

MYCOM

PSU50 Series
5 Phase Step Motor Driver

OPERATION MANUAL

Nyden Corporation
2610-B North 1st. Street
San Jose, CA 95134
www.nyden.com

Description

PSU50 Series driver is compact design, making it ideal for applications where space is limited. Mycom's owned IC made this designed possible. Aside from the 20 percent reduction in size and weight, it's Power Efficiency is also increased by approximately 30 percent compared UPS50 series drives.

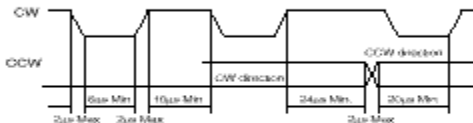
PSU50 drivers are capable of driving a wide range of 5 Phase Star stepping motors. It can be matched with the standard PS Series and with the high torque, high speed PF Series motors. Please refer to torque graphs available for individual motors.

With its built in power supply, there is no need for external power supply. This is excellent in industrial settings and simplifies the wiring requirement.

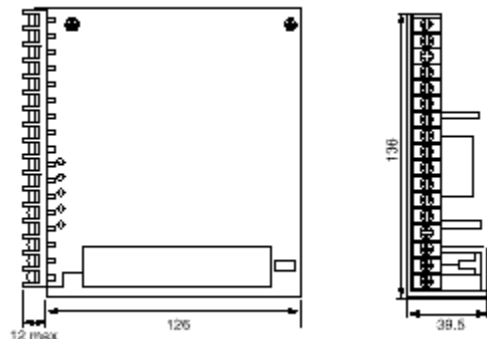
Specifications

Model	PSU50-033	PSU50-133
Drive Type	Star Bi-Polar, Constant Current Chopper	
Current Rating	0.75A/Phase	1.4A/Phase
Power Requirements	AC 100V/ 115V \pm 10% 50/60Hz	
Power Consumption	2.0A or less	3.5A or less
Input Pulse Type	Step and Direction (1P) or CW/CCW (2P) signal, selectable	
Input Interface	All inputs are opto-isolated Voltage: L: 0~0.5V H: 4~5V Series Resistance: 390 Ω	
Output Interface	Opto-isolated Open collector output: 24Vdc 10mA nominal	
Operating Environment Temperature	0 ~ 40°C Ambient temperature	
Dielectric Strength	No abnormality detected after application of AC 1KV between case and power input terminals, case and signal I/O terminals, signal I/O terminals and power input terminals for duration of one minute)	
Insulation Resistance	100M Ω or better with 500V potential applied between case and power input terminals and signal I/O terminals.	

Pulse Waveform



PSU50 Driver Dimensions (mm)



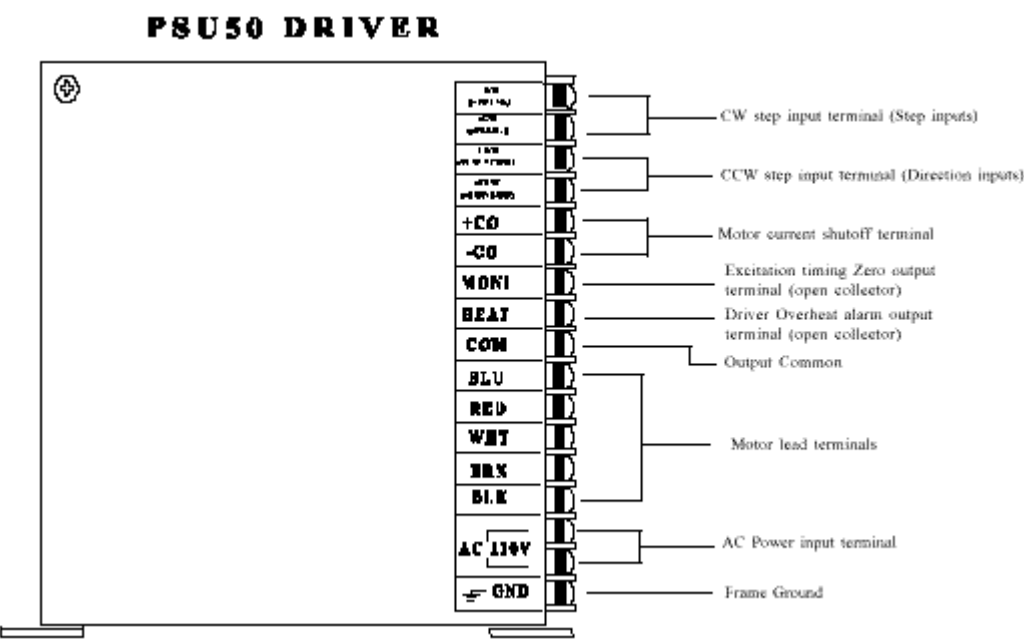
CAUTION:

