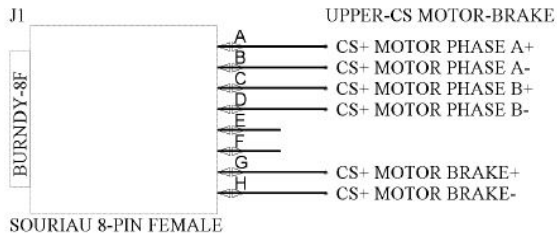
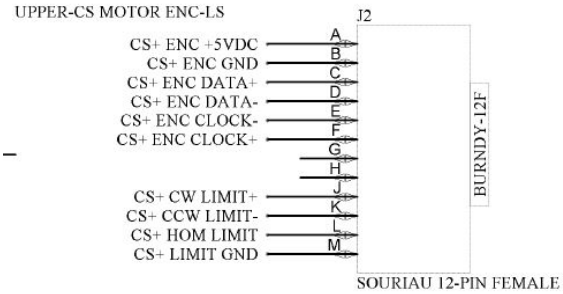
Test Stand Notes

Dechirper:

- SOURIA 8-pin female connector



- SOURIA 12-pin female connector



Motor:

- Terminated with 8 motor leads and 1 ground lead
- https://www.applied-motion.com/products/stepper-motors/ht23-601c

Encoder:

- Resolute Encoder part number: RL26BAE050D30A
  - RL: Resolute Linear
  - 26B: BISS 26 bit
  - A: Standard IP64
  - E: Gain option RELA
  - 050: Resolution 50 nm
  - D: Scale code option RELA
  - 30: cable length 3.0m
  - A: 9 way D
- Max reading speed:100m/s
-

Resolution	Maximum scale length (m)		
	36 position bits	32 position bits	26 position bits
1 nm	1.5*	1.5*	0.067
5 nm	1.5*	1.5*	0.336
50 nm	1.5*	1.5*	1.5*

BiSS C serial comms

Function	Signal†	Wire colour	Pin		
			9-way D-type	LEMO	M12
Power	5 V	Brown	4, 5	11	2
	0 V	White	8, 9	8, 12	5, 8
		Green			
Serial communications	MA+	Violet	2	2	3
	MA–	Yellow	3	1	4
	SLO+	Grey	6	3	7
	SLO–	Pink	7	4	6
Shield	Shield	Shield	Case	Case	Case

† For details, refer to *BiSS C-mode (unidirectional) for RESOLUTE encoders* Data sheet (Renishaw part no. L-9709-9005).

- **NOTE:** For UHV readhead only flying lead option available.

Decoding BISS information:

- run E201.exe
- Recommended frequency is 280kHZ or 560kHz (Decoding the BISS information pg1)
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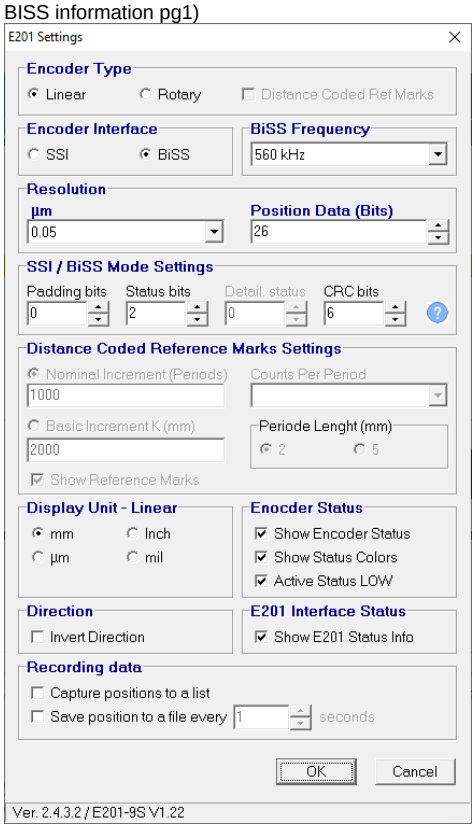


Male db connector making:

- Strip wires (usually they're 26 gauge)
- Check which wire is in which number on the female connector using vdm (voltmeter)
- Crimp the wire with the gold ends (the settings I used was 3)
- Put it in the appropriate number on the male db connector, usually clicks in or can use plier to pull it in

Tests to run:

- Move motor
- Check if direction of motion is correct
- Incremental and absolute motion, both directions
    - 1mm both directions initially
- Run tests with motor speed, acceleration
- Get encoder reading
- Move incrementally & check if units is consistent with lead screw pitch
- Offset the encoder limit
- Check limit switch positions
- Check if running current is consistent with the expected
- Check if CountsPerRev, StepperResolution, and CountsPerUnit are correct

