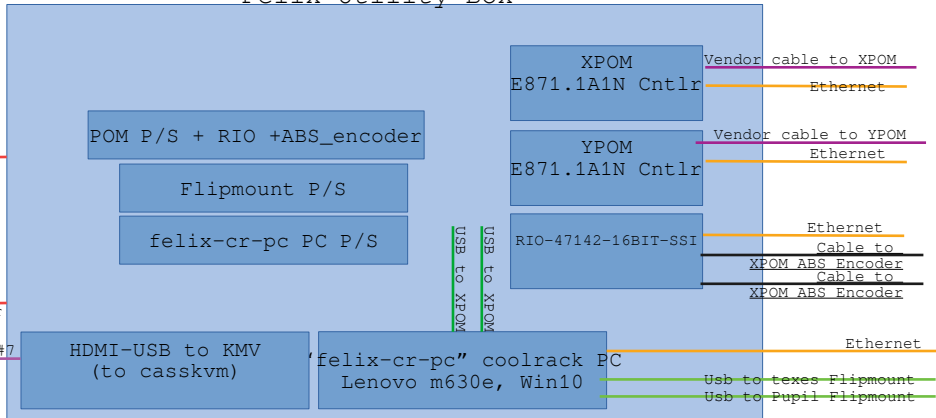
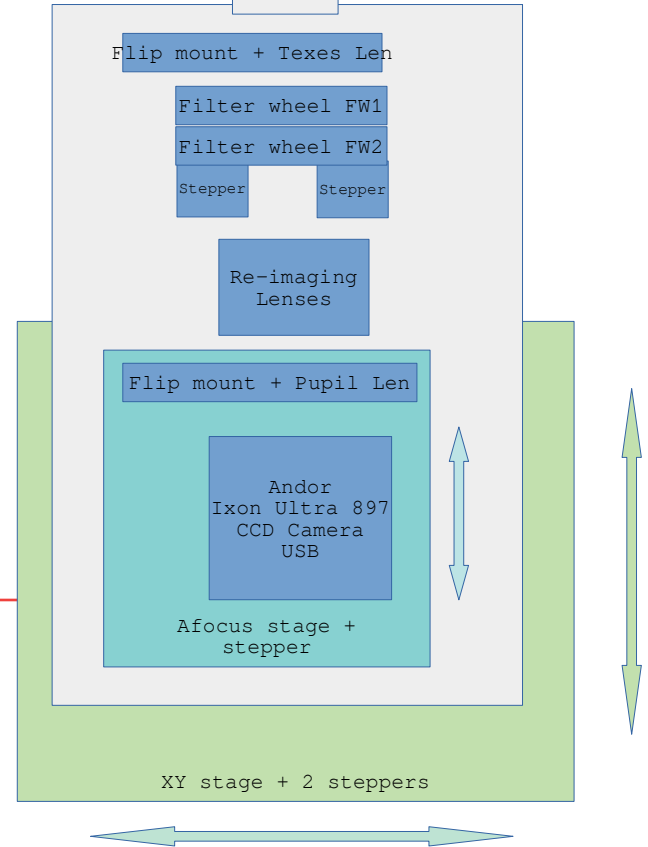
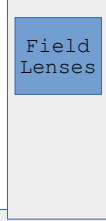
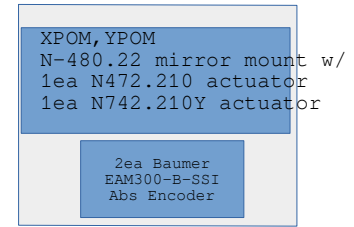
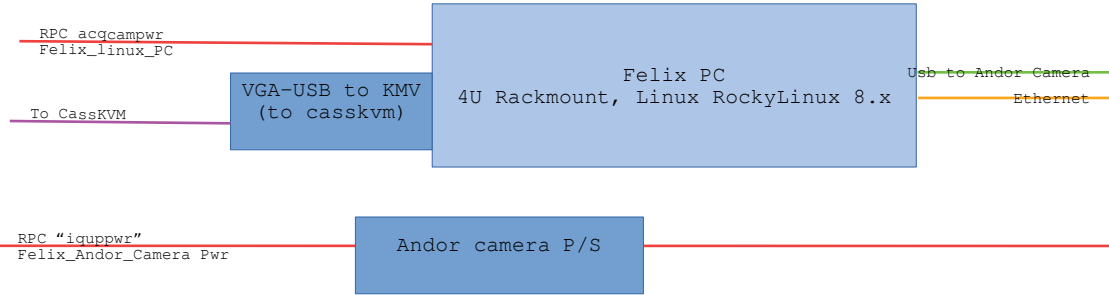
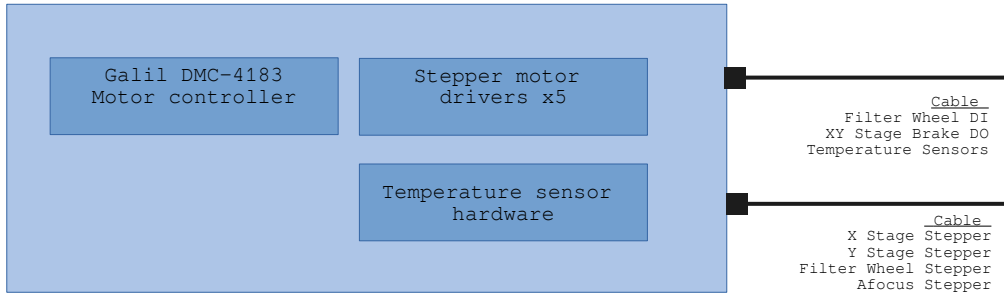