TO AVOID INJURY BY ELECTRICAL SHOCK AND DAMAGE, DO NOT TOUCH MOTOR LEAD TERMINALS WHEN POWER IS ON. THE MAXIMUM MOTOR CHOPPING VOLTAGE WILL APPROACH 140VDC. NO CONNECTION CHANGES MAY BE MADE WHILE THE DRIVE POWER IS ON. HAZARDOUS VOLTAGES MAY BE PRESENT AT THESE TERMINALS IF THE MOTOR OUTPUTS ARE SHORT CIRCUITED. SERIOUS DAMAGE TO THE DRIVER WILL RESULT. THIS WILL NOT BE COVERED UNDER WARRANTY, AND WILL VOID REMAINDER OF THE ORIGINAL PRODUCT WARRANTY. IF MOTOR LEAD TO TERMINAL CONNECTION IS TO BE MADE VIA A CONNECTOR SET, DO NOT USE MALE CONNECTORS OF ANY TYPE TO TERMINATE DRIVER OUTPUTS TO THE MOTOR. ALWAYS USE FEMALE CONNECTOR ON THE DRIVER SIDE OUTPUT TO AVOID POSSIBLE SHORT CIRCUIT ACCIDENT.

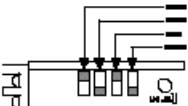
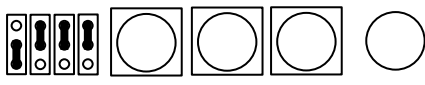
Driver Installation Notes

- No connections or physical installation should be performed while the driver power is ON.
- This driver is primarily designed for indoor use.
- Avoid contact with corrosive materials, water, oils and excessive dust.
- It may be necessary to install DC line noise filter(s) where strong noise sources exist near the driver. The line noise induction problems may be improved or avoided by a careful wire routing plan.
- Be certain that conductive particles do not fall into the drivers internal structure.

Connection and Functions

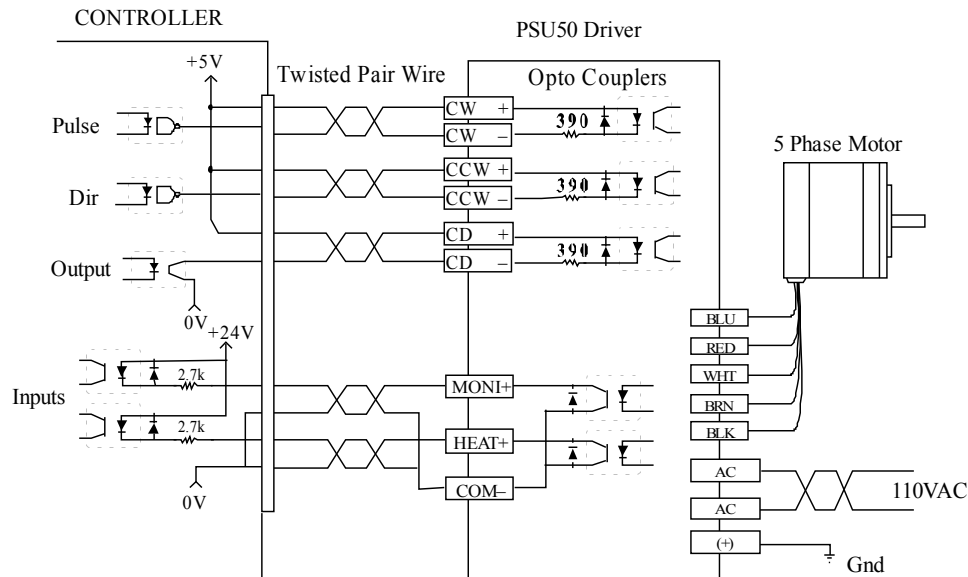


Adjustable Functions

<div><p>Jumper settings Location</p></div> <div></div>	ACD	Automatic Current Down – When this is set to OFF, the Automatic current cutback function is disabled.
	ACO	Automatic Current Off – When this is set to ON and the on board temperature sensor reaches 158°F (70°C) the driver will automatically cut current to the motor. The OFF setting will disable this function.
	F/H	F - Full Stepping : 0.72° /step resolution H- Half Stepping: 0.36° /step resolution
	1P/2P	Clock Type inputs: 1P – Step and Direction or 2P – CW/CCW
	C.ADJ	Current Cutback Adjustment (VR3) This is factory set to match packaged motor current specification, 0.75A on PSU50-033 and 1.4A on PSU50-133. <i>This adjustment should not be change unless it is absolutely needed to reduce motor torque and motor/drive heat generation.</i>
	CC.ADJ	Current Cutback Adjustment (VR2) Standstill current takes effect 200ms after the motor stop. This is adjustable from 20~90% of the running current. Factory default setting is 50% of the rated current.

