

# Hoffman Controls

## Product Data

706-31 and 706-32 Series

## Electronic Motor Speed Controllers



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### Description

The 706-31 and 706-32 Series multiple voltage variable speed Electronic Motor Speed Controllers are designed to provide adjustable fixed or proportional speed control of single phase, shaded pole or permanently split capacitor type motors. The Controller will accept any nominal line voltage from 120 volts to 277 volts. This multi voltage capability allows the Controller to be applied to all applicable motor types that fall within this voltage range.

The input to the Controller is characterized as a microsecond pulse generated voltage, derived from an external source typically furnished by an Energy Management System. A microsecond pulse of appropriate amplitude and duration excites the triac as required within each half cycle of the sine wave for phase proportioning. Speed regulation is accomplished by pulsing the motor as required for speed control. The pulse generator output must be synchronized with the AC line on which the motor is connected.

Radio Frequency Interference (RFI) is suppressed by internal line filtering. Energy Management Systems generating the input signal should be evaluated for compatibility/suitability of system RFI requirements.

The electronic Controller/heat sink assembly is available in two sizes to accommodate 5 amp and 10 amp current ratings over the multi voltage range.

There is no adjustable minimum speed limit on the 706-31 and 706-32 Series Controllers.

### Application

The variable speed Controller is applicable for speed adjustment of motor RPM within a limited range of operating temperatures that assure adequate ventilation of the motor for the intended ambient at the reduced RPM speed. Motors should always be evaluated for minimum reduced speed at the highest ambient operating temperature anticipated. The Controller is designed for air-moving applications (squirrel cage or propeller type). It may be suitable for other non air-moving motor driven applications.

The Controller heat sink is designed to operate over ambient temperatures of  $-30^{\circ}\text{F}$  to  $+160^{\circ}\text{F}$ . The heat sink should always be mounted externally on a 2"x-4" electrical box or control cabinet, with the heat sink to the ambient and the component housing enclosed in the electrical box or wiring compartment. The Controller assembly should not be mounted in an airtight or unventilated control panel.

The component housing (enclosure) serves as a strain relief for the line and low voltage wiring leads. All Controllers should be mounted to electrically conductive materials and/or should be electrically grounded.

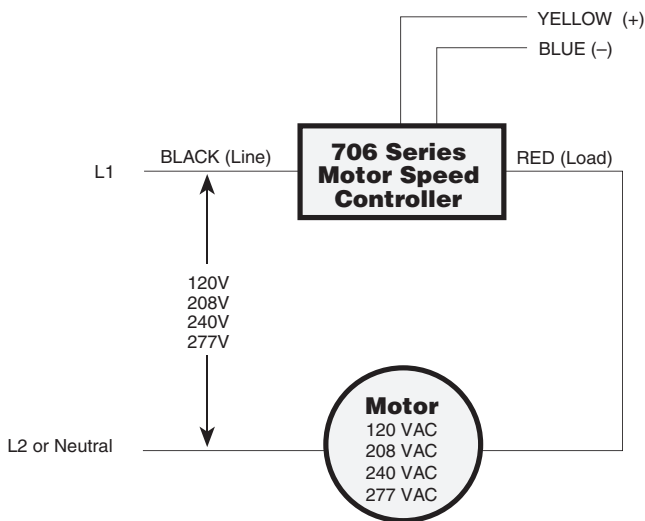
Output signals, however derived, should be evaluated for power requirements to properly determine the number of Controllers that can be powered by any one signal source.

### Specifications

706-31	5 Amp
706-32	10 Amp
Line Voltage, Nominal	120/208/240/277V AC
Signal Input	
Pulse, Min./Max.	10/20V DC
Pulse Duration, Min./Max.	10/20 Microseconds
Pulse, Rise/Fall, Max.	2 Microseconds
Input Impedance	80 Ohms
Controller Isolation	1500V AC
Operating Temp. (Ambient)	$-30^{\circ}\text{F}$ to $+160^{\circ}\text{F}$
Operating Environment	Moisture Free
Dimensions (L x W x H)	
Model 706-31	4.23" x 2.40" x 1.25"
Model 706-32	5.80" x 4.18" x 2.50"

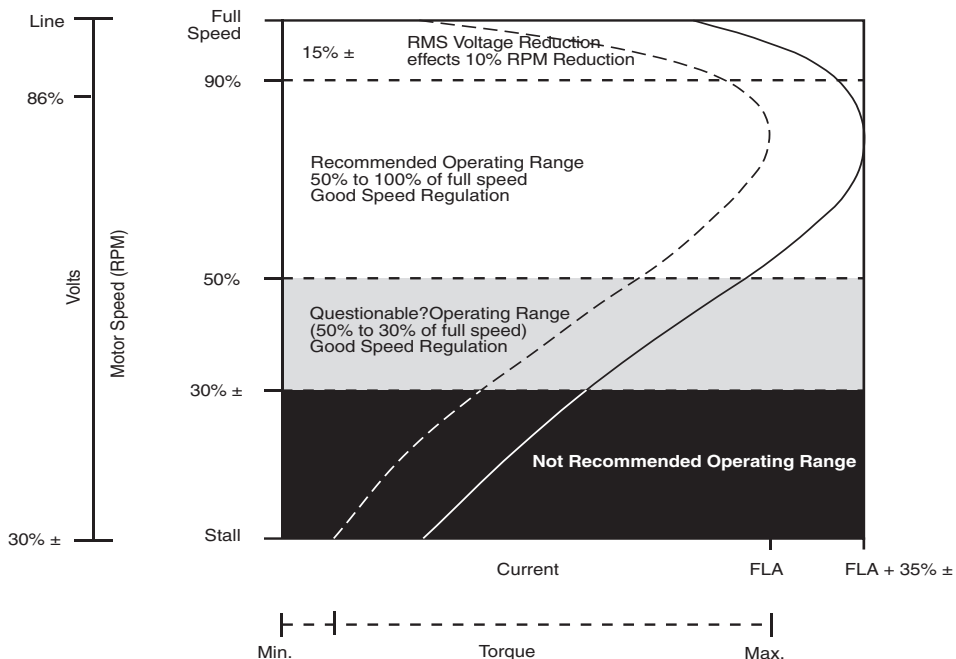
# Features and Benefits

- Applicable for shaded pole or permanently split capacitor motors.
- Two current ratings.
- Multi voltage application with each Controller.
- Heavy duty applications from  $-30^{\circ}\text{F}$  up to  $+160^{\circ}\text{F}$  operating ambients.
- RFI line filtering.
- U.L. recognized.



**Input:**  
 10 – 20 VDC amplitude  
 10 microsecond pulse width synchronized with AC

706 Series Typical Wiring Diagram



Typical Motor Performance Volts/RPM vs. Current/Torque

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