Introduction

Chapter Objective

The information in this chapter will enable you to:

❏ Understand the product's basic functions and features

Product Description

The SX is a bipolar, recirculating, microstepping drive with built-in indexing capabilities. It is designed to drive 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 built in Indexer is capable of storing 99 multiple move motion programs in battery backed RAM memory. Any of the programs can be selected in a variety of ways including BCD inputs, programmable controllers or a computer via RS-232C Interface.

Features

The SX also provides the following features:

❏ 16 selectable motor resolutions are available (200 - 50,800 steps/rev)

❏ Uses low-inductance motors for improved high-speed performance (23, 34, 42 frame size motors available with torques from 65 - 1,900 oz-in)

❏ Microprocessor controlled microstepping provides smooth operation over a wide range of speeds

❏ Closed-loop positioning interfaces to incremental or absolute encoder standards

❏ One registration input that is given the highest priority (position latched within 50μs)

❏ A complex motion profiling system that allows you to:

  ❍ Change velocity based on distance without stopping
  ❍ Change distance, or turn on outputs on-the-fly

❏ High-level programming commands such as:

  ❍ **IF/THEN/ELSE/WHILE**
  ❍ **REPEAT/UNTIL**
  ❍ **GOTO AND GOSUB**

❏ Complex evaluations such as checking input levels, error conditions, boolean evaluations, and variable comparisons for basic programming branching decisions can be made

❏ An output can be configured to provide pulse and direction to second axis to control velocity and distance

❏ PLC functionality and interfacing capability using the eight inputs and four outputs

❏ Full short circuit protection for phase-to-phase and phase-to-ground short circuits

❏ Overtemperature and undervoltage protection

❏ Three state current control for reduced motor/drive heating

❏ LED status indicators: power, undervoltage, overtemperature, motor fault, and Indexer monitor fault

❏ Motor connector interlock to prevent connector damage

❏ A fault output to signal other equipment if a fault occurs

❏ 90VAC - 132VAC, 50/60Hz power input

❏ Operates linear motor forcers

Following Option (SXF)

The SXF option can perform velocity following and distance following moves at a *following ratio* of a master velocity. The SXF can follow from incremental or absolute encoders.

You can program the SXF for following applications with its command language and report back/ verification feature. You can enter following ratios via thumbwheels and change them on-the-fly.

You can perform preset moves at a specified velocity ratio. You can perform registration moves while in the Following mode. Registration moves can either follow at a ratio of the master velocity or be executed in the standard motion modes. The SXF can jog the motor in Following mode to help set up a system.

You can use the SXF's special Synchronization mode to compensate for system errors (e.g., stretching in a web processing system).

Following Option Features

The Model SXF provides these additional features:

❏ Controls a speed based on a ratio of a primary axis speed

❏ Makes preset moves at a velocity ratio of a primary axis

❏ Synchronizes speed or position to a primary axis based on registration marks on material

❏ Changes following ratio and other functions based on the encoder position of a primary axis (*Cam Following*)