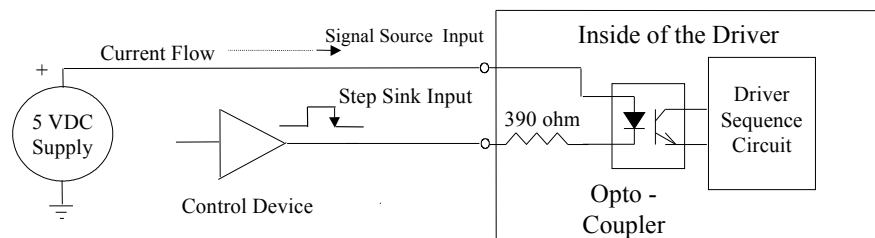
Connections

The figure below is the typical connection to the PSU50 driver. It is recommended to sink the current on the user's controller to avoid some problems when sourcing using TTL devices. Please follow motor color code to connect to the driver.

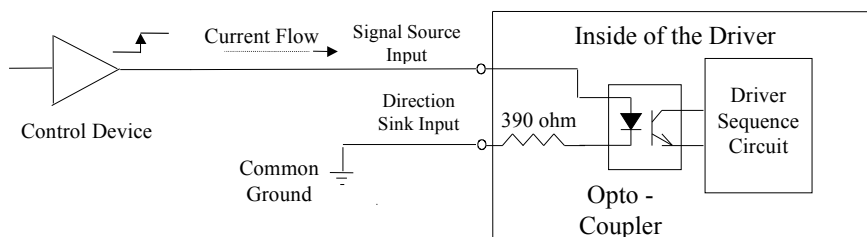


Methods used to Control MYCOM Driver Inputs

There are two methods used to Control the Driver Input stages of MYCOM Drivers. The first is called **Current Sinking** in which the Control Signal is applied to the negative Input of the Opto-Isolated Driver Input stage and a +5 Volt source, typically from a +5 VDC power supply, is connected to the positive Input. Using this first method, as long as the Controlling Device can Sink 10 to 20 mA of Current then the Opto-Isolated Driver Input stage will operate properly at most Clock Rates or Step/Pulse Rates.



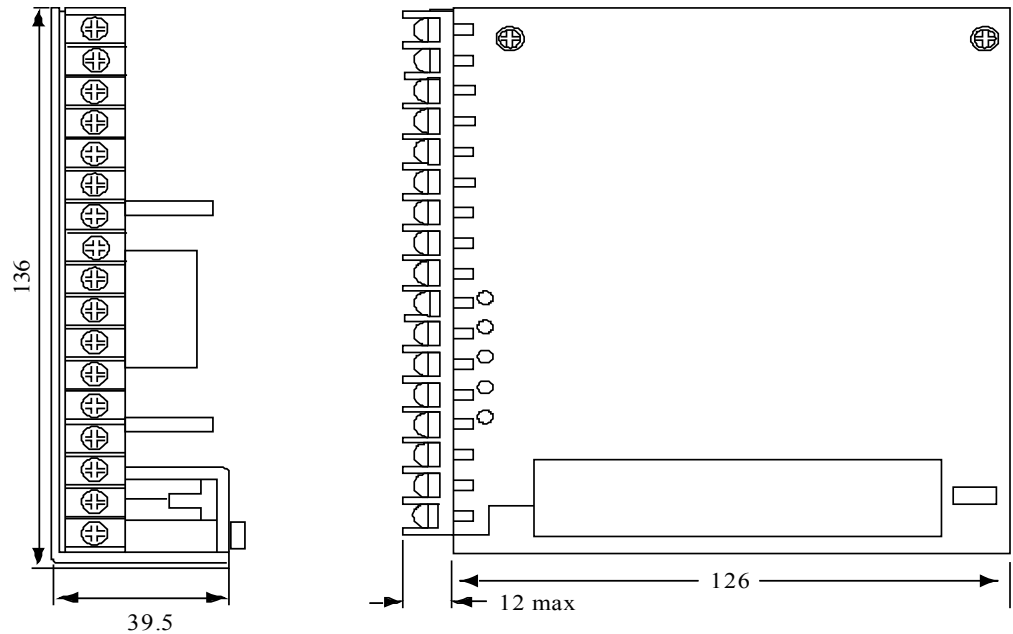
Current Sinking Method for Controlling Driver Inputs



Current Sourcing Method for Controlling Driver Inputs

The second method (left) of Controlling the Driver Inputs is called **Current Sourcing** in which the Control Signal is applied to the positive Input of the Opto-Isolated Driver Input stage and the negative Input is grounded. Using this second method, as long as the Controlling Device can Source (provide) 10 to 20 mA of Current then the Opto-Isolated Driver Input stage will operate properly at most Clock Rates or Step/Pulse Rates.

Physical Dimensions



Mounting Specifications (mm)

