

## *Introduction*

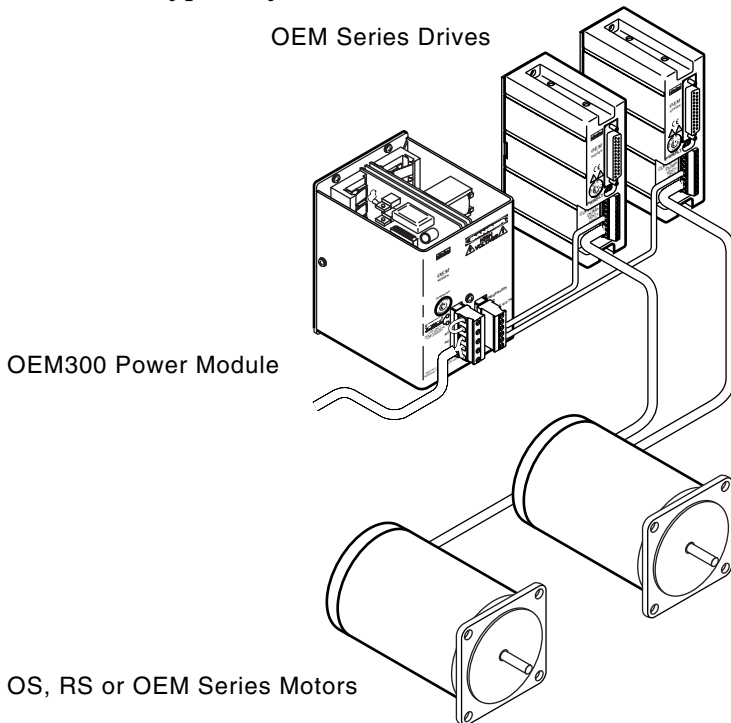
### **Chapter Objective**

The information in this chapter will enable you to:

- Understand the product's basic functions and features

### **OEM750 Drive Description**

The OEM750 Drive is optimized to operate size 23 and 34 two-phase permanent magnet hybrid step motors. It is a high-performance module around which the Original Equipment Manufacturer (OEM) can design a motion control system. The drive offers a basic set of features designed to meet the needs of most customers. It is compatible with all Compumotor indexers. A typical system is shown below.



*OEM Series Products – A Typical System*

The OEM750 is small and convenient to use. It installs with only two screws; the screws also provide grounding and captivate the cover. Its right-angle screw terminal allows side-by-side mounting, and its small footprint maximizes cabinet space. The snap-on molded cover is removable for drive configuration, and helps provide a barrier against environmental contamination. The drive is the same size as a 3U Eurorack card. Its standard 25 pin D-connector is compatible with universally available connectors.

The drive is designed for reliability and manufacturability. It uses surface mount components, MOSFET technology and a custom designed ASIC to improve reliability, conserve space, and reduce cost.

### **INPUT POWER**

The OEM750 requires a single external power supply. The drive accepts 24VDC to 75VDC for its power input.

### **MOUNTING**

The drive is fully enclosed, and uses a *heatplate* technique to provide a heat dissipation path. You must attach the OEM750 to a suitable heat-dissipating mounting surface.

### **DIP SWITCHES**

DIP switches are located inside the OEM750. During the installation procedure, you will set these DIP switches to scale the drive for resolution, waveform and other functions.

### **INPUT & OUTPUT**

All communications take place through the OEM750's 25-pin D-connector. Available inputs and outputs are:

- Step Input
- Direction Input
- Remote Input
- Fault Output
- Gear Shift Input

### **POTENTIOMETERS**

Two potentiometers are located on top of the OEM750 Drive. They are adjusted during the tuning process, to match the

drive's electrical characteristics to the motor's individual characteristics.

### ANTI-RESONANCE

All step motors are subject to mid-range instability, or oscillations. The OEM750 has an *anti-resonance* circuit that provides aggressive and effective electronic damping of these oscillations.

