

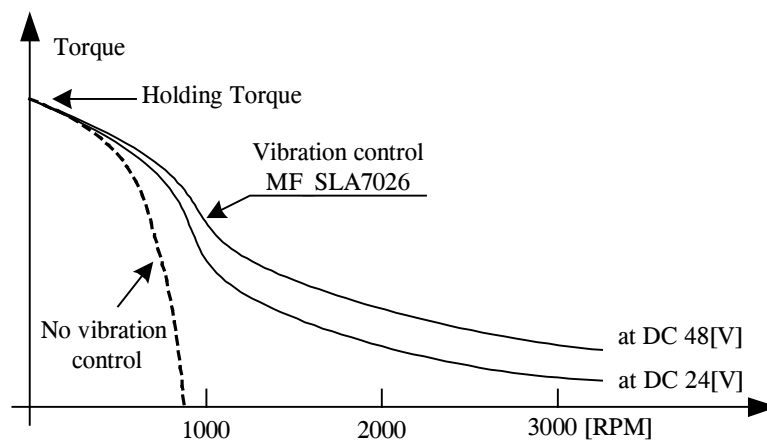
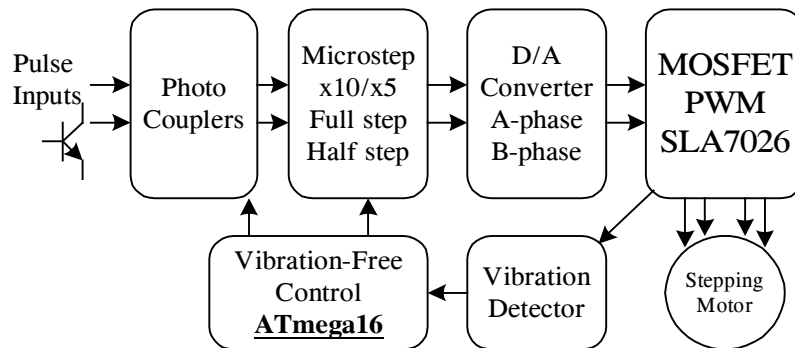
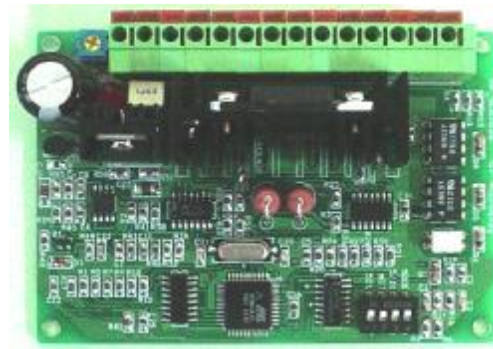
# MF\_SLA7026

## Multifunction Microstepping Drive

[www.pwm.pe.kr](http://www.pwm.pe.kr)

### Features

- High torque drive for 2 phase, Uni-polar stepping motors
- Wide Input Range of Voltage : 24 ~ 48[V]
- High Output Current : 0.5 ~ 3[A]
- Microstepping Mode : x10 and x5
- Full Step and Half Step Modes
- Auto Reduction of Vibration
- Running Speed up to 3,000 [rpm]



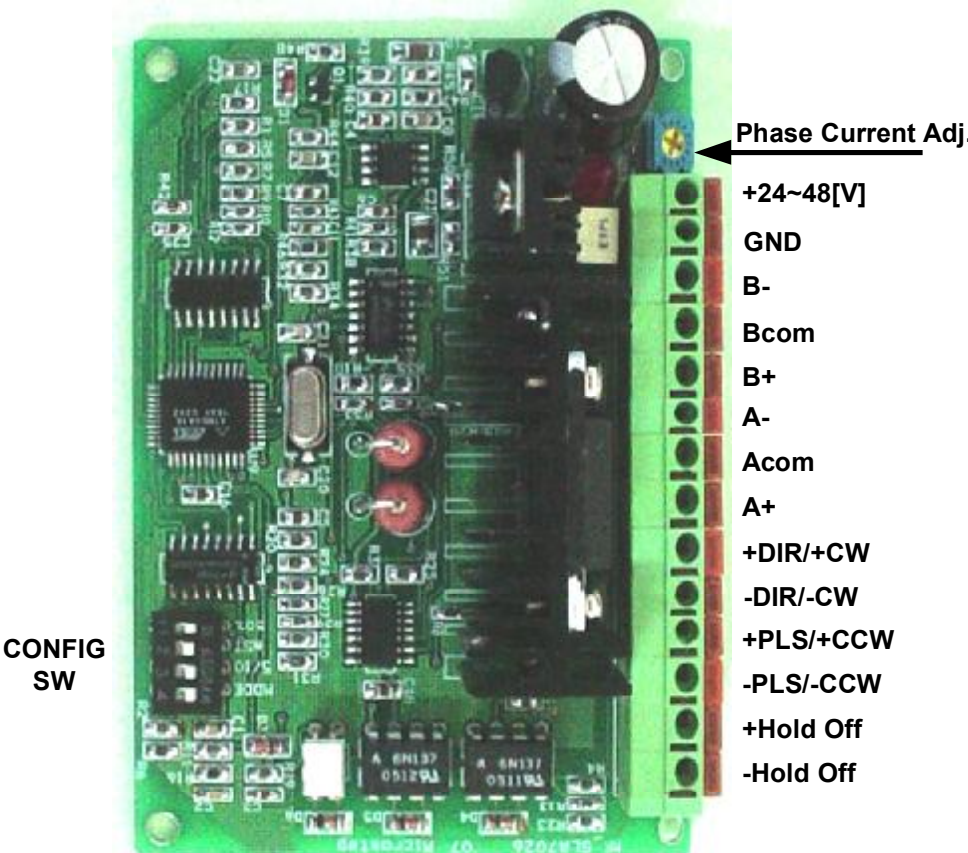
MF\_SLA7026 is designed for Uni-polar stepping motors. A microprocessor is employed to control step motors for intelligent functions such as vibration control, microstepping, full-step, half-step and auto-current reduction. 20kHz PWM is carried out on SLA\_7026 drive IC. Uni-polar motors can be driven with MF\_SLA7026 up to 3,000 [rpm].

