

1. SPD-32M Stepping Motor Driver

1.1. Description

The SPD-32M is a bipolar chopper type of stepping motor driver with ministepping capability.

Motor winding currents are compared to preset values. When the motor current reaches the preset value, it is turned off and starts decaying to a preset low value when it is turned on again. The stepping motor driver is two phase bi-polar type, which is highly efficient, and result in cool operation of motors and drivers.

When the motor is held at position, some switching electrical noise is generated.

1.2. Specifications

Part Number:	SPD-32M
Physical Size:	Module, 1.7" wide, 7.0" high, 13.0" deep
Module Connection:	Via 80 pin PCB type edge connector
Power:	48 VAC
Motor Connection:	Four or eight lead stepping motors
Current Selector:	Front panel hex switch
Current Setting:	0.05, .1, .2, .3, .4, .5, .6, .7, .8, .9, 1, 1.5, 2, 2.5, 3, 3.5 A
Ministep Selector:	Front panel BCD Switch
Ministep Resolution:	Full step, 2, 3, 4, 5, 6, 8, - ministepped per step
Automatic Current Reduction:	Internal jumper selection, 10%, 25%, 50%, 75%,
Motor Current OFF:	Front panel slide switch
Limits Input:	Two inputs, used for front panel limits status display
Home Input:	One input, used for front panel home status display
Status Output:	TTL, HI when normal

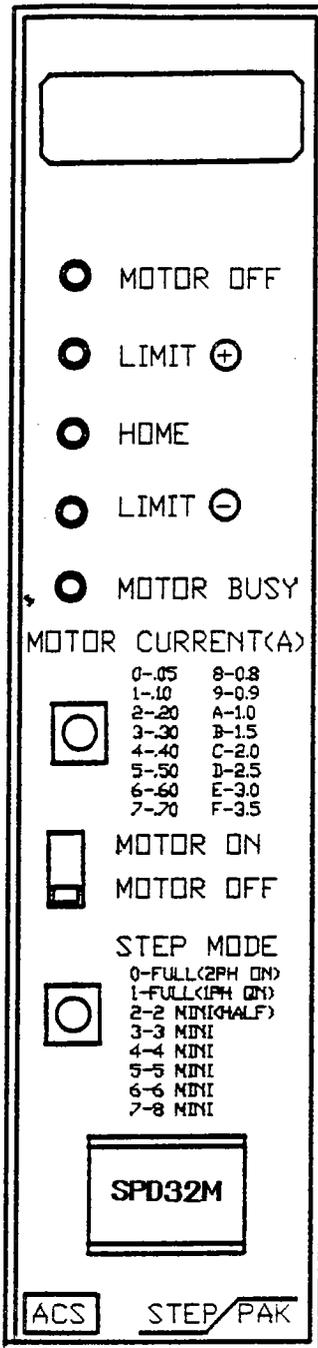
Note: When installing or removing driver modules, or changing motors, equipment rack must be powered down.

WARNING!!

DO NOT CONNECT OR DISCONNECT MOTOR LEADS WITH POWER APPLIED!!

DO NOT PLUG OR UNPLUG SPD-32M DRIVER WITH POWER APPLIED!

1.3. Front Panel Description



See Figure 6.1 for front panel layout.

Rectangular white area on top of the front panel can be used to identify the usage of the particular module. It can be marked with pencil or marker.

“Motor OFF” LED is on whenever the motor is switched off by motor On/Off switch. “Status” output also goes low, signaling external indexer of host computer the motor off status.

“Limit +”, “Home”, “Limit -” LEDs are off whenever the corresponding input is open. These inputs do not stop the motor by itself.

“Motor Busy” LED is on whenever the motor is stepping.

“Motor On/Off” slide switch turns on or off motor winding current.

“Ministep” selector switch is used to set microstep resolution. It is a 10 position rotary BCD switch.

