



## Key Features:

- ❑ 20 to 50VDC Supply Voltage
- ❑ H-Bridge, 2 Phase Bi-polar Micro-stepping Drive
- ❑ Suitable for 2-phase, 4, 6 and 8 leads step motors, with Nema size 16 to 34
- ❑ Output current selectable from 1.0 ~ 4.2A peak
- ❑ Current reduction by 50% automatically, when motor standstill mode is enabled
- ❑ Pulse Input frequency up to 200 kHz
- ❑ Optically isolated differential TTL inputs for Pulse, Direction and Enable signal inputs
- ❑ Selectable resolutions up to 25000 steps
- ❑ Over Voltage, Coil to Coil and Coil to Ground short circuit protection.

## Introduction

PSD5042-2P is a cost effective, high performance bi-polar two phase micro-stepping drive applying pure-sinusoidal current control technique. It is best suited for the applications that desired extreme low noise and heat. It operates well in an environment, where electricity supply experience instability and fluctuation.

The general pseudo-sinusoidal current control technology adopted by majority of the drive produced distorted sine wave, and current ripple, resulting in vibration, noise and motor heating. This results in motor degrading over time, reducing in motor performance and shortens the usage life.

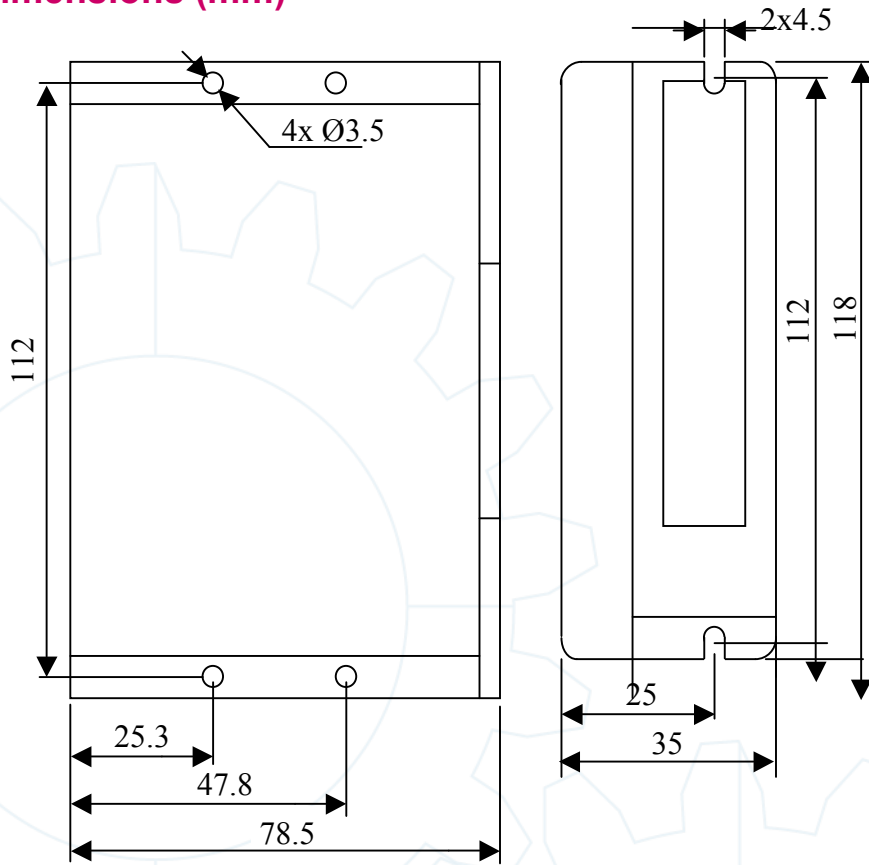
With an automatic optimization speed control technique, the PowerStep series drive output is very stable, with almost zero vibration and noise, performing close to a servo system, allowing the motor to operate smoothly. That helps to fulfill a design requirement of low noise, low heat and high performance.

## Specifications

| Parameters            | Min | Typical | Max | Unit |
|-----------------------|-----|---------|-----|------|
| Output Current (Peak) | 1.0 | -       | 4.2 | Amps |
| Supply voltage        | 20  | 36      | 50  | VDC  |
| Logic Input Current   | 7   | 10      | 16  | mA   |
| Pulse input frequency | 0   | -       | 200 | KHz  |
| Low Level Time        | 2.5 |         |     | µsec |

| Cooling       | Natural Cooling or Forced Convection |   |
|---------------|--------------------------------------|---|
| Environment   | Space                                | Avoid dust, oil frost and corrosive gases |
|               | Ambient Temperature                  | 0°C – 50°C                                |
|               | Humidity                             | 40 – 80%RH                                |
|               | Vibration                            | 5.9m/s <sup>2</sup> Max                   |
| Storage Temp. | -10°C – 80°C                         |   |
| Weight        | Approx. 260 gram                     |   |

