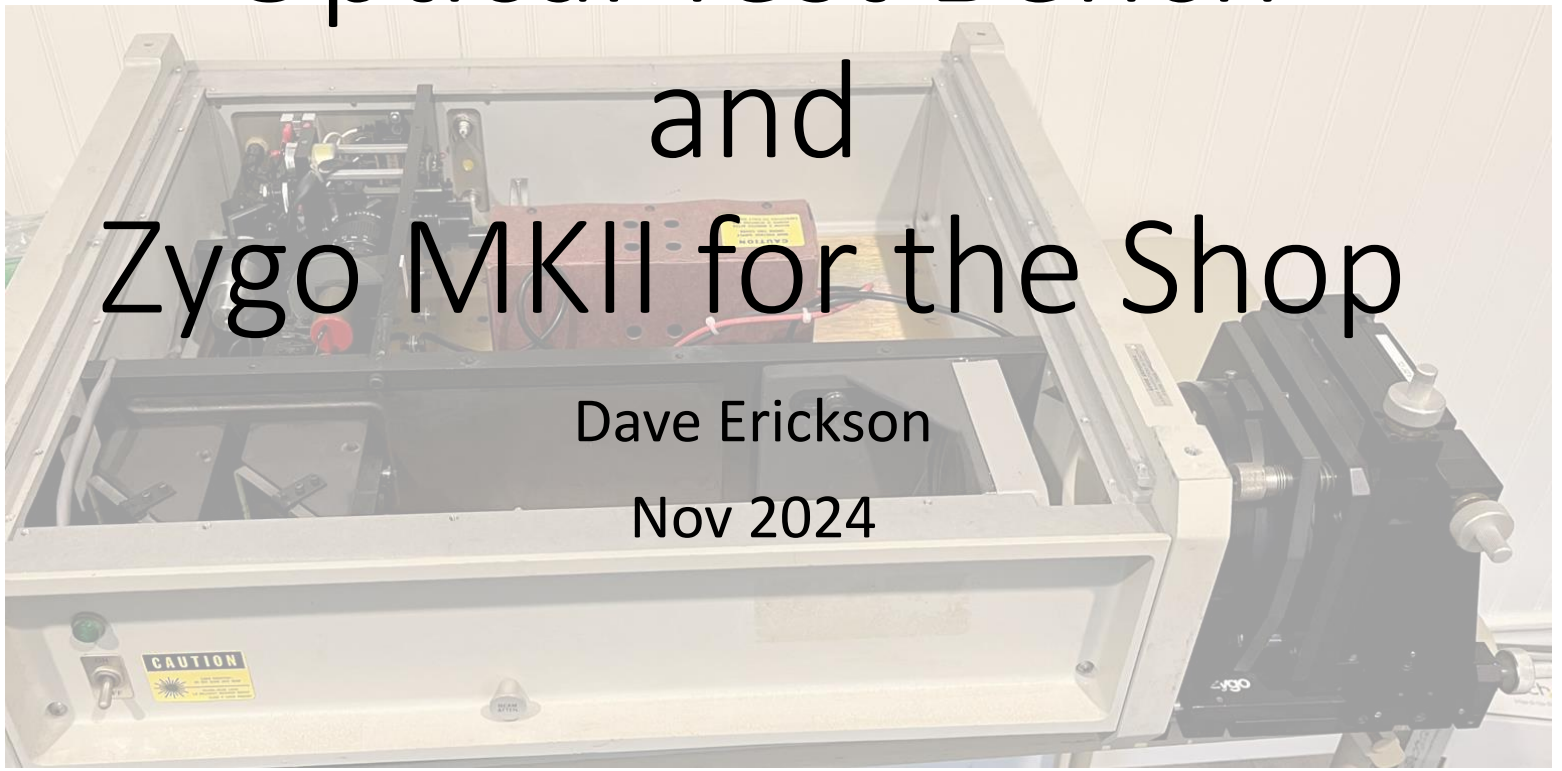
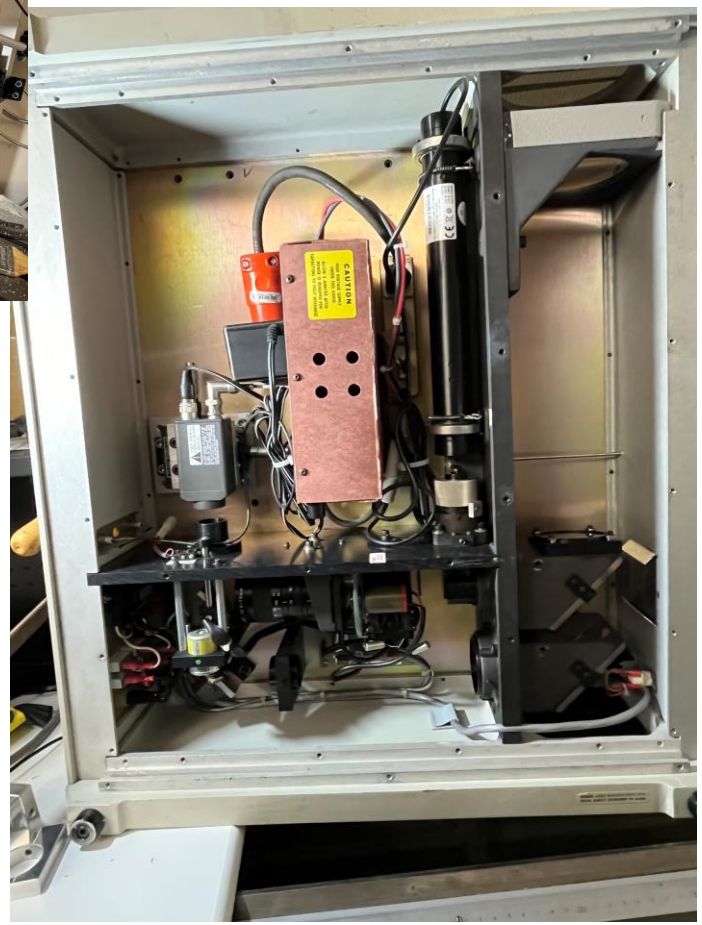
Optical Test Bench and Zygo MKII for the Shop

