

# SILVERPAK 23D/DE

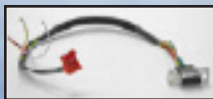
## MOTOR + DRIVER

### MAIN FEATURES:

- Voltage: +15 to 48VDC
- Current: 0.3 to 3.0 Amps Peak (Internally Set – user cannot alter)
- Hold current: 25% of run current
- Step resolution: 2x, 4x, 8x, 16x, 32x, 128x, 245x (jumpers)
- Damping Mode: 14%, 35% (jumper)
- Speed: (Step Frequency: 2.5MHz)
- Inputs: Step Pulses, Direction Change, Disable/Enable driver
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- Pole Damping Technology (PDT) implemented for smooth motion
- Easy installation due to the integration.

### ACCESSORIES:

Each Silverpak 23D comes with a DB-9 connector with flying leads.



p/n 090-00019

- 090-00019 DB-9 cable (comes with unit)
- PC, function or pulse generator, controller

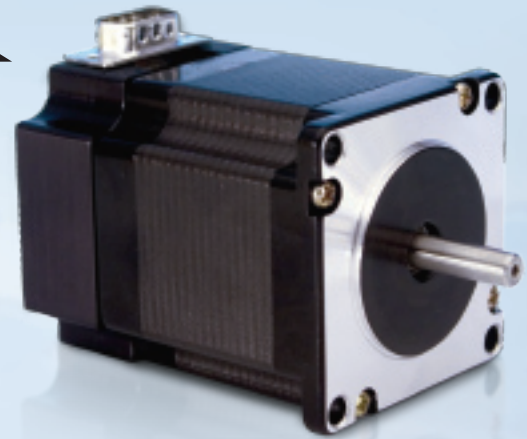
### SETTING STEP RESOLUTION USING JUMPERS:

Resolution	SR0	SR1	SR2
2X	OFF	OFF	OFF
4x	ON	OFF	OFF
8X	OFF	ON	OFF
16X	ON	ON	OFF
32X	OFF	OFF	ON
64X	ON	OFF	ON
128X	OFF	ON	ON
256X	ON	ON	ON

Table: Step Resolution Jumper Settings

### DAMPING MODES:

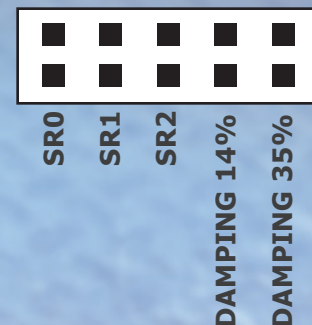
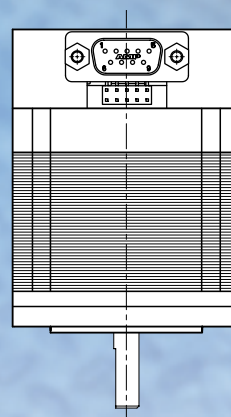
Two damping modes are provided in order to aid in resonance and vibration within the motor. This is also known as mixed decay. The current waveform is dampened to create a smoother motion profile. The most effective damping mode is motor dependent.



### PIN ASSIGNMENTS:

A DB-9 female connector cable receives power and provides the control connections for the R208 Driver. Active signals are optically isolated. An open-collector drive is required to provide pulses for Step, levels for Direction and Disable/Enable.

Pin #	Function	Description
1 & 6	PWR +ve	Motor Supply voltage. +15 to 48 VDC
2 & 7	PWR -ve	The ground or return of the power supply connects here
3	+5VDC Out	Used to ground the logic functions.
4	Step	Connects to the open collector drive.
5	Disable	This input is used to enable/disable the output of the driver.
6	Opto-Com	+5 VDC input used to supply power to the isolated logic inputs. A resistor must be used if the supply is greater than 5 VDC.
7	Direction	This input is used to change the rotation direction of the motor.



Damping Mode	Damping 14%	Damping 35%
14%	ON	OFF
35%	OFF	ON

Table: Damping Mode Jumper Settings

## KEY SELLING FEATURES:

- Easy to use
- Custom Motor Windings Available
- Sleek Look

\*High resolution encoder adder (>1000)

## DETAILED FEATURES:

- **Operating temperature:** 0 to 45°C (running above 2.6 Amps Peak requires a heat sink)
- **Step pulse timing:**

Minimum step pulse width: 200 nanoseconds (200x10<sup>-9</sup>)

Minimum step low time: 200 nanoseconds

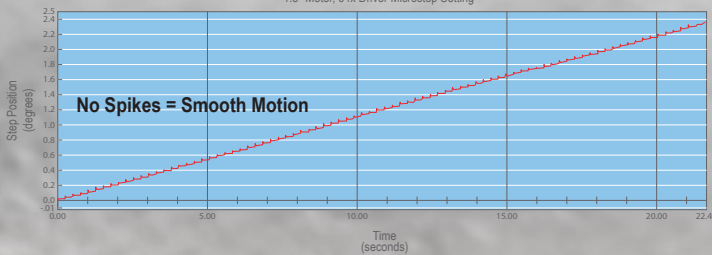
Maximum power-down recovery time 20 milliseconds

Max step frequency = 1 / [min. step pulse width + min. step low time] = 2.5 MHz

- **Pole Damping Technology™:** Pole Damping™ Technology (PDT) enhances step motor performance by dampening each natural full step position in order to create a more accurate and smooth motion profile. Micro stepping the step motor will optimize Pole Damping Technology. PDT outputs the correct amount of run and hold currents to the motor. Thus, it will overcome the step motor's natural tendency to want to forcefully pull towards the full step ON position.

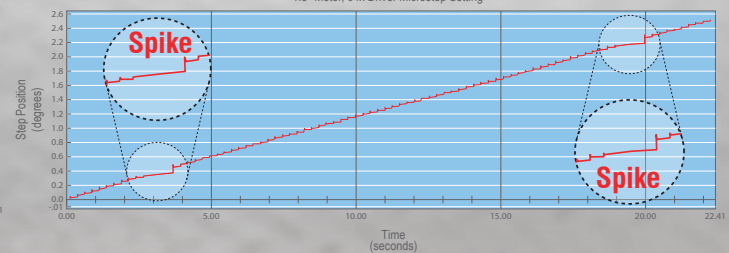
### Driver with Pole Damping Technology™

1.8° Motor, 64x Driver Microstep Setting



### Driver without Pole Damping Technology™

1.8° Motor, 64x Driver Microstep Setting



- **Internal +5VDC output:** The Silverpak 23D driver contains its own +5VDC output to supply the opto isolated inputs. Many drives require an additional +5VDC power supply (in addition to the main power source). The separate power supplies are for customers who want to keep the inputs isolated from the main power source. But for customer who need the convenience of using one power supply, they should connect pin 1 and 4 together to use the boards internal +5VDC output.

## SILVERPAK 23DE ENCODER OPTION:

US Digital encoders are mounted on the outside of the Silverpak 23. E2 encoders only.

CYCLES PER REVOLUTION (CPR)	
32	400
50	500
96	512
100	540
110	720
120	900
192	1000
200	1016
250	1024
256	1250
360	

Cycles per Second
0 to 100,000
cycles per Revolution (CPR)
32 to 1,250
Pulses per Revolution (PPR)
128 to 5,000

(PPR) = 4x the CPR if the encoder reader reads quadrature (reads the rising and falling edge of both the A and B channels)

