

Hoffman Controls

Product Data

General

The NEW 763-ECM Control adjusts the rpm of EC motors using the motor's built-in tachometer signal, either locally with the control's buttons and LED display, or remotely through a Modbus RTU interface. During local operation the control can be set for either manual (open loop) mode or automatic (closed loop) mode.

In manual mode, the EC motor's rpm is selected using the control's four buttons while viewing the LED display. In this mode, motor rpm will vary as the load varies. Automatic mode uses a PI, closed loop, feedback algorithm along with the control's four buttons and LED display, to both select and maintain a specific motor rpm independent of motor loading.

Remote operation is accomplished using a Modbus master control. Modbus command 3 is used to read the 763-ECM Control's 8 internal registers' information. Modbus commands 6 & 10 (Binary 16) are used to write to 7 of the 8 control's internal registers.

The EC motor used with the 763-ECM control must accept either a 0 - 10 Vdc or PWM control signal. The 763-ECM control requires an external 24 VAC (4 VA) power source.

Description

The 763-ECM microcontroller based motor speed control varies the speed of EC motors that accept a 0 - 10 Vdc and/or PWM input signal. The control's output current is sufficient to drive either a single PWM and a single 0 - 10 Vdc capable EC motor (10 mA). The PWM output signal scales from 0% to 100% of motor rpm in 1% increments (manual mode).

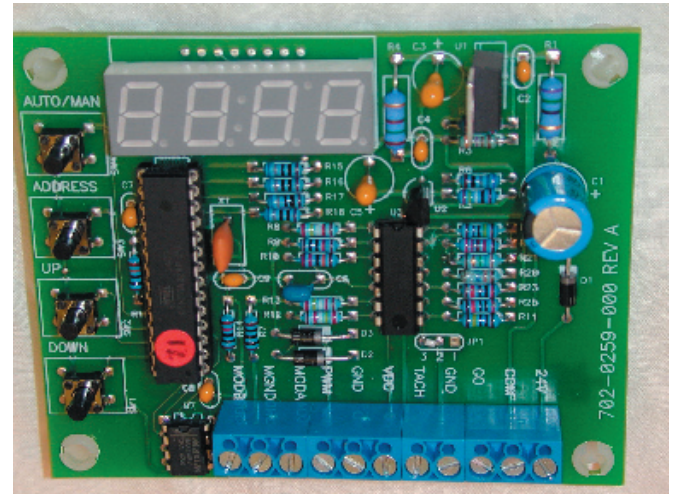
The control operates on 24 VAC and has three output signals: 0 - 10 Vdc, 17 volt (80 Hz) PWM and either a continuous 20 Vdc or switched 17.5 Vdc "GO" signal (for those EC motors that require it).

The 763-ECM Controls are available as a PCB in stand-off and panel mount configurations. The control works with all sizes and voltages of compatible EC motors.

The 763-ECM Control consists of a PCB with a large 4 digit, 7 segment LED display and four buttons. The LED display provides excellent rpm visibility even in low light conditions. The four buttons allow the installer to 1) set up one of the control's two operating methods; local or remote and 2) then select either automatic or manual mode.

In local operation, the control can be setup in either manual (open loop) or automatic (closed loop) mode. For remote operation the control communicates via a 3 wire Modbus interface to a master control. In remote operation the control can also be set up in manual (open loop) or

763-ECM Microprocessor Based EC Motor Speed Control



763-ECM Control

automatic (closed loop) mode.

Manual mode allows the motor's selected rpm to vary with load. Automatic mode will maintain the motor's set (target) rpm under varying loads, until the EC motor's ability to hold the target rpm is exhausted.

Remote operation can be implemented, at any time, by using a Modbus RTU master control to send the appropriate commands to the 763-ECM Control.

The 763-ECM Control operates by watching the EC motor's tach signal and, in manual mode, sets and shows the motor's rpm on the LED display. In automatic mode the control sets, maintains and displays the EC motor's rpm, using the software PI algorithm.

In manual mode the EC motor's rpm is set, as a %SPEED INDEX with a range is 0% to 100%, in 1% increments.

In automatic mode, the EC motor's rpm is displayed on the LCD. The available rpm range is between 0 to 2000 rpm, in intervals of about 3 rpm.

Features

- Microcontroller technology.
- One control for 0 - 10 Vdc and/or PWM capable EC motors.
- "GO" signal for EC motors that require it.
- Panel mount or free standing models.
- Large easy to read LED display.
- Simple field installation and operation.
- Local (push button) or Remote (Modbus) operation.
- Manual (open loop) or automatic (closed loop) modes.

Note: Controller must be protected from moisture and condensation if installed outdoors.