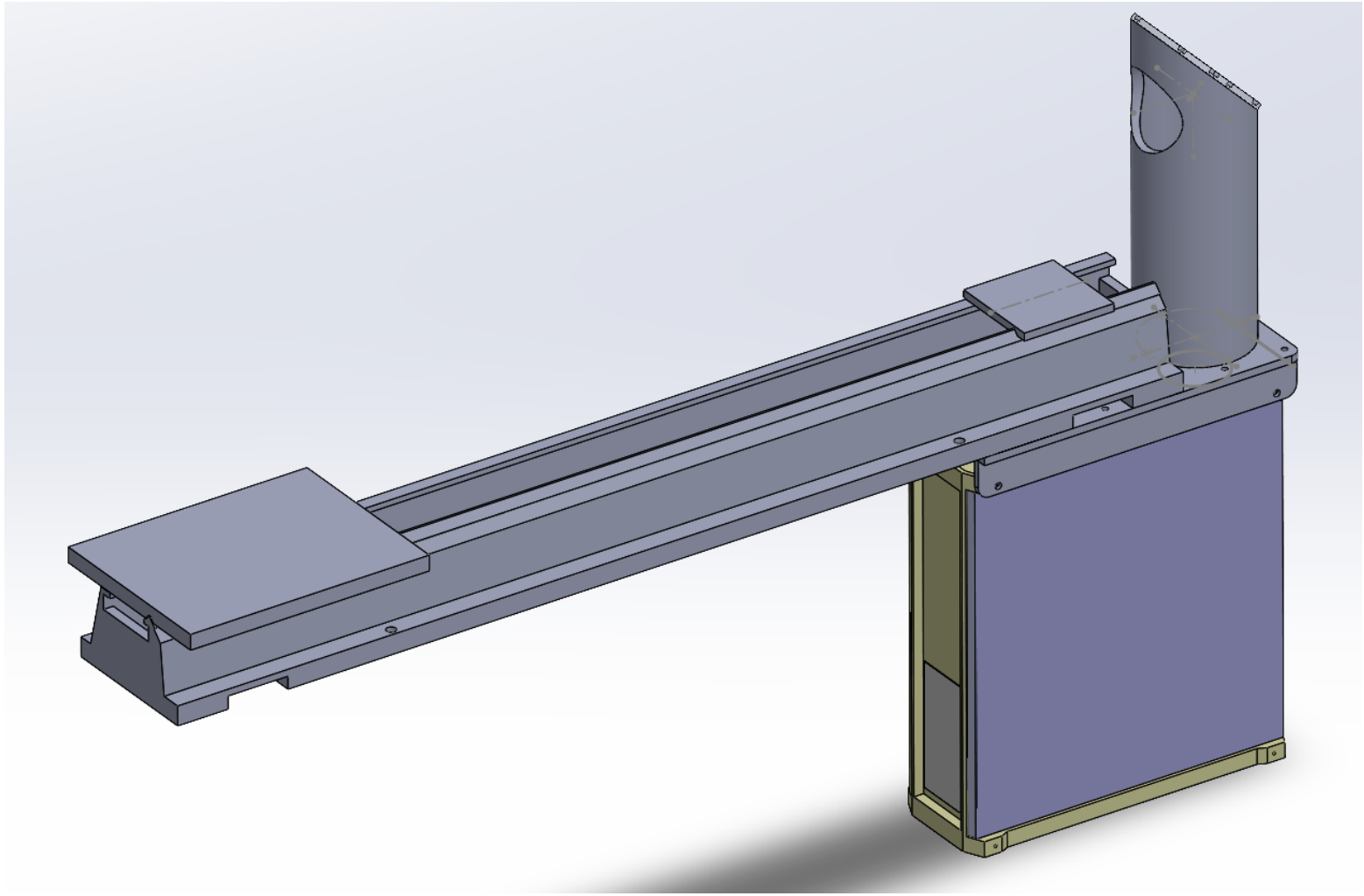


Dave Erickson

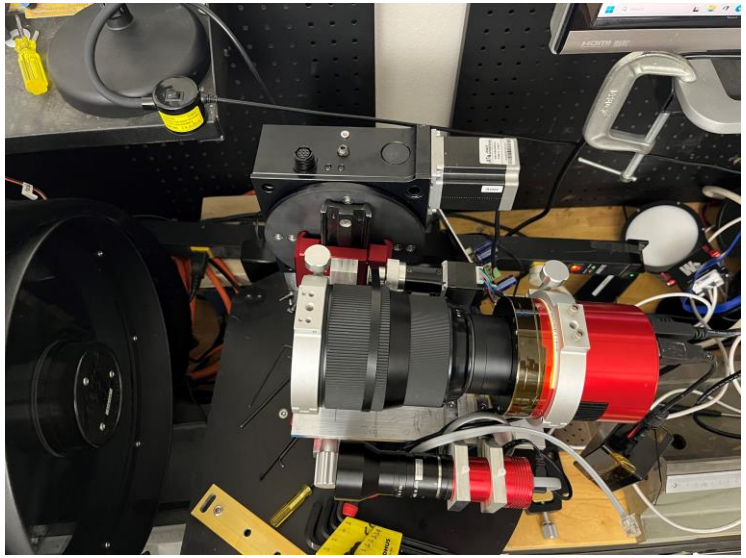
Nov 2024

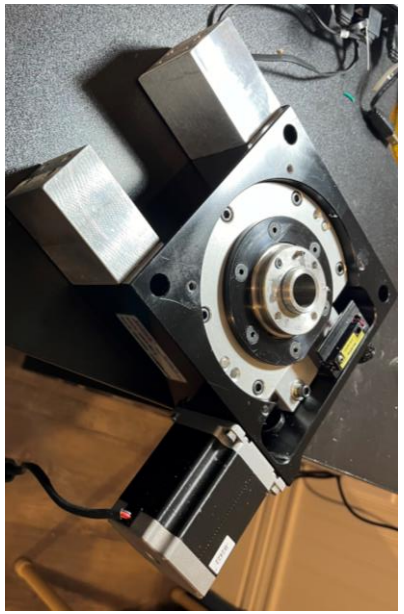
Interferometric Test Bench

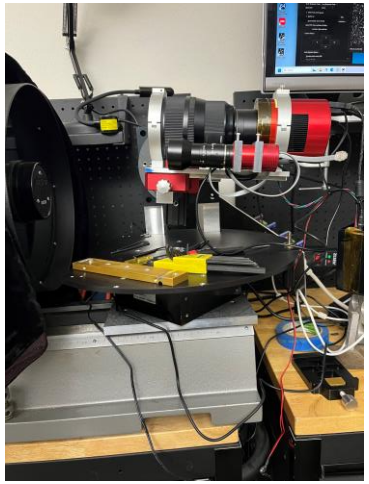


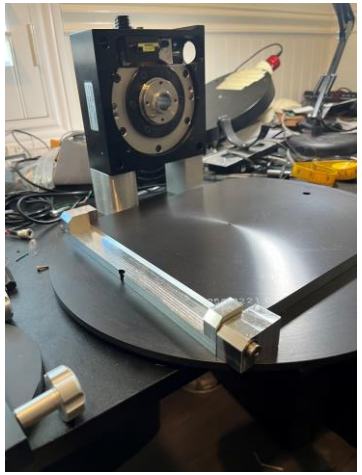


Tip-Tilt Table

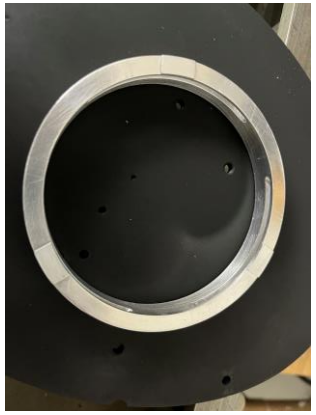




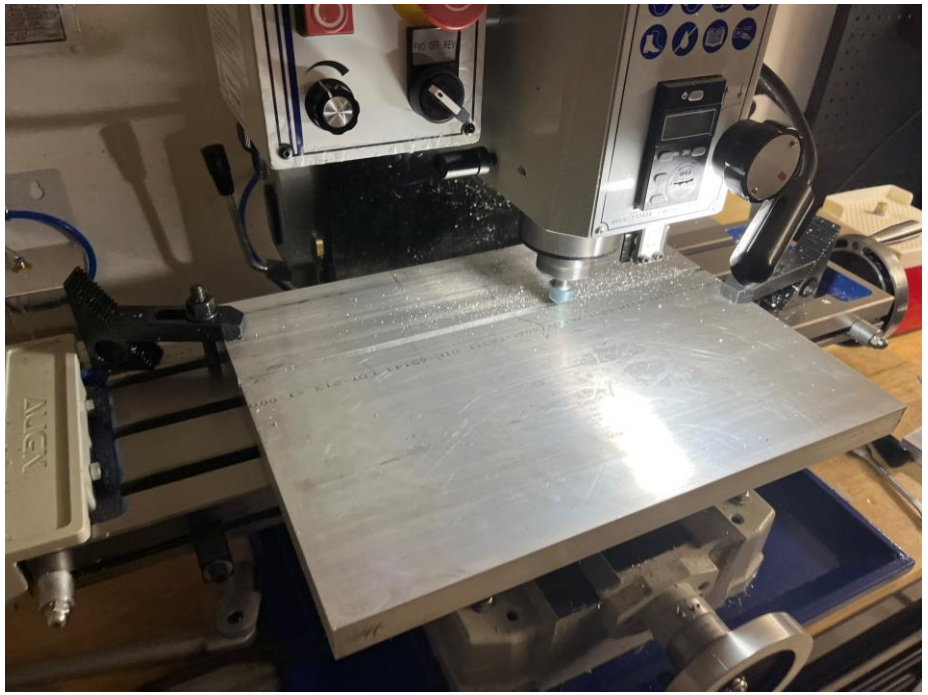


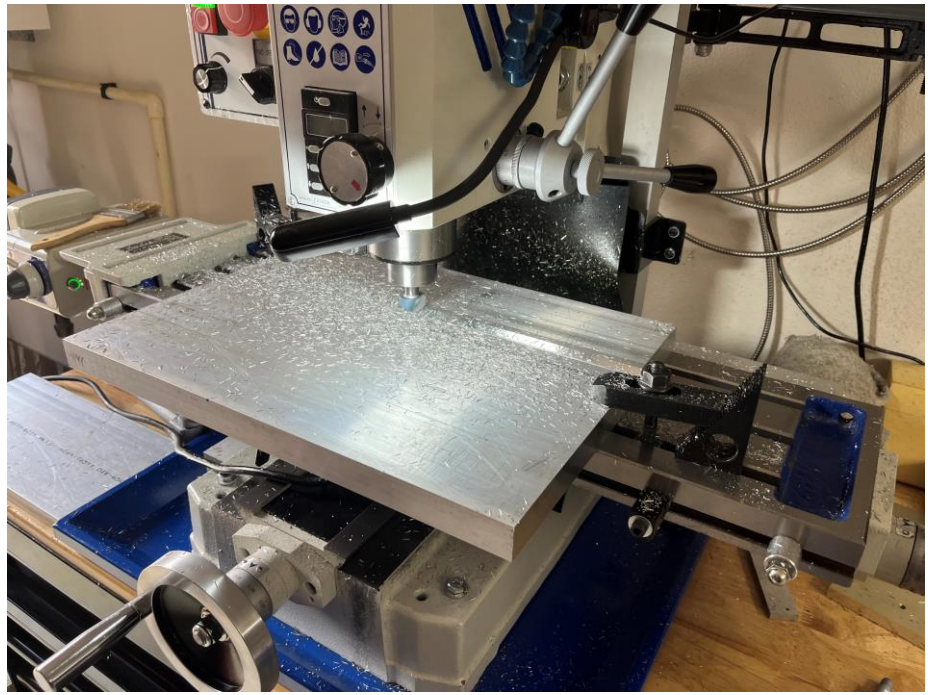


Disaster Strikes