FIG 1: Configuring axis when parameters are not configuring

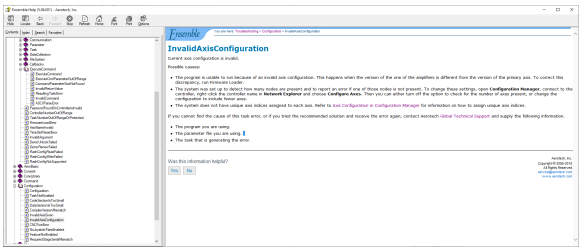
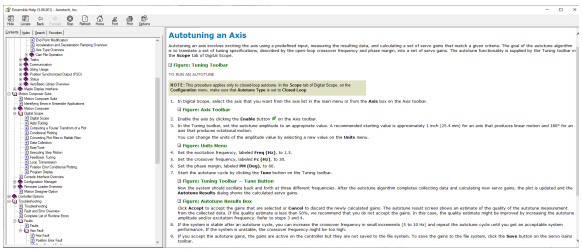


FIG 2: Tuning an axis



To check why motor is not moving:

- [ ] Switched wires to see if there are faults with the specific straight shot db9
- [ ] No gnd connection on motor?
- [ ] Current feedback shows ~0, why?
- [ ] Unplugged, shows same response as plugged. Seems to be no power is being given to the motor
- [ ] Check voltage output on controller, but wait for supervision
- [ ] Maybe current clamp is the issue? Higher initial current needed to get the motor moving?
- [ ] Spec sheet says 4.24A/phase? What is phase in this situation

To do with Cory:

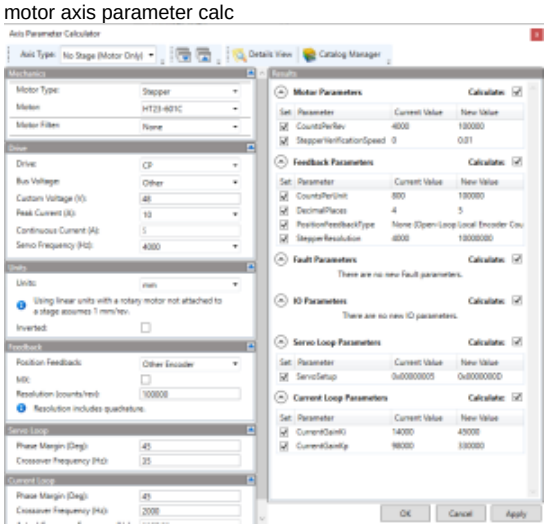
- [ ] Check on controller if power supply is sufficient or as intended
- [ ] Remove jumpers on breakout board (the only one to keep is for A- and then B-, they are jumped together in the chassis)
- [ ] Check ohm's on wires, we shoudl be getting 0.7 ohms/phase, why are we not getting that? between A+ and A-
- [ ]

Notes:

- FeebackOffset if it's not inverted is -30.6606
- I inverted velocityfeeback and positionfeedback and FeedbackOffset is 236.684

How did I get it to move:

- motor axis parameter calc



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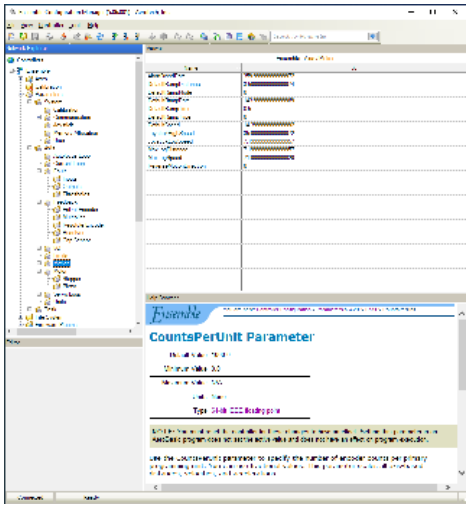
- most important might be:
    - StepperRunningCurrent = 4.24A
    - StepperHoldingCurrent= 2.12A

- 

As for the closed loop one (main thing that fixed it):

- Feedback resolute Commutation Initialization DO not use absolute position

for tomorrow see if you can find what the linear stage is

Getting test stand to work with Servo:

- Servo is better, more accurate than stepper
- Main thing was changing the configuration in axis configuration
- Need hall effect sensors to be connected I believe