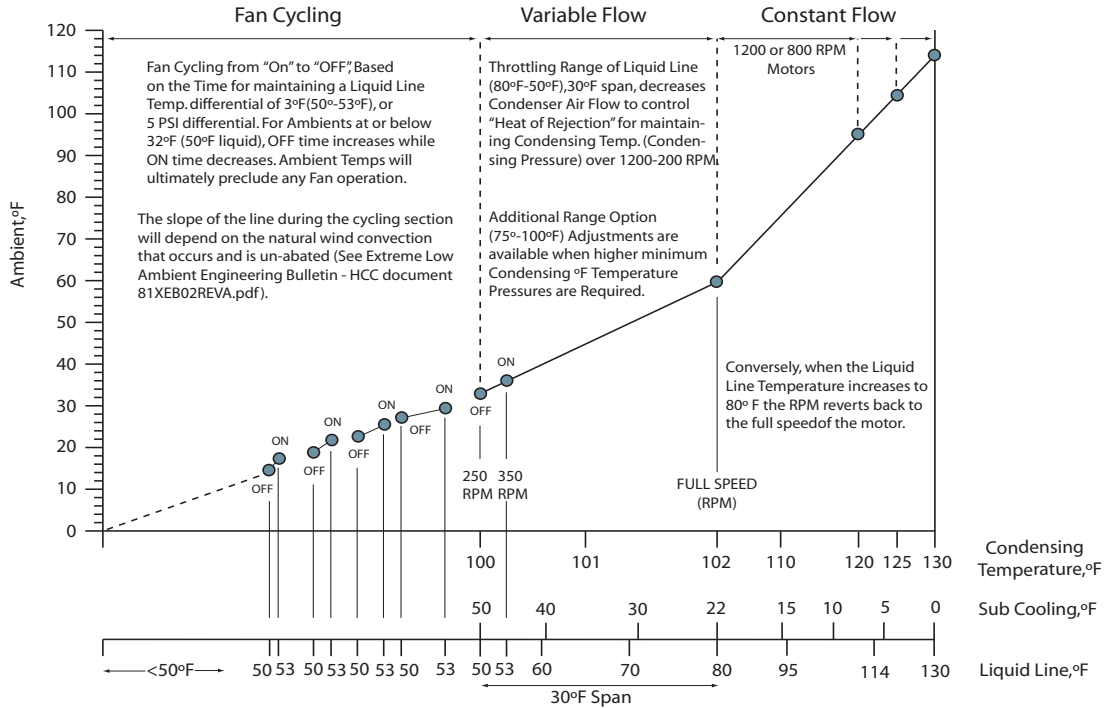
NOTE: May use 0-10Vdc or PWM ECM motors or a combination of both or six 10-0Vdc ECM motors.

CAUTION
If a ground reference is applied to the 24VAC power source, the "grounded" lead must be connected to COM terminal ONLY.



NOTE: May use up to two Temperature Sensors or two Pressure Transducers, but not a combination of both.

Low Ambient, Condensing, Sub Cooling, and Liquid Line Values for Constant, Variable, and Fan Cycling Operations



Typical Fan Operation with Ambient, Condensing, and Liquid Line Temperatures

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