Hoffman|Controls
Product Data

770-PSC Microprocessor Based
PSC Motor Speed Control

770-PSC Speed Control
With RPM Sensor

General

The NEW 770-PSC Control offers a way to add existing PSC or shaded pole motor fans to a building's automation system. The 770-PSC control measures the motor's rpm, using an easy to attach sensor, and can adjust the motor' speed to match a chosen set point. The control can be operated locally, using the 32 character LCD display and four push buttons and, or remotely over a Modbus RTU connection.

There are two modes of motor speed control available. In manual mode (open loop), the control provides a fixed power level to the motor indicated by a Speed Index ranging from 0 to 100%. The actual motor rpm will vary with changes in loading. In automatic mode (closed loop), the control uses a PI feedback algorithm to drive the motor rpm to match an rpm set point.

The motor used with the 770-PSC Control must accept a phase proportioning (triac) input and be able to operate at minimum rpm for extended periods of time without overheating.

Description

The 770-PSC microcontroller based motor speed control is used to set and maintain the speed of direct drive PSC or shaded pole motors between a selectable minimum speed and full speed. The control provides output power to the motor in 1% increments of full power in manual mode.

The control operates on 24 VAC and modulates the rpm of 115, 208/230, and 277 VAC motors using a triac for power line switching to reduce motor speed. An external transformer (24 VAC) must be supplied by the installer, to power the 770-PSC Control.

The 770-PSC Control consists of a kydex covered 10 amp metal heatsink with a 32 character LCD display and four push buttons. The LCD provides motor rpm and operational information. The four push buttons allow the installer to set all parameters of the control, including automatic or manual mode, target rpm, speed index, minimum speed and Modbus settings. In addition to using the push buttons, all parameters can also be set remotely over the Modbus connection.

The control can be set in either manual (open loop) or automatic (closed loop) mode.

In manual mode, the operator sets a motor speed index, which ranges from 0 to 100%. This sets the power delivered to the motor to the same percentage level as the index. The motor rpm will be displayed but may vary as the motor loading varies.

In automatic mode, the operator sets a target rpm. The control then uses a PI closed loop feedback algorithm to drive the motor rpm to match the target rpm, independent of motor loading.

Remote operation can be implemented, at any time, by using a Modbus RTU master to send the appropriate commands to the 770-PSC Control. The control communicates via a 3 wire RS-485 Modbus connection to the master. All control parameters can be read and set remotely.

The 770-PSC Control's initial factory default settings are: automatic mode with target rpm = 700 and Modbus address = 1.

Application Limitation

Speed regulation and performance characteristics will vary with motor design and motor ventilating capability. TEC (totally enclosed types) are not recommended or not generally suitable.

Applications

The 770-PSC Control is typically utilized on direct drive PSC or shaded pole motors found in the HVAC industry. However, the control can be used with any direct drive PSC or shaded pole motor application with the following capabilities:

- Phase Proportioning (triac power switching) input.
- Continuous variable speed operation.
- 115 to 277 VAC operation.
- Ability to operate at minimum speed for long periods of time without overheating.

- Motors can draw up to 10 amps.

Features

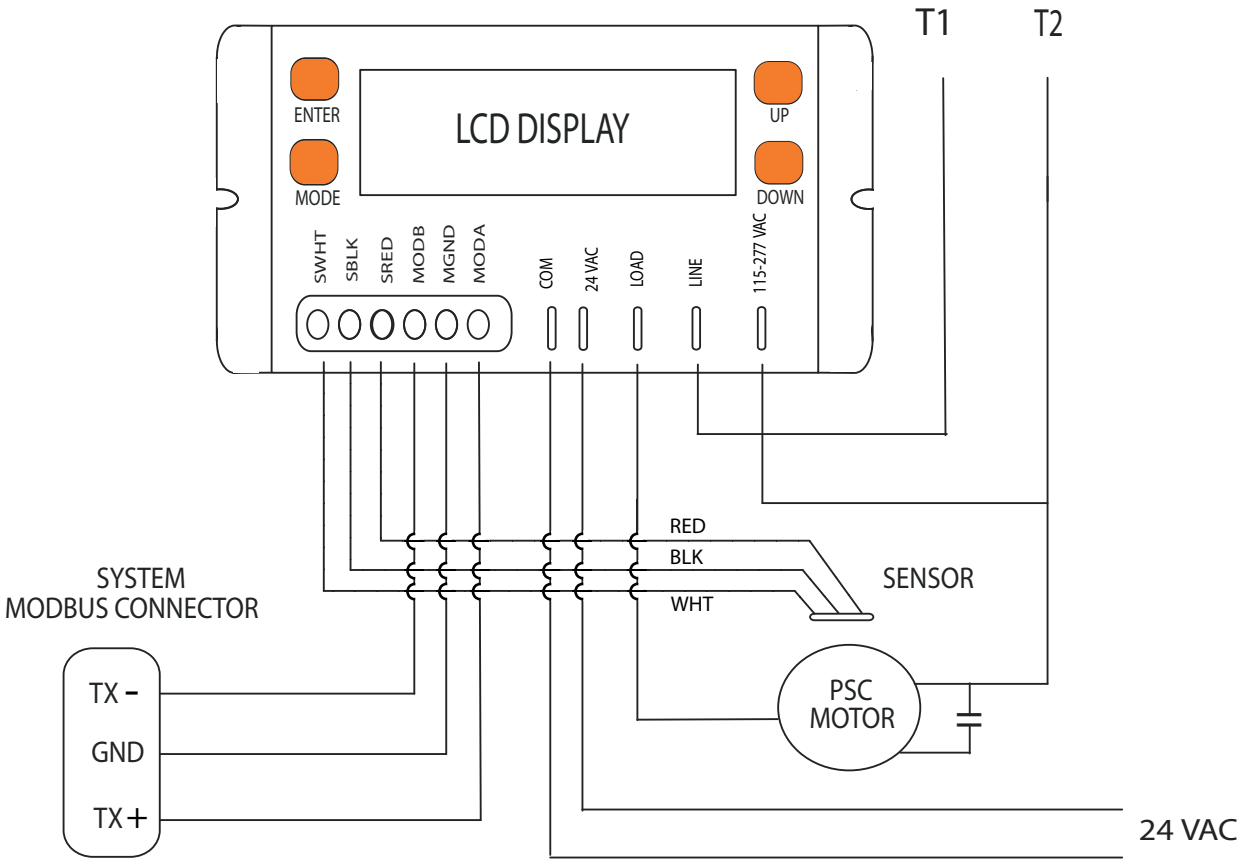
- Microcontroller technology.
- One control for 115 thru 277 VAC, phase proportioning (triac power switching) capable, PSC and shaded pole motors.
- Simple field installation.
- Simple operation.
- Large easy to read LCD display.
- Remote (MODBUS RTU) or local (push button) operation.
- Manual (open loop) or automatic (closed loop) modes.
- Convenient mounting holes on heatsink.

NOTE:

Controller must be protected from moisture and condensation if installed outdoors. A NEMA 3R enclosure kit, P/N 545-0202-007 is available.

Specifications

Control's Voltage Input	22 - 30 VAC
Motor	Direct drive PSC or Shaded Pole
Current Output	10 A
Frequency	60 Hz
Input	RPM sensor signal
Outputs	115 to 277 VAC
Adjustments	RPM
Operating Methods	
Local	Manual or Automatic mode
Remote	Manual or Automatic mode
Environment	
Operating, non-condensing	32 °F to 125 °F
	0°C to 52°C
Dimensions (L x W x H)	5.56" x 3.32" x 1.75"



770-PSC CONTROL WIRING DIAGRAM

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