# CHAPTER 1

# *Introduction*

The information in this chapter will enable you to:

- Understand the product's basic functions and features

## Product Description

The S Drive is a bipolar, recirculating, microstepping drive that runs two-phase permanent magnet hybrid step motors. The drive uses MOSFET technology to give high performance in a small package while providing short-circuit protection, brownout protection, over-temperature protection, and a built-in power supply. The S Drive is compatible with all Compumotor indexers.

## Features

The S Drive requires no external power supply. It uses 120VAC directly for its power inputs. Compumotor's motors are two-phase hybrid motors (permanent magnet type). Four, six, or eight lead motors may be used, with the internal phases connected for parallel or series operation, provided the motor's inductance does not drop below 2 mH. *For best performance, maintain motor inductance from 5 mH - 50 mH, but motors with inductance ratings as low as 0.5 mH may be used.* You can panel mount the S Drive in a minimum depth or width configuration by moving its mounting tabs. The S Drive also provides the following features:

- Microprocessor controlled microstepping provides smooth operation over a wide range of speeds
- Short circuit protection for phase-to-phase and phase-to-ground short circuits
- Overtemperature and undervoltage protection
- Uses low-inductance motors for improved high-speed performance (23, 34, 42 frame size motors available with torques from 65 - 2,400 oz-in)
- Three state current control for reduced motor/drive heating
- LED status indicators: power, step, undervoltage, overtemperature (latched), motor fault (latched)
- Motor connector interlock to prevent connector damage
- Optically coupled step, direction, shutdown, and set zero phase inputs are compatible with all Compumotor indexers (25-pin D connector)
- A fault output to signal other equipment if a fault occurs
- High motor voltage (170VDC) operation for high-speed torque
- 90VAC - 132VAC, 50/60Hz power input
- 16 DIP switch selectable motor resolutions (200 - 50,800 steps/rev)
- Operates linear motor forcers
- 2 MHz step input