Although a stepping motor is to identify the most economical actuator of motion control system, the stepping motor system will vibrate in the speed range of 300~900 rpm with conventional drives. It is commonly called Mid Range Instability. MF\_SLA7026 has a function of anti-resonance and gives speed range of 0 to 3,000 rpm. Vibration is detected from the phase current and the microprocessor computes phase command of the motor in order to reduce the vibration.

Position accuracy and repeatability of stepping motors are still subject to the motor's mechanical accuracy and load torque. The mechanical accuracy of the 2-phase motor is  $\pm 3$  arc minutes ( $0.05^\circ$ ) at no load state. At full load condition, the accuracy is  $\pm 1.8^\circ$  regardless of microstepping mode. So, microstep drives do not make the resolution of their steps. A load torque equal to 50% of the holding torque will displace 37%(error  $0.7^\circ$ ) of a full step about the origin. So, 10x microstepping is reasonable to keep high accuracy of position.

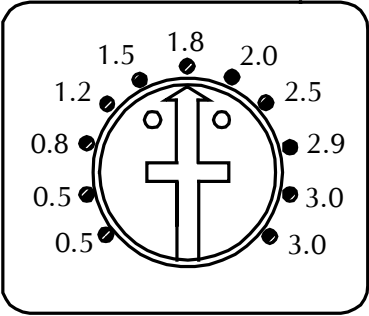
#### **CAUTIONS**

1. An 1000uF/63V Electrolytic capacitor should be connected across the power terminal. Back EMF makes a higher voltage on power supply during deceleration of motor.
2. When distance between MF\_SLA7026 and the power supply is longer than 10cm, the power wires must be twisted and an external capacitor(Electrolytic Cap.) is needed at power terminal of MF\_SLA7026.



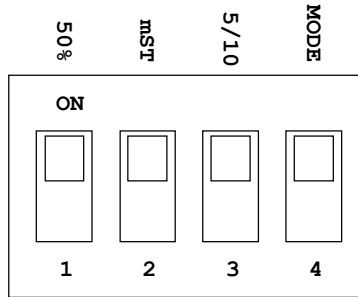
**Current Settings**

AMP. ADJ [A]



Adjust the potentiometer according to the rated current of phase. For example, a name plate of motor says 4.5[V] 2.3[Ω], the rated current is 1.95[A].(4.5/2.3)