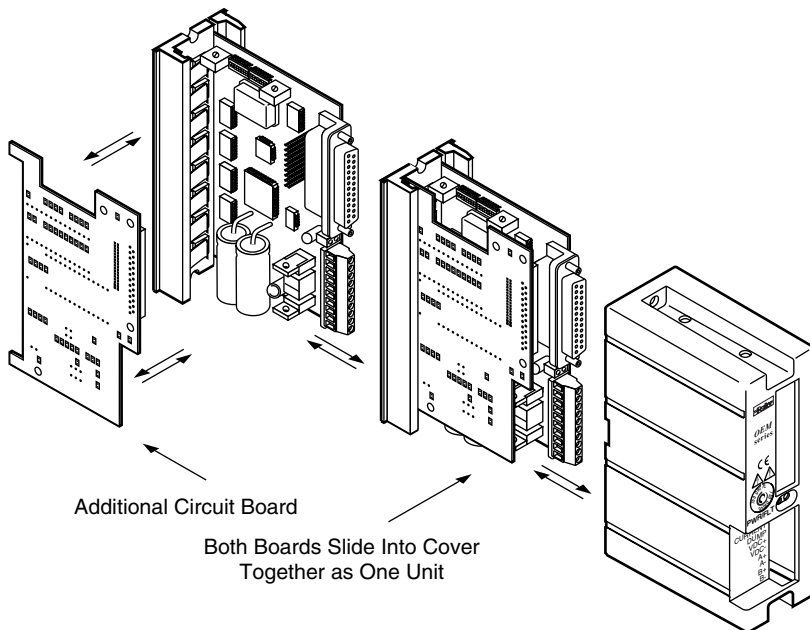
### PROTECTIVE CIRCUITS

Several circuits in the OEM750 automatically provide protection for the drive.

- Over-Temperature Protection
- Short Circuit Protection
- Power Dump for Regeneration (requires a user-supplied external resistor)

### Related Products

The OEM750 Drive has an internal slot where an indexer circuit board can be installed at the factory. The resulting product is referred to as an OEM750X.



*Additional Circuit Board Can Mount Internally*

## OEM750X Drive/Indexer Description

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The OEM750X Drive/Indexer is the same drive product as the OEM750, but it includes an indexer (position controller). The OEM750X is the same size as the OEM750 and it incorporates the same design technologies.

The indexer uses commands from Compumotor's popular and easy to use X Series Language. The indexer also provides additional I/O control and communication.

## Features

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The OEM750/OEM750X requires an external power supply. It uses 24VDC - 75VDC for its power input. Compumotor's motors are two-phase hybrid motors (permanent magnet type). Four, six, or eight leaded motors may be used, with the internal phases connected for either parallel or series operation. The motor's inductance cannot drop below 0.2 mH. *For best performance, motor inductance should be between 1 mH and 10 mH, but motors with inductance ratings as low as 0.2 mH or as high as 80 mH may be used.*

The OEM750/OEM750X provides the following features:

- Electronic Damping
- Microprocessor controlled microstepping provides smooth operation over a wide range of speeds
- Full short circuit protection for phase-to-phase and phase-to-ground short circuits
- Motor regeneration protection
- Overtemperature protection
- Uses low inductance motors for improved high-speed performance (23, 34 frame size motors available with torques from 35 - 400 oz-in)
- Three-state current control for reduced motor/drive heating
- LED status indicators: **POWER** and **FAULT** (latched)
- Optically coupled step, direction, and shutdown inputs are compatible with all Compumotor indexers (25 pin D-connector)
- A fault output to signal other equipment if a fault occurs
- 24VDC - 75VDC single power input
- 16 DIP switch selectable motor resolutions (200 - 50,800 steps/rev)
- 2 MHz step input
- Waveform correction and phase offset for improved smoothness
- Built-in indexer (position controller)
  - -M2 option allows users to store programmed sequences in nonvolatile memory
  - I/O for motion and basic machine coordination