

# Hoffman | Controls

## Product Data



### 865D Three Phase Head Pressure Control

## Description

The 865D Control is an improved microprocessor based Three Phase Head Pressure Control that is a direct replacement for the 865-3AA Series modulating variable speed condenser fan motor Control. The 865D can be used as a Head Pressure Control with a Temperature Sensor input or a 0-10Vdc or 4-20mA Pressure Transducer input. The Control varies the air volume through the condenser thus regulating head pressure for proper heat rejection in low ambient conditions. The 865D Control can also be used as a Manual Fan Speed Control by adjusting the MIN SPD potentiometer or by using a 0-10Vdc or 4-20mA input signal.

The 865D Control maintains a minimum pressure differential across the expansion valve to provide the proper rated capacity for all ambient operating conditions regardless of refrigerant types. This maintains proper system operating conditions, while assuring proper suction pressure (evaporator temperature) over the anticipated ambient operating range.

The 865D Control is limited to 1/2 to 2 HP, three phase, 208-230/460Vac, direct connected, propeller type, condenser fan motor applications. These applications require continuously variable speed High Slip tolerant/Ventilated (HS/V), 850/1150 RPM, direct drive, 56 Frame, vertical shaft designed motors approved by the motor manufacturer for continuous variable speed operation.

The 865D Control is supplied with a NEMA 3R rainproof enclosure for field installation in poor weather/ambient conditions and includes an encapsulated Temperature Sensor and mounting hardware that is designed for fast response of liquid line temperature changes.

## 865D Three Phase Head Pressure Control

## Applications

A properly applied 865D Head Pressure Control can be used to extend the operating range of A/C or refrigeration system, permitting operation at lower outdoor ambient temperatures. When more than one liquid line requires monitoring, use the HCC p/n 851-MS Series Multiple Sensor Selector to add up to six sensors.

The 865D can also be used as a Manual three (3) phase Fan Speed Control by adjusting the MIN SPD potentiometer to control the motor(s) from OFF to Full speed or via a 0-10Vdc or 4-20mA input control signal.

The 865D Control typically modulates continuously variable speed HS/V (High Slip/Ventilated) three phase condenser fan motor(s). Two identical condenser motors, of same manufacturer, type, model, RPM and identical propeller fans, may be controlled by one 865D Control. In either case, the 8 amp, per phase, rating of the Control must not be exceeded.

The 865D Control can either be factory or field calibrated to optimize the throttling range of the continuously variable speed HS/V motor(s) for air-cooled condenser applications.

## Features and Benefits

The 865D Control is factory calibrated for use with the supplied liquid line Temperature Sensor and is set for 50°F to 80°F operation with a minimum speed of 300RPM. These setting can be field changed as required.

Optional 0-10Vdc or 4-20mA input signals are available and may be used when pressure transducers or other control signals are desired and the 865D Control will automatically sense the type of input signal being used.

The MODE JP1 jumper can be used to select either Head Pressure Control operation or Motor Speed Control operation.

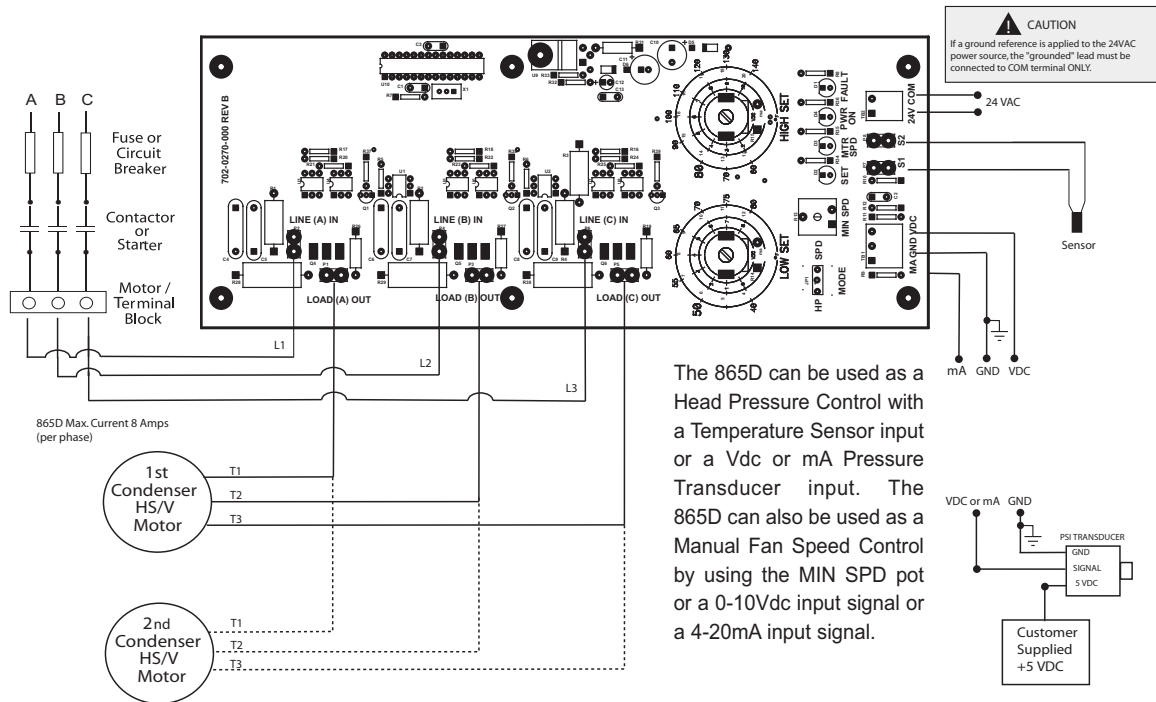
The MIN SPD potentiometer can be used to set the Head Pressure Control mode minimum motor speed or can be used to adjust the fan speed from OFF to FULL speed in Motor Speed Control mode.

