

## MICROSTEPPING STEPPER DRIVES

### SD Series Boards

The SD series boards are stepper drives converting Step and Direction inputs into winding currents for two-phase stepper motors.

#### ◆ Sequencer

The SD series boards are controlled by the Step, Direction and Disable inputs. All inputs are optically isolated. The Step input is isolated by a high-speed optocoupler with internal shield. The maximum stepping rate is up to 20 kHz for S version, or up to 40 kHz for F version.

One microstep is executed when the Step signal changes from opto current off to opto driven. It is possible to change motion direction by driving the Direction input opto. Disable input is used to disable the driver if opto is driven or enable the driver if opto current is off. Input signals standard logic level is 24 V (5 V level optional).

The SD series drives are equipped with the sequencer SQ1486 and do not include programmable controller M1486. The sequencer is designed to receive Step and Direction signals and convert them to digital values of phase current for both phases of a stepper motor.

#### ◆ Driver

- Bipolar chopper driver for two-phase stepper motors (4, 6 or 8 flying leads), the power amplifier is included
- 4-bit DACs for smoother motor operation - 8 and 16 microsteps per full step also available
- Current reduction during rest to reduce motor heating - SD30M, SD40M
- Single unregulated supply voltage between 12 V and 48 V (35 V - SD20M)

#### ◆ Technical Specifications

	<b>SD20M</b>	<b>SD30M</b>	<b>SD40M</b>
Motor current amplitude range / phase (A peak)	<b>0,4 - 2</b>	<b>0,4 - 3,3</b>	<b>0,4 - 4</b>
Supply voltage range (V)	12 - 35	12 - 48	12 - 48
Opto-isolated Step, Direction and Disable inputs	YES	YES	YES
Max. microsteps per full step	16	16	16
Current reduction during rest - switch 8 OFF	NO	YES	YES
On-board electrolytic capacitor (µF)	4 000	5 000	5 000
Motor current amplitude levels	8	16	16
Motor current profile settings	15	15	15
Suitable stepper motors - holding torque range (Nm)	<b>0,15 - 1,2</b>	<b>1,2 - 8,5</b>	<b>3 - 8,5</b>
Dimensions (mm), eurocard-sized boards	160x100x30	160x100x30	160x100x45



The stabilized power supply is not necessary due to the motor current chopper regulation. Only a transformer and a diode bridge are sufficient. An external power supply capacitor can be omitted due to the electrolytic capacitor 4 000 µF (5 000 µF) on the board.

Torque speed characteristics of the SD drives with stepper motors are identical to the CD board characteristics (for example SD30M/CD30M) - see pages 23 and 24.

The microstepping mode, current profile and motor current amplitude can be set up by means of DIP switches. Motor current amplitude can be set in 8 levels (SD20M) or 16 levels (SD30M, SD40M).

The SD series drives have internal 5 V switching power supply.

## MICROSTEPPING STEPPER DRIVES

**6410-001**

**High performance stepper drive converting Step and Direction inputs into winding currents for two-phase stepper motors with the holding torque from 3 Nm to 22 Nm.**

◆ **Driver**

- Motor current amplitude up to 7 A peak / phase
- Single unregulated supply voltage between 24 V and 75 V
- Bipolar chopper drive for two-phase stepper motors
- Programmable microstepping for smooth operation - binary step size (from 2 to 256 microsteps per full step), decimal step size (from 5 to 250 microsteps per full step)
- Current reduction during rest to reduce motor heating
- Patented 4-phase bipolar chopper drive for superior current regulation and low ripple current
- **Patented digital electronic damping reduces instability at speeds in middle of operating range**
- User selectable motor current in eight levels from 0,625 A rms to 5 A rms
- Drive disable possibility by means of user input
- All inputs are opto-isolated

Torque speed characteristics - see page 24, 25 - CD6410M.

- **Dimensions**

127x110x65 mm (with cover and heat sink)

- **Accessories**

Cover, heat sink, connector kit, user manual



Pacific Scientific product.

**ZMP-Mini**

**High performance stepper drive converting Step and Direction inputs into winding currents for two-phase stepper motors with the holding torque from 11 Nm to 40 Nm.**

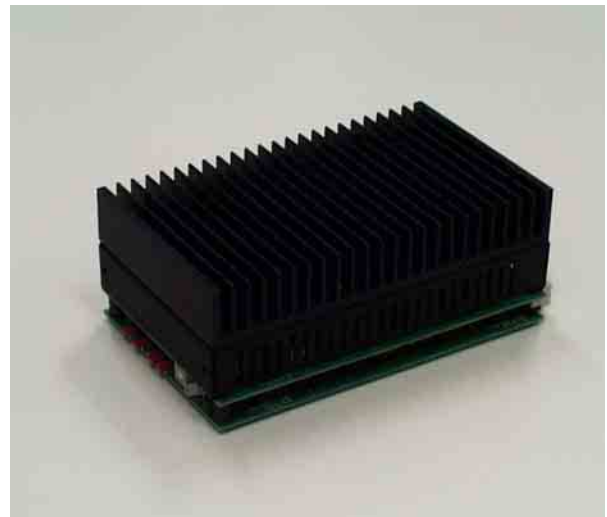
◆ **Driver**

- Motor current amplitude up to 14 A peak / phase ("Boost" function - 17 A peak)
- Supply voltage up to 140 V
- Bipolar chopper drive for two-phase stepper motors
- Programmable microstepping for smooth operation - 2 1/2 or 5 microsteps per full step
- Current reduction during rest to reduce motor heating
- Optimum run of the stepper motor thanks to phase sequence synchronous chopped current regulation (patented circuit)
- Short-circuit protection
- Electronic monitoring: temperature, short-circuits, undervoltage
- User selectable motor current in nine levels from 2 A rms to 10 A rms
- Drive disable possibility by means of user input

Torque speed characteristics - see page 25 - CDZMP-Mini

- **Dimensions**

165x100x65 mm, eurocard-sized module



Pacific Scientific - Bautz product.

See the data sheets for further details.