WARNING!!
DO NOT CONNECT OR DISCONNECT
MOTOR LEADS WITH POWER
APPLIED!!
DO NOT PLUG OR UNPLUG SPD-32M
DRIVER WITH POWER APPLIED!

**FIGURE 6.1 SPD-32M
 FRONT PANEL LAYOUT**

<u>Switch Setting</u>	<u>Current</u>
0	0.05
1	0.10
2	0.20
3	0.30
4	0.40
5	0.50
6	0.60
7	0.70
8	0.80
9	0.90
A	1.0
B	1.5
C	2.0
D	2.5
E	3.0
F	3.5 A

TABLE 5.1 MOTOR CURRENT SELECTION

Motor current selector switch is used to set peak motor winding current. It is a 16 position rotary Hex switch.

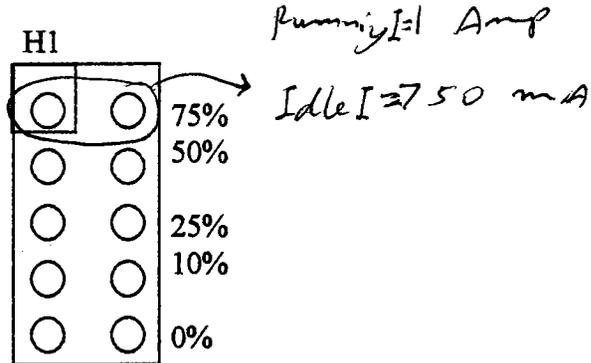
<u>Switch Setting</u>	<u>Resolution (Ministeps per step)</u>
0	Full (2 phase on)
1	Full (1 phase on)
2	2 (Half)
3	3
4	4
5	5
6	6
7	8
8	Not Used
9	Not Used

TABLE 5.2 MINISTEP RESOLUTION SELECTION

WARNING!!
DO NOT CONNECT OR DISCONNECT MOTOR LEADS WITH POWER APPLIED!!
DO NOT PLUG OR UNPLUG SPD-32M DRIVER WITH POWER APPLIED!

1.4. SPD-32M Idle Current Adjustment

The SPD-32M mini stepping module has an adjustable idle current used for holding torque when the SPD-32M motor drive is idle. The idle current adjustment is made by, inserting jumpers on header H1.



Without any jumpers inserted on H1 the idle current is the same as the running current. The minimum idle current is selected with all jumpers inserted on H1. To select the proper idle current for your application, insert the needed jumpers on H1. Reduction of current is on % of running current.

1.5. SPD-32M Motor Connections

The SPD-32M driver is designed to drive four, six or eight lead stepping motors. For motor leads color codes see Section 3.4.

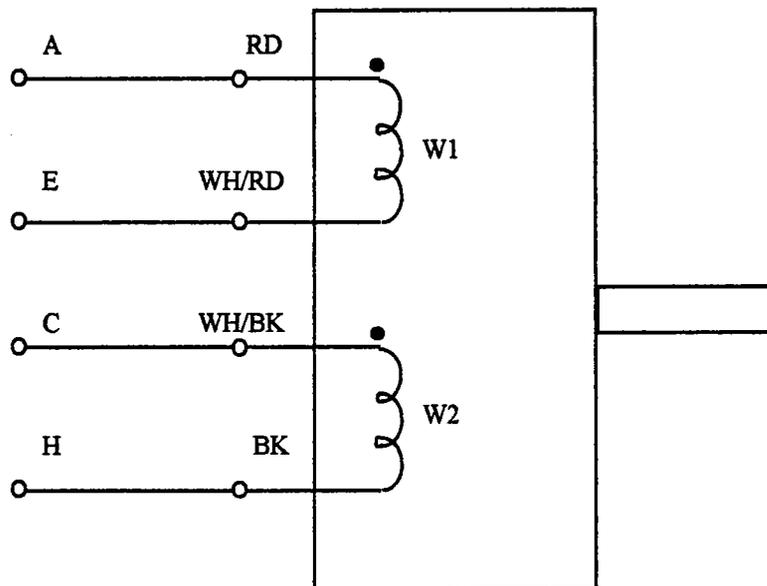


Figure 6.1- Four Lead Stepping Motor Connection for SPD-32M Bi-Polar Driver. Color Code is for Slo-Syn Motors. Reverse wires of windings W2 or W1 for motor rotation reversal.

