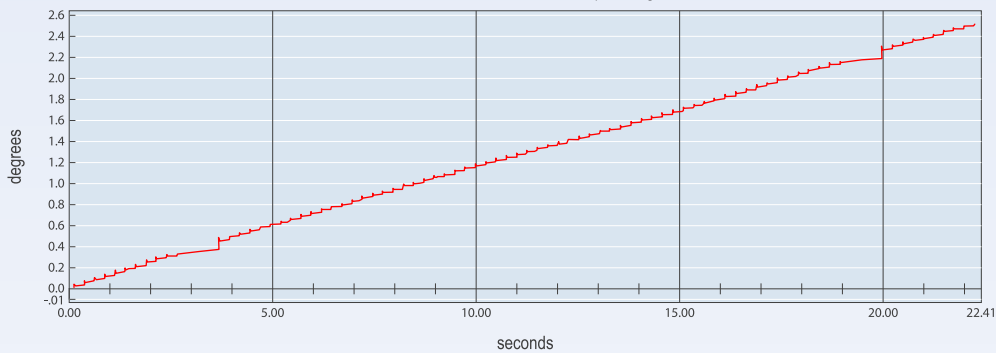


Pole Damping Technology™ (PDT) enhances step motor performance by creating a more accurate and smooth motion profile. PDT optimizes the microstepping performance of the step motor by outputting the correct amount of run and hold current to the motor. Thus, each step will overcome the motor’s natural tendency to want to forcefully pull towards the full step ON position.

Currently, the SilverPak 23D Plus integrated motor + driver (page 77-78), the Silverpak 34D integrated motor + driver (page 81-82), the R525 microstepping driver (page 103) and the R325 microstepping driver (page 102) contain the PDT technology. Lin Engineering strives to constantly improve technology. Products that are currently under development will have PDT implemented for the purposes of further enhancing the smooth motion and accuracy of our products.

The graph below shows what PDT can do for your applications. Notice the spikes that a competitor’s driver creates at every 64th step when running the motor at 64x microstepping. These sudden “jumps” are caused by the detent torque of the motor. Taking a closer look at the graph reveals that the few microsteps prior to the huge spike are inconsistent as well. The spikes are due to the step motor correcting itself over time; when errors are accumulated during the 63 microsteps, the 64th step forces the motor to line up evenly between stator and rotor. After the stator and rotor are aligned, the problem is repeated during the next 1.8°.

4118S -01 & Comparative Driver, 24VDC, 2.1 Amps Peak
1.8° Motor, 64x Driver Microstep Setting



The spikes occur because of the step motor’s poles forcefully being pulled towards each other. Pole Damping Technology™, as the name implies, dampens each step as it nears the full step positions where the poles are the strongest.

When using a product with PDT, the spikes are eliminated.

The R325 driver (page 102) eliminates these spikes, resulting in smooth motion and even steps.

4118S -01 & R325 Driver, 24VDC, 2.1 Amps Peak
1.8° Motor, 64x Driver Microstep Setting

