

Spex 1702/04 Spectrometer stepper drive notes

Disconnect driver from spectrometer when reprogramming the micro controller

Limit switches come on at about:

scanning up 15982nm

scanning down 99788nm (past zero and rolled over)

Pololu stepper driver hardwired for 32 micro steps per step.

current limit set to ~0.6A.

BNC output shows the micro step pulses going to the driver.

Use this to determine exact scan rate.

Scan direction jumper in remote battery compartment

Scan speed pot measured once when switched into scan mode

(scan speed can't be changed while scanning)

When scanning fast/slow switch doesn't matter (always scans in slow mode)

(doesn't accelerate to scan speed but can start at max slow speed)

Quick test of max scan speed (values are approximate):

12,300nm to 11,300nm =1000nm

206.2 seconds for ~4.85nm/sec

BNC: 158.5us/step = 6,309Hz

~1301 counts/nm

Max manual control should be 8X faster (~38.8nm/sec)

Status LEDs:

Motor driver fault will come on when motor driver put to sleep (when not moving)

If on when trying to step possibly bad connection to motor.

Power supply LEDs (ON when voltage close to or greater than the correct value)

Limit switches (ON at end of travel, only allows movement in opposite direction)

Microstepping (a micro step has been taken in the last 0.5 second or so)