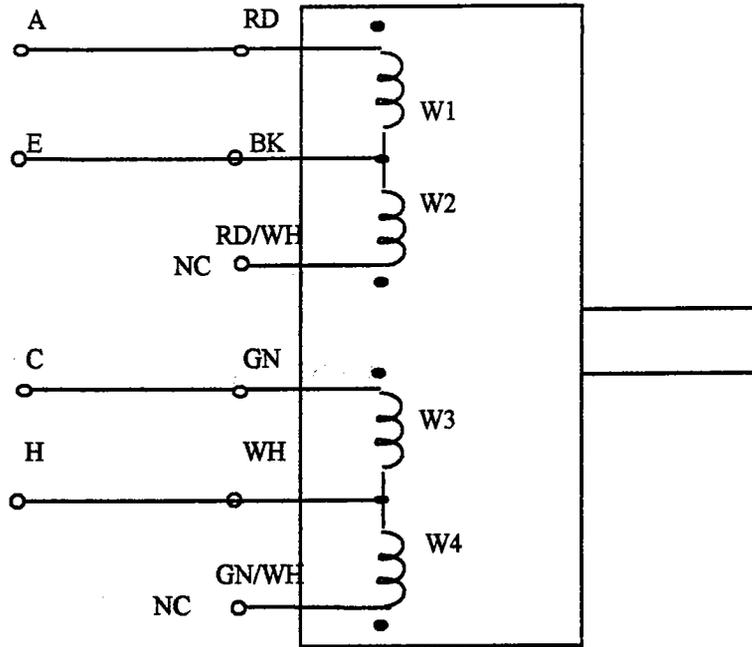


Fig. 6.2 Four Phase - Six Lead Stepping Motor, Full Winding Connection for SPD-32M Bi-Polar Driver Module, half winding connection. Color code is for Slo-Syn Motors.

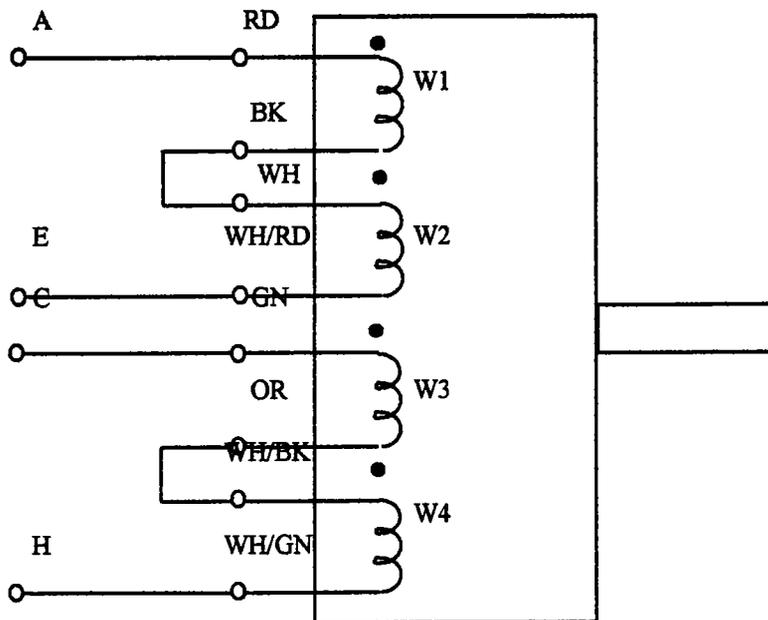


Fig. 6.3 Four Phase - Eight Lead Stepping Motor Connection to SPD-32M Bi-Polar Driver Module, Series Connection. Color Code is for Slo-Syn Motors.