**CONFIG SWs**



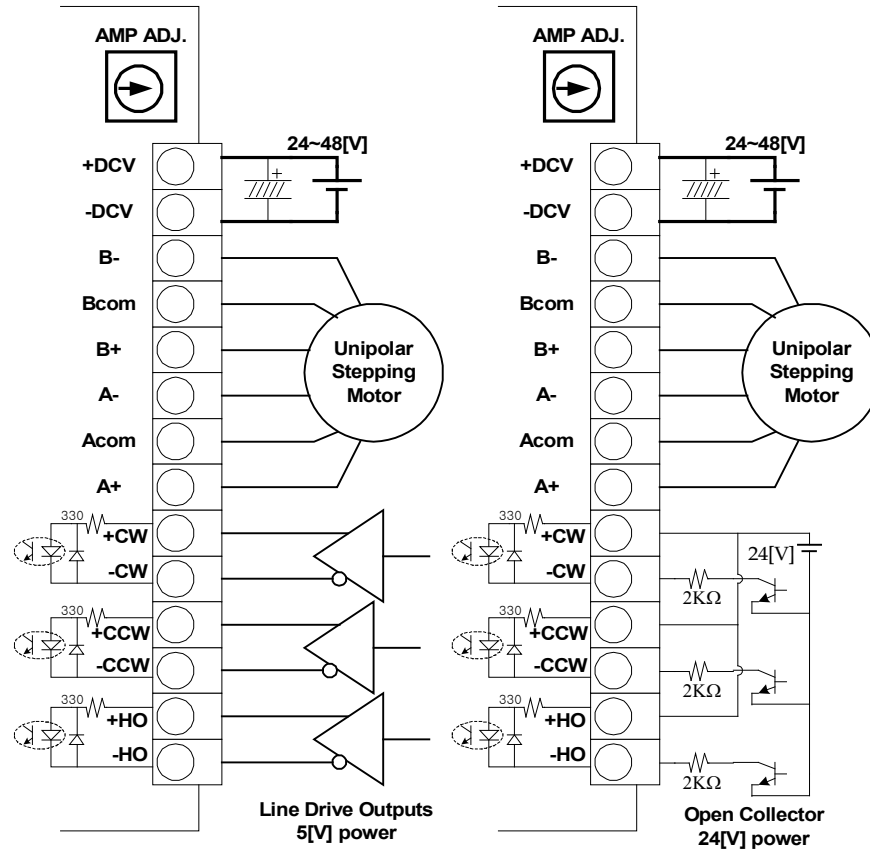
**Switch Settings**

SW	State	Function
<b>50%</b>	OFF	No current reduction at standby state
	ON	At zero speed, Phase current is reduced slowly to 50%
<b>MODE</b>	OFF	Direction + step Pulse input mode
	ON	CW pulse, CCW pulse mode

SW	State	Function	Resolution	Max. Freq
	<b>OFF</b>	Half-step	400/rev.	20kHz
	<b>OFF</b>			(3000rpm)
<b>[mST]</b>	<b>OFF</b>	Full-step*	200/rev.	10kHz
	<b>ON</b>			(3000rpm)
<b>[5/10]</b>	<b>ON</b>	Microstepping x5	1000/rev.	50kHz
	<b>OFF</b>			(3000rpm)
	<b>ON</b>	Microstepping x10	2000/rev.	100kHz
	<b>ON</b>			(3000rpm)

Motors will be run over 3000[rpm] at above max. frequency. However, the motor bearings can be damaged.

## Motor Connections

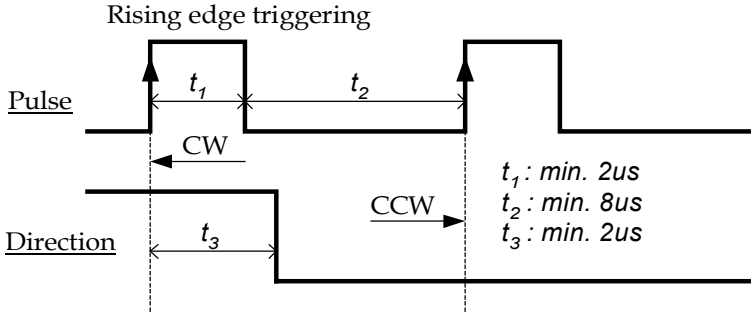


**Line Inputs** : Photo inputs use 330[Ω] resistors in series for +5~12[V]. For above 12[V], external resistors are required at CW/CCW/HO terminals to build a proper input current(10[mA]). For example, 2[kΩ] resistor is good at 24[V].

**Input (HO)** : This input, Hold Off, makes the drive turn off. Motor currents become zero and PWM switching is stopped. When OFF is released, the motor is going to move to A+ position. It loses the actual position. When you need to keep current position of motor, Do not use OFF input.

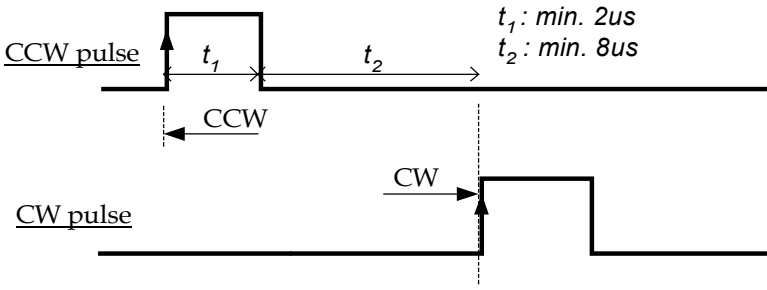
**Power DCV** : High speed running motors generate high voltages of EMF. EMF makes low current inversely proportional to speed. Use 48[V] power supply for high speed operation.

### Input Command Connections



**Mode: DIR/PLS**

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**Mode: CW/CCW**

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