Cutting the 12”x16”x1”stage for the 8.5” 4% Return Flat





Missing Hand Controller

Focus
P4

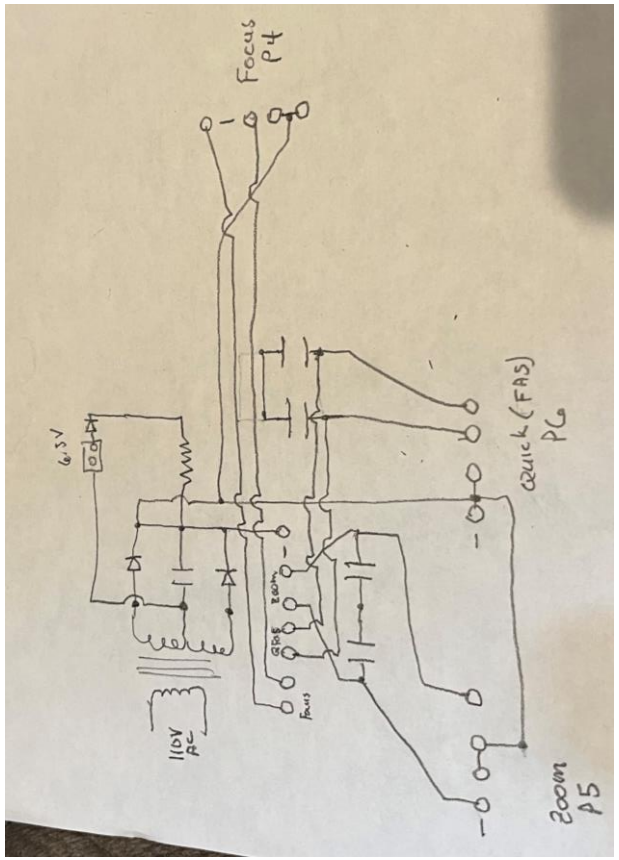
Quick (FAS)
P6

Coherence
Buster
P1

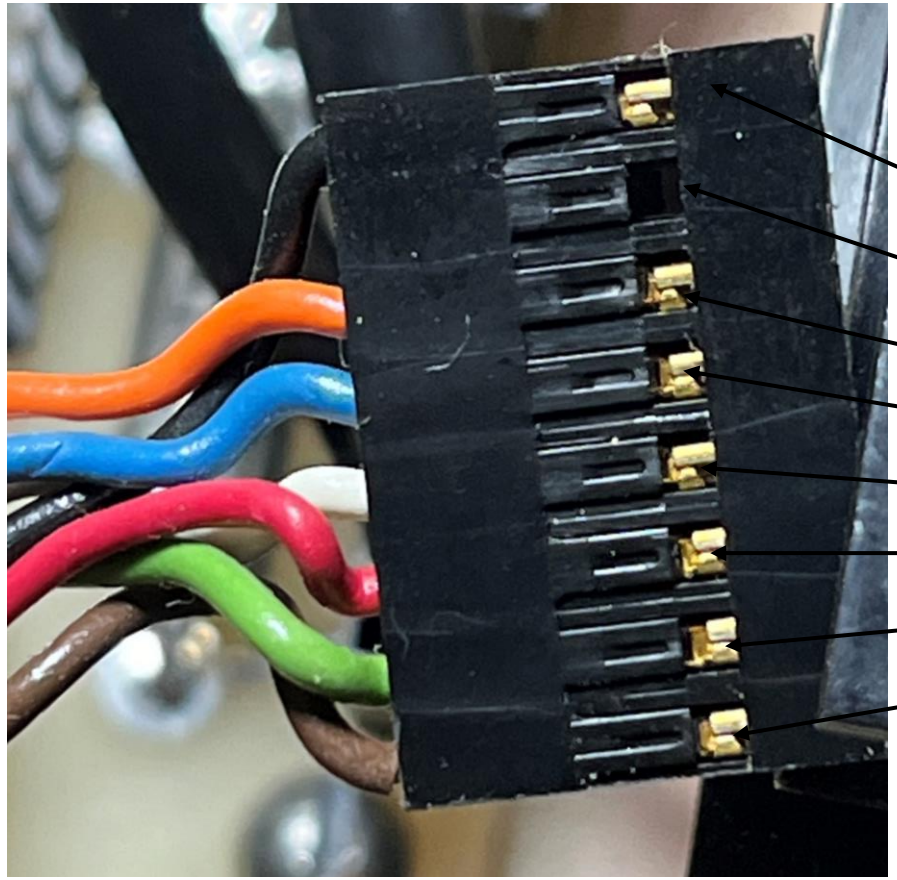
Zoom
P5

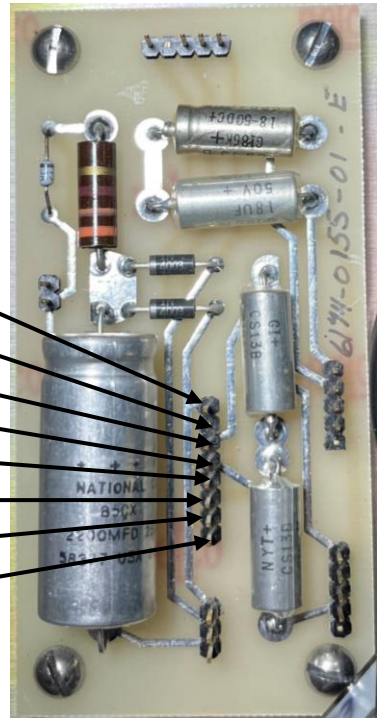
To
Transformer

To Hand
Controller



Hand Control Power Board





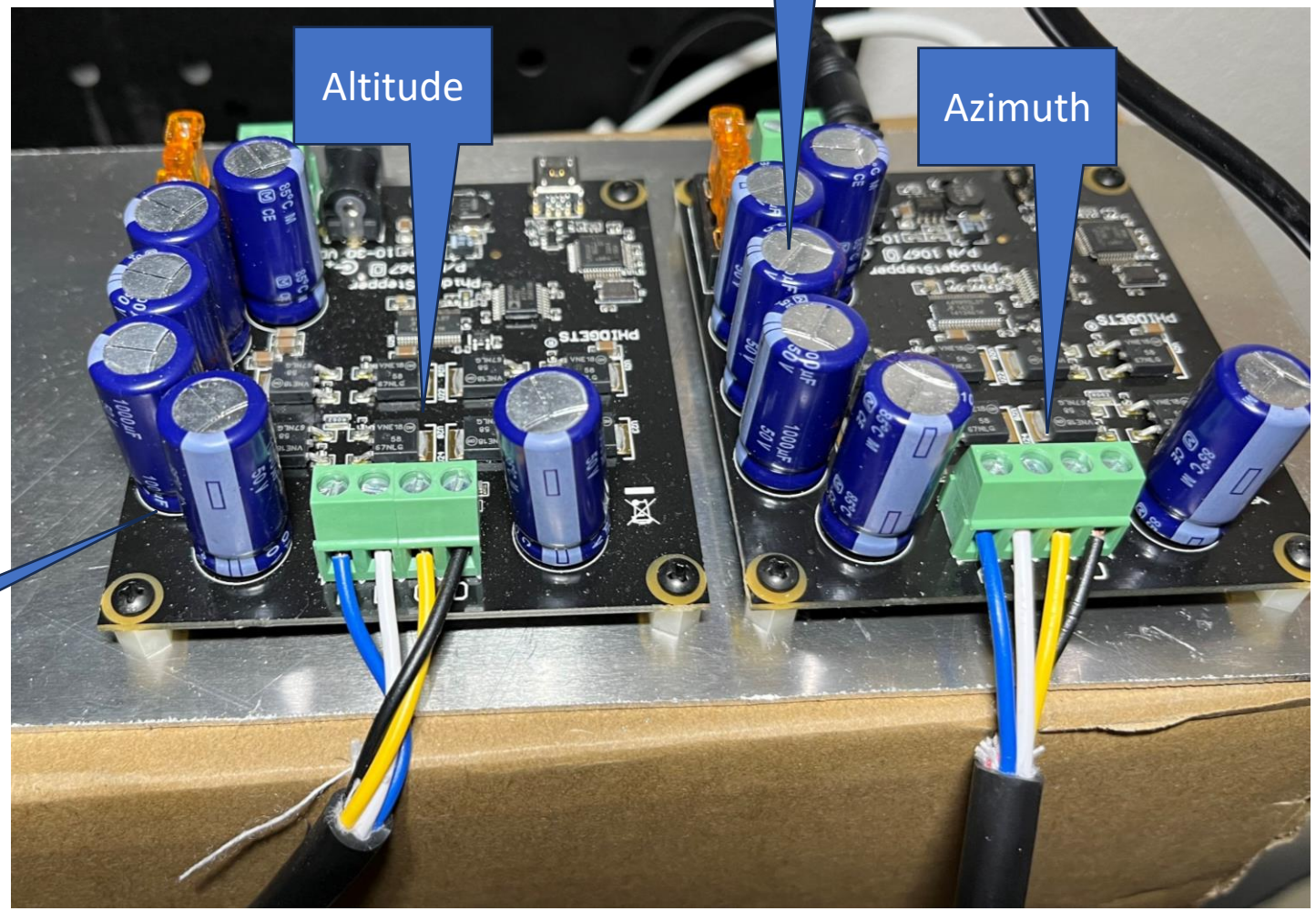
Zygo	Function	Relay Cable
Black	Power	Black
-NC-	-NC-	