The LOW SET and HIGH SET potentiometers can be used to set the desired minimum and maximum input signal values to operate the motor minimum and maximum RPMs. These potentiometers also include a temperature (°F), mA and Vdc scale.

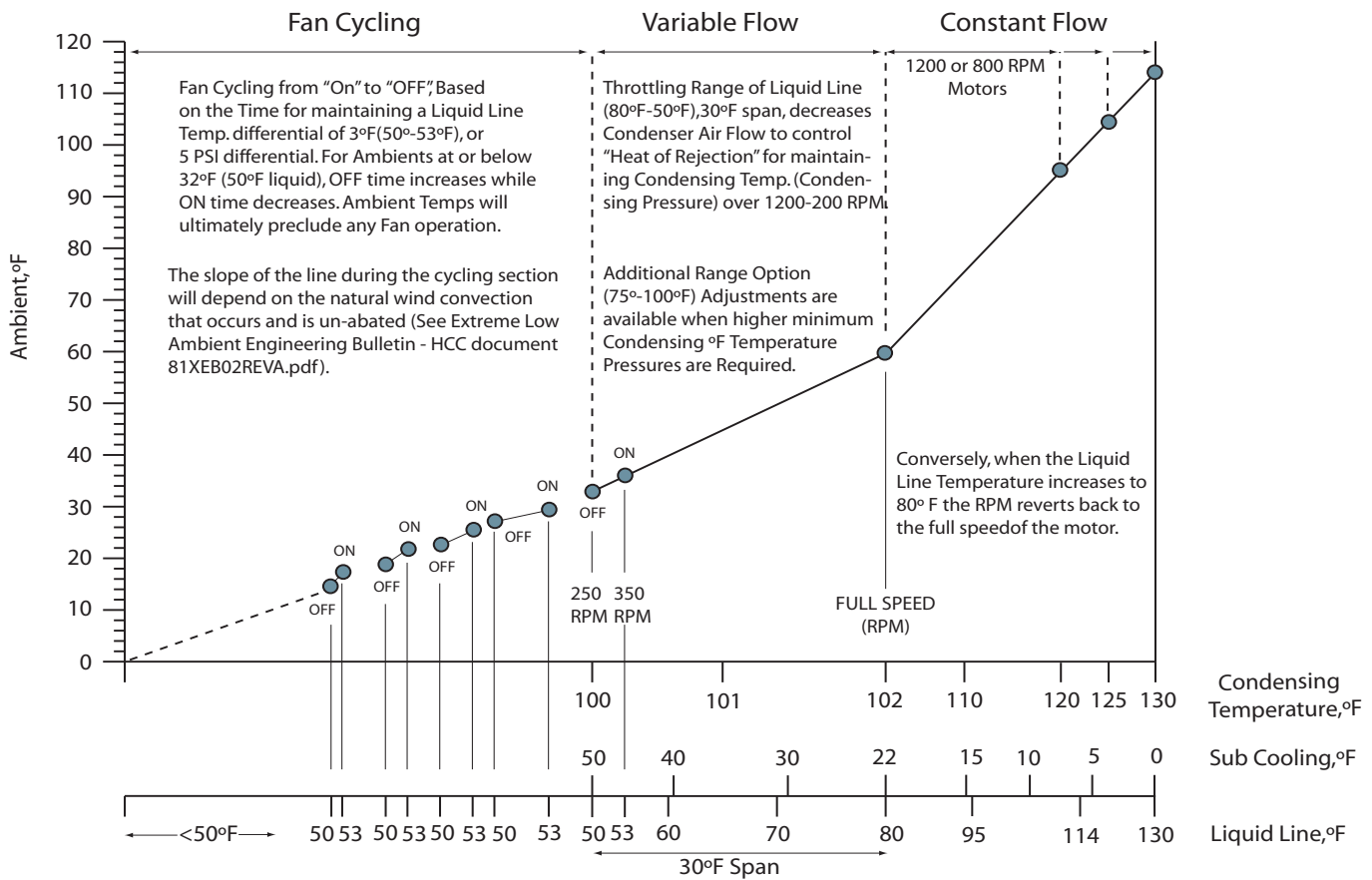
Four LEDs are included that display when the power is ON, any FAULTS with the input power, Motor Speed and Set Point counter.

## Specifications

|                                 |                               |
|---------------------------------|-------------------------------|
| Line Voltages Available         | 208-230/460Vac @ 50/60Hz      |
| Current, Maximum                | 8 Amps                        |
| Input Power                     | 24Vac, 4VA                    |
| Operating Temp: Non-Condensing, | -30°F(-34°C) to 160°F(71°C)   |
| Fault Protection                | Phase Sequence/Single Phasing |
| Enclosure types                 | Weatherproof NEMA 3R          |
| Dimensions (L x W x H)          | 12.5" x 5.50" x 3.25"         |



### 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