

# Kinco® Stepper Driver 2H1160

User manual v1.0



Kinco Electric(Shenzhen) Ltd.

To be partner of your success



Kinco Electric (Shenzhen) Ltd.  
 Building 1, No.6 Langshan 1<sup>st</sup> Rd, Hi-tech Park  
 North, Nanshan, Shenzhen, China(518057)  
<http://www.kinco.cn>  
[sales@kinco.cn](mailto:sales@kinco.cn)

## 1. Safety Precautions

- Observe safety precautions strictly.
- Use a multi-meter to verify that the voltage on the driver terminals is safe; otherwise, the electric shock may occur.
- Never connect wires while the driver and the motor are working; otherwise, the electric shock may occur.
- Do not remove the housing of the driver when the power is on or the driver is working; otherwise, the electric shock may occur.
- To avoid personal injury and property loss, only qualified and service-trained personnel can operate the driver.
- Do not insert any object into the driver, which may cause damage to the equipment.
- If any fault occurs to the drive, please return the driver to the maintenance and repair center. Opening the driver without authorization or improper operation may cause damage to the driver. Removing the enclosure of the driver without authorization will void the warranty.
- The waste driver shall be disposed of as industrial waste to avoid environmental pollution.

## ⚠ Statement:

- When this driver is applied in some mechanical instruments where personal safety is directly involved (e.g. nuclear power control, medical device, truck, train, airplane, amusement and safety devices), be sure to install proper fault-proof devices to avoid the possibility of personal injury.
- Electronic devices are not permanently reliable! Adequate safety measures must be taken to ensure personal and equipment safety in case of a failure. The users must be liable for any loss resulting from equipment fault or mis-operation of the driver.

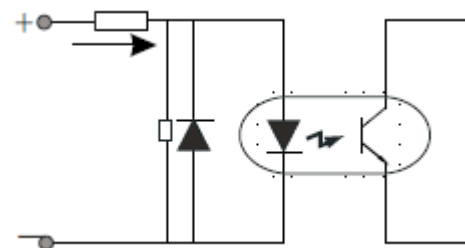
## 2. Characteristics:

- Power supply: 60VAC~123VAC
- Bipolar constant current drive mode is adopted with phase current up to 6.5A. Any two phase bipolar hybrid motor which current phase is less than 6.5A can be driven by this driver.
- Output phase current is selectable by DIP switches to match motors of different specifications.
- Automatic half-current is settable by DIP switches when motor is standstill locked, which could greatly reduce heat of motors.
- Dedicated control chip is adopted, full-step or half-step mode are selectable by DIP switches, suitable for application requiring high speed and high torque.
- Support offline function to cut of current output if necessary.
- Opto couplers are used for the control signal circuit to reduce external interference.

## 3. Specification

Parameter	2H1160
Input voltage	Single phase 60~123VAC(50Hz)
Output current (Peak)	2.5A~6.5A
Control signal	5~24VDC, input current:6~16mA
Cooling method	Nature air cooling
Operation environment	Avoid environment with great amount of metallic powder, oil mist, or erosive gases
Operation temperature	0°C~+40°C
Operation humidity	<85%RH (Non-condensing or water drops)
Weight	1.77kg

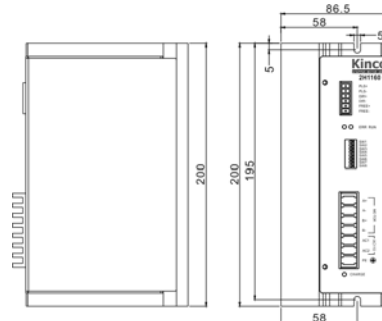
## 4. Control signal input circuit



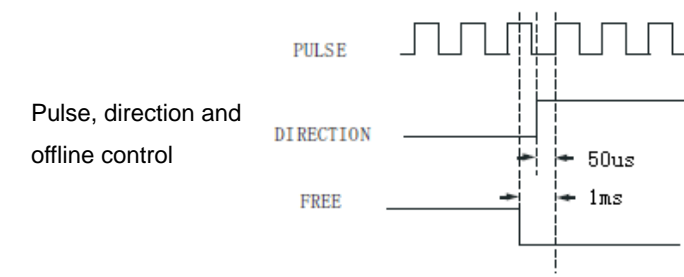
Opto couplers are used for the control signal circuit to

reduce external interference. All 5~24VDC voltage can be used for the control signal's input terminal.

## 5. Mechanical dimensions (Unit: mm)



## 6. Control signal:



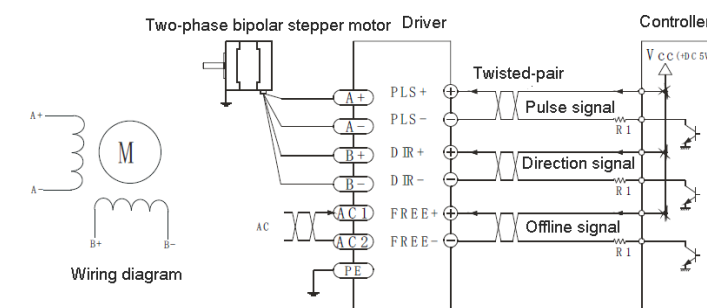
This driver can only work in pulse and direction control mode. When pulse signal input, motor will rotate towards original direction (original direction is related to the wiring of motor, exchanging the phase can change the original direction). When changing the electrical level of control signal, the motor will rotate against original direction. When driver works at pulse and direction mode, DIR indicates the direction signal's input terminal, changing electrical level can control direction of running. In order to set up a reliable control signal, it should be occurred at least 50µs ahead than pulse signal.



When driver works at offline mode, FREE indicates the offline signal's input terminal. When changing electrical level to zero, driver works at online state. In order to set up a reliable responds, pulse signal should be occurred at least 1ms later.



## 7. Typical wiring



Note: when above V1.4 version, R1=0, no need to weir 2Kohm resistor.



Free terminal is for offline signal input. When enable this circuit, driver will cut off phase current immediately

and the stepper motor will be at a free state.

## 8. Function of DIP switches



Upon the driver, it has 8 bit red DIP switches, which is used to set working mode and parameters of driver. Please read it carefully before power on!



No.	ON	OFF	Note
DIP1~DIP5	Set current	Set current	
DIP6	Half-current valid	Half-current invalid	
DIP7	Half-step 400 steps/round	Full-step 200 steps/round	

## 9. Current setting



Upon the driver, it has 8 bit red DIP switches, which is used to set working mode and parameters of driver. Please read it carefully before power on!



Output phase current settings:

DIP1	DIP2	DIP3	DIP4	DIP5	Current
ON	ON	ON	ON	ON	2.5A
OFF	ON	ON	ON	ON	3.0A
ON	OFF	ON	ON	ON	3.5A
OFF	OFF	ON	ON	ON	4.0A
ON	OFF	OFF	ON	ON	4.5A
OFF	OFF	OFF	ON	ON	5.0A
OFF	OFF	OFF	OFF	ON	6.0A
OFF	OFF	OFF	OFF	OFF	6.5A