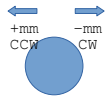
Felix Utility Box



Felix Motor Box



Felix POM and ABS Encoders Details



Rotation as viewed as pictured

N-480.220C0 = mirror mount with actuators
 1ea N-472.210 is x_pom
 1ea N-472.210Y is y_pom

 1 rotation = 0.5 mm
 Provides up to 13mm of travel.

 Oct2024 SN installed:
 PI-120056991 is x_pom
 PI-120053263 is y_pom



E-873UHV3 adapter cables, 3m, 2 each



Piezo-Mike P/S

Ethernet

USB

USB

Piezo-Mike P/S

Ethernet

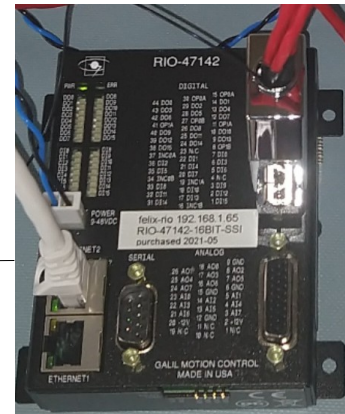
Felix-cr-pc
 Felix coolracks PC
 Lenovo M630e
 Part #10YM0094US
 Win10Pro
 Vnc: felix-cr-pc:16000

After felix was installed in 2025, found XY was mislabeled. What is called the xpom, tilts in the North/South direction.

Absolute encoder for the each POM axis is Provide by Baumer EAM300-B absolute Encoder:

 Part # EAM300-BF6.5B4B.14120.A
 (SSI binary, 14bit ST,12bit MT)
 1 turn is 16384 counts. Up to 4092 turns.

 Encoder is read by an Galil RIO w/SSI inputs.
 Part # RIO-47142-16BIT-SSI



Ethernet

Additional setup note here: <https://irtfweb.ifa.hawaii.edu/~felix/irtf/about/pom/>

Felix AFocus Details

- steps & -encoder cnts
 CW moves <-
 Reverse Limit

+ steps & +encoder cnts
 CCW moves ->
 Forward Limit



Units:
 Stage travel is ~4 inches or ~100,000 um
 1 shaft Rev is 2000 um

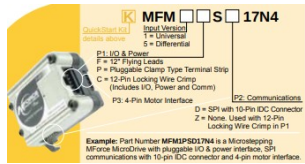
Encoders counts in um, 2000um per revolution
 Range is 0 to 102,916 um (measured limit to limit)