Orange	Zoom	Orange
Blue	Zoom	Blue
White	Q(FAS)	
Red	Q(FAS)	
Green	Focus	Green
Brown	Focus	Gray

Zygo Computer Control

- 4-relay board This architecture prevents running the motors both directions at once
  - Relay 0
    - Power Zoom
  - Relay 1
    - Power Focus
  - Relay 2
    - Zoom in
    - Zoom out
  - Relay 3
    - Focus close
    - Focus far
- USB Cameras
  - Alignment mode ASI 224mc
  - Fringe mode ASI 174mm DSO, ASI120 and ASI174 mini cameras do not work as webcams
- USB-3 hub powered inside Zygo mainframe
- USB-3 panel mount external interface
- Dedicated OpticsBench computer outside Zygo mainframe
  - USB3 to Zygo

Rotation Axis Cable Mapping

Motor	Drive
A).Red	Blue
B).Brown	White
C).Orange	Yellow
D).Black	Black



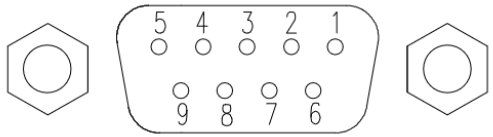
Remote Control

- Zygo Control
- Alt AZ control
- Lights Control
- Pinhole control
- Alignment control
- Focusers control
- Filters control
- Diffuser control
- Flat panel control
- Camera control

Stepper Driver Wiring Mapping

- DB9 pins
  - Pin 1 = Blue
  - Pin2 = White
  - Pin4 = Yellow
  - Pin5 = Black

Pin Assignment of the FS2 motor jacks:



Pin 1	**Coil 1, beginning**
Pin 2	**Coil 1, end**
Pin 3	**Not connected**
Pin 4	**Coil 2, beginning**
Pin 5	**Coil 2, end**
Pin 6	**Ground (shielding)**
Pin 7	**Ground (shielding)**
Pin 8	**Ground (shielding)**
Pin 9	**Ground (shielding)**

The motor cables should not be longer than 3 meters, because otherwise the losses in the electronics will be high due to the high capacitance of the cable!

RoboFocus Motor DB9

RoboFocus Stepper Colors

DB9	HURST(standard)	NIPPON PF	
1 coil A	BLK	YEL	
2 coil A	WHI	ORG	
3 coil B	BLU	BLK	
4 coil B	RED	BRN	
5 common	BLK/WHI-BLU/WHI	RED-RED	