Applied Motion Products

Product Datasheet

# PDO5580

*AC Microstep Drive w/ Oscillator*

## Product **Features**

- *AC input 110V or 220V switch selectable, 50-60 Hz*
- *DC bus voltage 75 VDC full load, 80 VDC nominal*
- *Switch selectable motor current from 0.5-5.5 amps/phase*
- *Microstepping with switch selectable resolution*
- *Selectable automatic 50% idle current reduction*
- *Optically isolated inputs/outputs*
- *Internal oscillator for velocity control*
- *Selectable speed range*
- *Pluggable screw terminal connectors*
- *Dual MOSFET H-bridge, 3 state, pulse width modulated amplifier switching at 20-30 kHz*
- *Ideal for 4, 6 or 8 leaded step motors NEMA sizes 23 and 34*
- *Over-temperature and over-current/short circuit protection*

## Description

The PDO5580 stepper drive is packaged in a rugged steel case. Integral heat sink, mounting brackets, and connectors are included with each drive. The drive comes factory set for 110 VAC operation, but can be switched to operate on 220 single-phase VAC as well. The drive is recommended for use with NEMA 23 and 34 frame step motors to create a complete stepper motion solution. Pluggable mating screw terminal blocks are provided with each drive for connecting the motor, AC input, and I/O.

The PDO5580 provides the user with two modes of operation to choose from, Pulse & Direction or Oscillator, selectable during set up via DIP switch. DIP switches are also provided for setting the step resolution and motor current. Pulse & Direction mode allows the PDO5580 to receive step pulses from an indexer, motion controller, PLC, or other external controller. Oscillator mode controls the speed of the motor relative to an on-board potentiometer. An external analog voltage or potentiometer may also be used to control speed. In oscillator mode the STEP input starts and stops the motor, while the DIR input controls direction of rotation.

The PDO5580 also provides a tach output and an enable input. The tach output provides a means for measuring motor speed. It generates 100 pulses per revolution. If connected to a frequency counter, speed reads out in revs/second with two decimal places. The enable input allows the user to turn off the motor current with a digital signal. When the enable input is activated the drive cuts power to the motor, which means the motor is disabled and has no torque.

The PDO5580 also features a Self Test function for troubleshooting the motor connection. If you are unsure about the motor or signal connections to the drive you can use the self test function to verify that the motor is turning properly in both directions. The drive is protected from over-temperature conditions as well as motor over-current and short circuit conditions.

## Specifications

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|---|---|
| **Model Number** | PDO5580 |
| **Part Number** | 5000-047 |
| **Supply Voltage** | 110/220 VAC |
| **Supply Voltage Type** | AC |
| **Control Modes** | • Step & Direction<br>• Velocity (Oscillator) |
| **Output Current** | 0.5-5.5 A/phase |
| **Communication Ports** | NA |
| **Encoder Feedback** | No |
| **Step Resolution** | • Full<br>• Half<br>• Microstepping |
| **Idle Current Reduction** | 50% |
| **Setup Method** | Switch / potentiometer |
| **Digital Inputs** | 4 |
| **Digital Outputs** | 2 |
| **Analog Inputs** | 1 single-ended |
| **Dimensions** | 8.0 x 5.3 x 3.0 inches |
| **Weight** | 125 oz |
| **Operating Temperature Range** | 0-70 °C |
| **Ambient Temperature Range** | 0-50 °C |
| **Ambient Humidity** | 90% max, non-condensing |
| **Status LEDs** | 3 red (power, temp, short) |
| **Circuit Protection** | • Short circuit<br>• Over-temp |

## Software

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| **Software Downloads** | There is no software related to this product. |
| **Sample Code** | There are no sample code documents at this time. |

## 2D Drawings

### Mechanical Outline