Applications

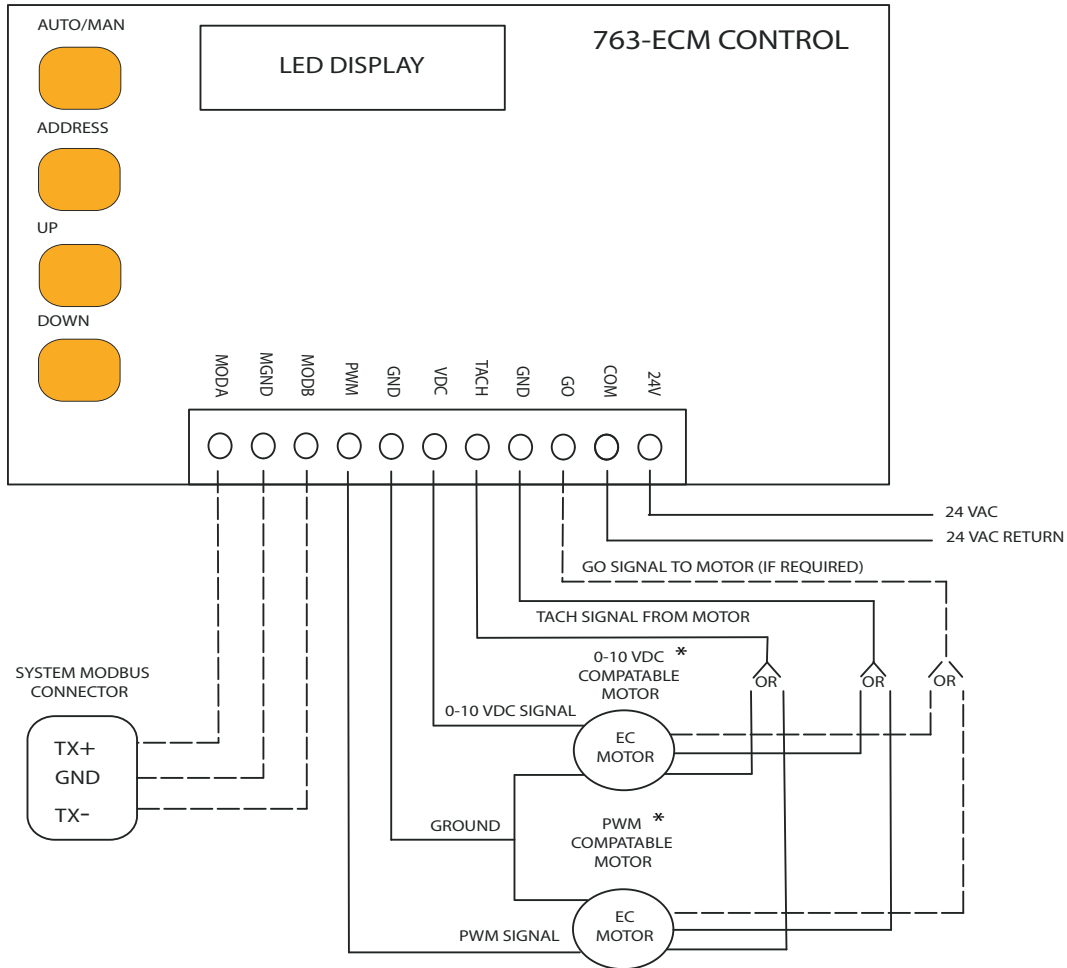
The controller is typically utilized on EC motors found in HVAC systems. However, the controller can be used on any EC motor application with the following capabilities:

- 0 - 10 Vdc or 17 volt, 80 Hz PWM input capabilities.
- "GO" signal requirement (switched 17.5 Vdc [present when the EC motor is on and zero Vdc when the motor is off] or a continuous 20 Vdc).
- These EC motors can be of any size or line voltage.

Specifications

Voltage Input	22 - 30 VAC
Power	4 VA
Current Output (0 - 10 Vdc or PWM)	10 mA
Frequency	60 Hz

Input	EC motor's tach signal
Outputs	0 - 10 Vdc, 17 volt [80 Hz] PWM and 17.5 Vdc switched or 20 Vdc continuous "GO" signal
Adjustments	RPM
Operating Methods	
Local or Remote modes	Manual or Automatic
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 1.25"
Models available:	
763-ECM	Standoff Mount
763-ECM(P)	Panel Mount
763-ECM(MOD)	Standoff Mount w/ Modbus
763-ECM(MOD)P	Panel Mount w/ Modbus



* USE ONLY ONE EC MOTOR AT A TIME

Wiring Diagram for the 763-ECM
Figure 1

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