Steps (400 step/rev * 5 micosteps) = 2000 step/rev
 1 encoder cnt = 1 micosteps.
 Range is 0 to 101600 steps (about 51.5 rotation)

Motion Industries/Dover Motion
 Linear Motion Ball-screw actuator (Linear Stage)
 Part#: LME-AD-400-CP7-MB4-E04-L01
 AB = Aluminum Black Anodized.
 400 = 4" (100mm) of travel
 CP7 = Ball screw 2mm
 MB4 - Step 118 oz-in; 400 step/rev w/ brake
 E04 - Linear Encoder 1um resolution
 L01 - NPN, N.O. Limit switch

Motor: PK268ME2.0BC5
 Brake: www.idicb.com MPC-23 8923-3331
 Encoder is: RENISHAW RGH22X30D00A

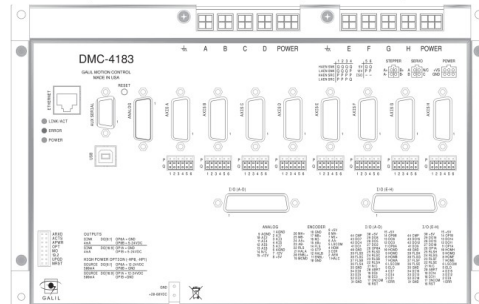
Schnider/IMS
 MForce MicroDrive
 MFM1CS217N4
 x5 microsteps



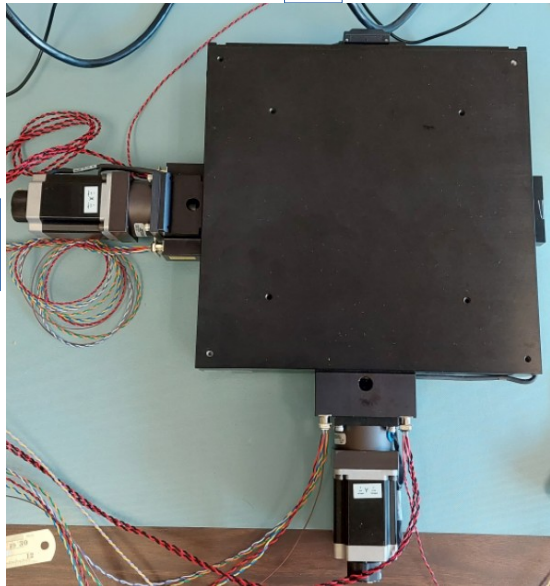
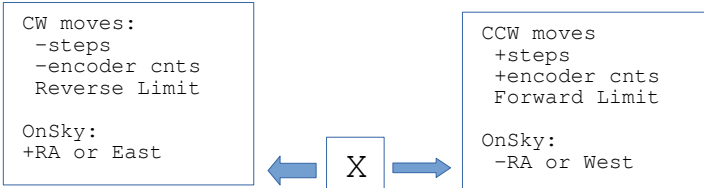
Galil DMC-4183

Axis C

D03 (control brake)

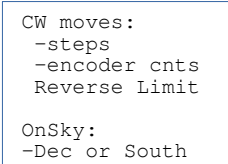


Felix XY Stage Details

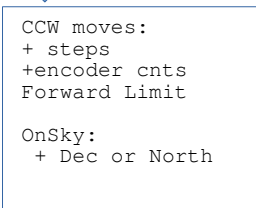


X Motor w/ Brake

Y Motor w/ brake



Y



Units:
Stage travel is ~10 inches or ~254,000 um

Encoder count in um, 2540 um per revolution (stage has a 0.1 inch lead screw)

Steps (400 step/rev * 5 micosteps) = 2000 step/rev
1 encoder cnt = 0.787 microsteps.
Range is 0 to 200,000 steps (about 100 rotation)

X Moves	Encode_um	Steps	approx_AS
West	-127000	-100000	-254
East	+127000	+100000	+259

Y Move	Encoder_um	Steps	approx_AS
North	-127000	-100000	-250
South	+127000	+100000	+293

*Move is where stage physically moves. IE, south is to the south pier. OnSky movement is opposite.