**Mechanical Dimensions (mm)**



**Current Setting**

| Current Setting (A) | SW1 | SW2 | SW3 |
|---------------------|-----|-----|-----|
| 1.0                 | ON  | ON  | ON  |
| 1.46                | OFF | ON  | ON  |
| 1.91                | ON  | OFF | ON  |
| 2.37                | OFF | OFF | ON  |
| 2.84                | ON  | ON  | OFF |
| 3.31                | OFF | ON  | OFF |
| 3.76                | ON  | OFF | OFF |
| 4.20                | OFF | OFF | OFF |

**Microstep Setting**

| Step / Rev | SW5 | SW6 | SW7 | SW8 |
|------------|-----|-----|-----|-----|
| 400        | OFF | ON  | ON  | ON  |
| 800        | ON  | OFF | ON  | ON  |
| 1600       | OFF | OFF | ON  | ON  |
| 3200       | ON  | ON  | OFF | ON  |
| 6400       | OFF | ON  | OFF | ON  |
| 12800      | ON  | OFF | OFF | ON  |
| 25600      | OFF | OFF | OFF | ON  |
| 1000       | ON  | ON  | ON  | OFF |
| 2000       | OFF | ON  | ON  | OFF |
| 4000       | ON  | OFF | ON  | OFF |
| 5000       | OFF | OFF | ON  | OFF |
| 8000       | ON  | ON  | OFF | OFF |
| 10000      | OFF | ON  | OFF | OFF |
| 20000      | ON  | OFF | OFF | OFF |
| 25000      | OFF | OFF | OFF | OFF |

\* SW4: ON=Full current, SW4 : OFF=Half current

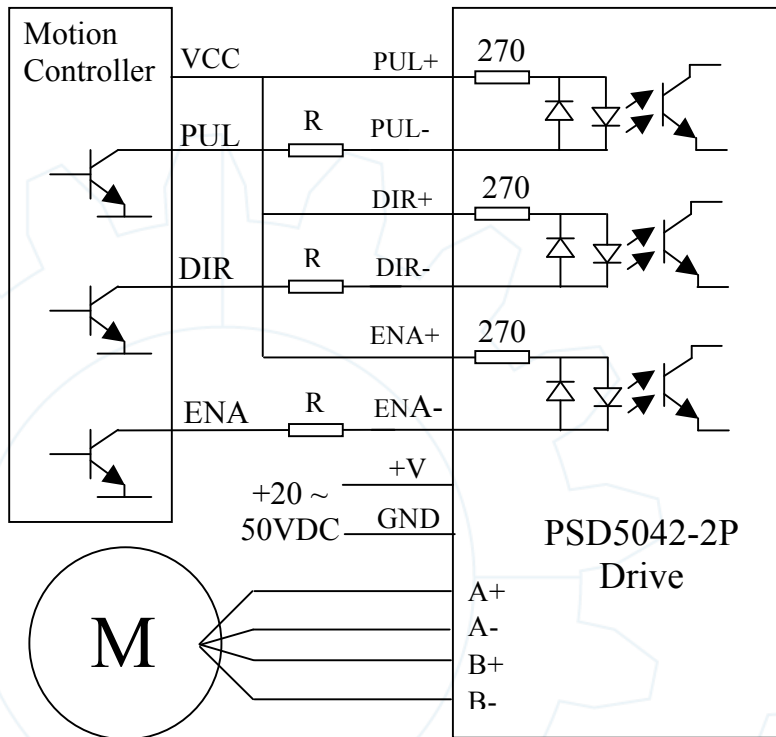
**P1 Terminal Assignment**

| Signal      | Function and Descriptions  |
|-------------|--|
| <b>PUL+</b> | <u>Pulse or Step Input</u><br>TTL differential input with high-going pulse, 1 μs min width. For +12V or +24V operation, a current limiting resistor had to be pull up or connected in series from the PUL+ to the VCC. |
| <b>PUL-</b> |  |
| <b>DIR+</b> | <u>Direction Input</u><br>Logic High = positive (CW) rotation—4.0 ~ 5.0V<br>Logic Low = negative (CCW) rotation—0 ~ 0.5V   |
| <b>DIR-</b> | The DIR signal must be stable for at least 5ms before the drive receives the first pulse.  |
| <b>ENA+</b> | <u>Enable Input</u><br>Logic High = Drive Enabled<br>Logic Low = Drive Disabled  |
| <b>ENA-</b> | This input, if left unconnected, is recognised as Logic High by the drive, and it will be enabled.   |

**P2 Terminal Assignment**

| P2 Signal     | Function and Descriptions                          |
|---------------|--|
| <b>GND</b>    | DC Power Ground                                    |
| <b>+V</b>     | DC Power Supply, +24VDC ~ +58VDC                   |
| <b>A+, A-</b> | <p>4 Leads Motor      Full Coil      Half Coil</p> |
| <b>B+, B-</b> | <p>Series      Parallel</p> <p>8 Leads Motor</p>   |

**Wiring**



R=0 if VCC=5V  
 R=1K(Power>0.125W) if VCC=12V;  
 R=2K(Power>0.125W) if VCC=24V;  
 R must be connected to control signal terminal.