
Hi,

Short story is I decided to learn Verilog. Verilog is a language for programmable logic ICs. Learning it meant having a hardware target for the code being written while learning. I chose a DC servodrive as the target because it's relatively simple.

Learning it turned out to be much easier than I figured; what was supposed to be an exercise target has unexpectedly turned into a real drive. If you have used our G320 drives before, then I think the G380V will have significant improvements over the G320. Here are the differences:

- 1) G203V protection features. Short-circuit, over-voltage, under-voltage, over-temperature, reversed power supply polarity and internally fused. Also running a servomotor into a hard-stop won't hurt it. It should be unkillable.
- 2) All PID coefficients are now trimpot settable. The integral setting is included now. Top adjust trimots like on the G203V.
- 3) A true current-mode power amplifier section. The G320 has a quasi current-mode amplifier. This should help by adding phase margin stability.
- 4) Servo locking range is increased from +/-128 counts to +/-2,048 counts. That's +/- 1 full motor revolution with a 500-line encoder.
- 5) Encoder CH_A and CH_B inputs are now optoisolated. Multiple axis encoders can be driven with a single external 5VDC power supply now without any ground-loop problems. The encoders can also be read by the PC now if the CNC program allows it.
- 6) Separate FAULT and RESET terminals. NO more ERR/RES terminal. FAULT out is an optoisolated open collector, RESET in is an optoisolated LED input.
- 7) An optoisolated WARN open collector output. This output indicates when the motor is at full torque but developing an increasing following error. This gives warning the drive will FAULT if the error reaches +/-2,048 counts, giving ample warning in time to do something about it.
- 8) An IN_POSITION indicator showing the motor is within +/-2 encoder counts of the command position.
- 9) A 5-second 20A timer. Set the LIMIT trimpot to the motor's rated continuous current. The 5-second timer allows for max torque while accelerating or decelerating, then reverts to the LIMIT trimpot setting. This prevents the motor burning down when overloaded yet allows max torque for pulse loads.
- 10) Anti-dither (dead-band) enables 1/100 of a second after the last step pulse is sent. This keeps the motor quiet while stopped yet keeps servo stiffness while running. This feature is option-block selectable.
- 11) Four LED indicators. POWER, FAULT, WARN and IN_POSITION.
- 12) Built-in encoder divider. Settings are divide by 1, 2, 5, 10. Kind of like a G340. This feature is also option-block selectable.
- 13) The 7 optoisolator channels have a G203V interface specification, meaning it will work with 2.5V, 3.3V and 5V logic signals. All optoisolators are socketed. Maximum step pulse frequency is >500kHz.
- 14) It all fits in the same outline G320 package, price will be similar to a G203. All other specs (supply voltage, motor current, etc.) are the same as a G320. The prototype boards were let to the PC fabricators today. If everything goes as planned, look for it in the 1st quarter of 2008.

Mariss