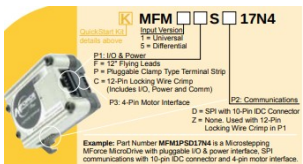
Motion Industries/Dover Motion
XYRB Precision XY Table
Part#: XYR-AB-1212-CP1-M04-E04-L01
AB = Aluminum Black Anodized.
1212 - 12" x 12" base with 10" Travel
CP1 - 10 TPI (0.1 inch) Precision *
M04 - Step 118 oz-in; 400 step/rev
E04 - Linear Encoder 1um resolution RGH22
L01 - NPN, N.O. Limit switch

* A CP3 (0.02 inch) model was ordered, but we received a CP1 (0.1 inch model). Model. Felix will use the CP1 model.
*After purchase, IRTF contracted vendor and replaced Motor with motor/brakes assembly.

Motor: PK268ME2.0BC5
Encoder is: RENISHAW RGH22X30D00A

Schnider/IMS
MForce MicroDrive
MFM1CSZ17N4
x5 microsteps

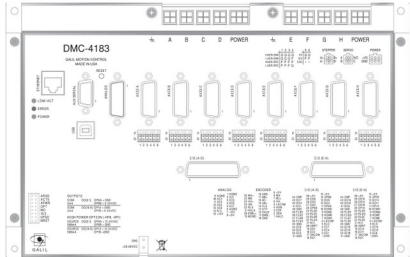
Schnider/IMS
MForce MicroDrive
MFM1CSZ17N4
x5 microsteps



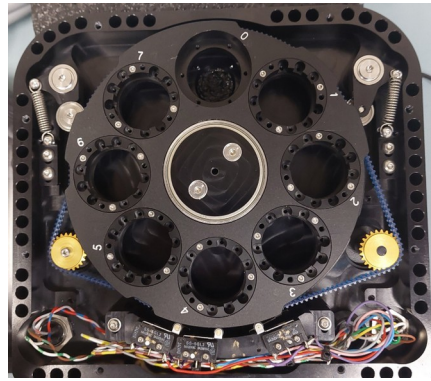
Galil DMC-4183

Axis A (xstage)
DO10 - brake_release XStage

Axis B (ystage)
DO11 - brake_release YStage



Felix Dual Filter Wheel Details



Filter Wheel 1 Details

Detent	Step	Filter_Name	Description
0	0	SDSS_g	0.48 μm
1	960	SDSS_r	0.62 μm
2	1920	SDSS_i	0.76 μm
3	2880	SDSS_z	0.86 μm
4	3841	uncoated	0.70 μm
5	4801	Cyl_Len	0.70 μm
6	5761	open7	0.70 μm
7	6721	open8	0.70 μm



Motor Shaft:
 200 step/rev motor *
 x5 microstep
 = 1000 step/rev

Size of wheel is
 7628 steps/rev

Steps between detents
 are 7628/8 = 960.25

Detents are about 150 steps.

Filter Wheel 2 Details

Detent	Step	Filter_Name	Description
0	0	ND1	
1	960	ND2	
2	1920	ND3	
3	2880	ND4	
4	3841	uncoated	
5	4801	open6	
6	5761	open7	
7	6721	open8	

Galil DMC-4183 - DI01 to DI16

Axis E (Filter1)
 DI9 to DI11 - detent position of filter1.
 ((-din)>>8) & 0x07 = detent position of filter1.

Axis F (Filter2)
 DI13 - DI15 - detent position of filter2.
 ((-din) >> 12) & 0x07 = detent position of filter2.

Schnider/IMS
 MForce MicroDrive
 MFM1CSZ17N4
 x5 microsteps

Schnider/IMS
 MForce MicroDrive
 MFM1CSZ17N4
 x5 microsteps

