

# SLIT stage Testing in B031 clean room

Optics	Axis	encoder	Repeatability	Range	MPS switch	Limit switch	Actuator	CLF	FRM	Forward Move Direction	Reverse Move direction	Beam ON Position
Slits	Y	-	0.2mm	-15.5, +15.5mm	In/Out; optical switch	-	SLC2445 - UHV	500	Mid travel. No need to Set position	+Y	-Y	N/A
Slits	X	-	5µm	2.2mm = ±1.20 mm		-	SLC2430 - UHV	100	-X End Stop.  Set position here to -1.2mm	+X	-X	-0.7mm (with 0 in middle of travel range)

Tests in B031 clean room used ASCII Terminal and MCSConfiguration tools. Software can be found at V:\CD\Motion Control\SmarACT software

Equipment needed for test -2x cables DB15M-F , MCS controller, MCS-3S-PP-SDS15 cable, DB9 connector and serial cable.

## NOTES:

Stage Moves according to beam co ordinate system.

-If logged in from MCSConfiguration tool, commands sent from ASCII Terminal do not work. You will need to power cycle the controller to re-establish communication. By doing so, your home position is lost and the stage will need to find reference again.

-By default the stage sets maximum closed loop frequency to 5000. This is too fast for the stage. Use CLF command to change this to appropriate value mentioned in the table above.

-Useful commands

Get System ID- Check if communication has been established. GSI

Set Closed Loop Max Frequency - Defines max Freq the positioner is driven when using closed loop commands. SCLF

Get Position- Returns current position. GP

Find reference Mark -"Finding Home" FRM. This command will behave differently based on the stage.

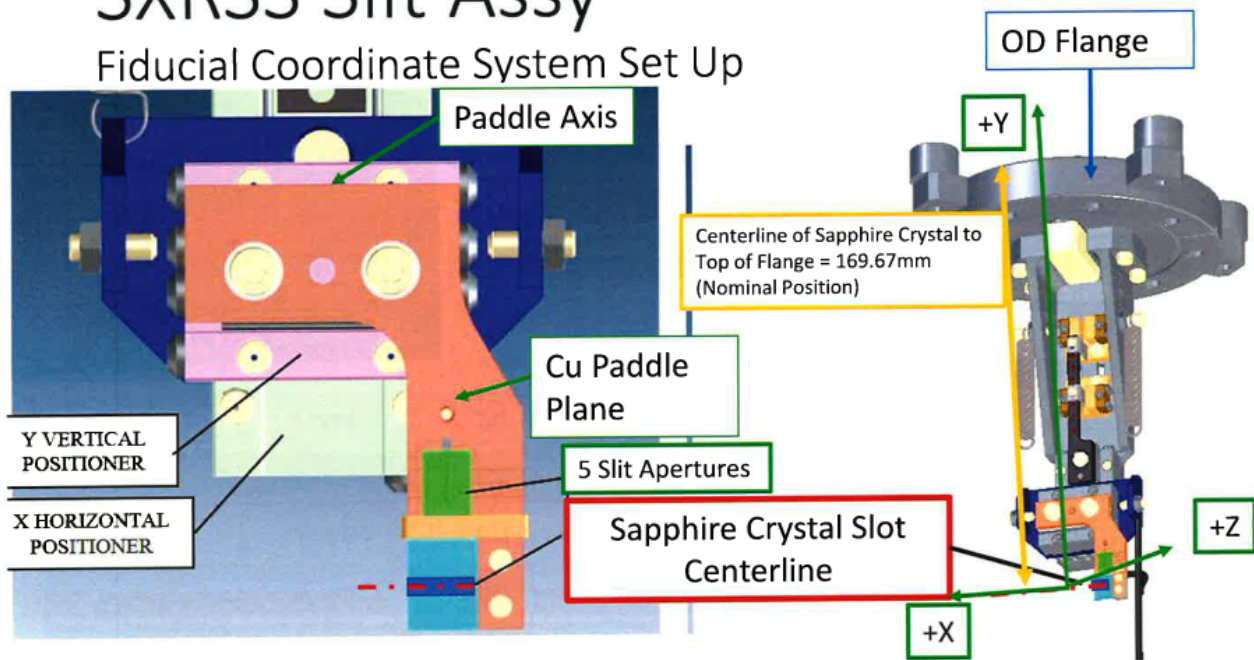
Set Position to known value. SP

Move Position Relative . MPR (Units nm)

Move Position Absolute. MPA

# SXRSS Slit Assy

## Fiducial Coordinate System Set Up



Open MCSConfiguration Tool

For X axis connected to channel 1 and Y axis connected to channel 3 (On the SW, channel reference starts from 0)

1. Set MaxCLF to 100 and 500 for X and Y respectively.
2. Press Set MaxCLF button

Disconnect COM Port

Open ASCII Terminal

Connect to COM Port. You will get a fail to open serial error. If so,

Edit > Settings > Connection > Port To Use - Here select the COM that you are using.

Connect to COM Port.

Test communication by using GSI command

Set closed loop max freq

SCLF0,100 response E0,0

SCLF2,500 response E2,0

GP0 response P0,-93

GP2 response P0,-167

GPPK0 response PPK0,0 (So it lost its reference)

GPPK2 response PPK2,0 (So it lost its reference)

FRM0,4,2000,1 response E-1,7

FRM0,0,2000,1 response E0,0

GPPK0 response PPK0,0

GP0 response P0,-28636

MPR0,1200000,2000 response E0,0

GP0 response P0,1171314  
MPR0,500000,2000 response E0,0  
GP0 response P0,1671287  
MPR0,500000,2000 response E0,0  
GP0 response P0,2178038  
MPR0,500000,2000 response E0,0  
GP0 response P0,2177578

So we hit hard Stop. Going reverse

MPR0,-2000000,2000 response E0,0  
GP0 response P0,177574  
MPR0,-2000000,2000 response E0,0  
GP0 response P0,-28542  
MPR0,-500000,2000 response E0,0  
GP0 response P0,-27907

So we hit hard Stop.

Total Range is ~2.2mm. Looks like FRM0,0,2000,1 command left axis at -X end of travel and set that position to -28636.!!

Try again.

Disconnect, close app, power cycle controller

Test communication by using GSI command

Set closed loop max freq

SCLF0,100 response E0,0

SCLF2,500 response E2,0

GP0 response P0,-40

FRM0,0,2000,0 response E0,0

GP0 response P0,643

MPR0,2000000,2000 response E0,0

GP0 response P0,2000525

MPR0,1000000,2000 response E0,0

GP0 response P0,2206622

Reached End Stop

MPR0,-25000000,2000 response E0,0

GP0 response P0,516

FRM0,0,2000,1

GP0 response 177

FRM0,0,2000,1

GP0 response 175

FRM0,0,2000,1

GP0 response 223

**## FRM0,0 makes the axis move in Positive direction , see ref mark, move in negative direction and stop at end stop. At this point, Use SP0 to set this value to -1.2mm**

SP0,-1200000

Y axis

SCLF2,500

GP2 response -73

FRM2,0,2000,1

GP2 response -59

MPR2,-1000000,2000

GP2 response -1000

MPR2,-10000000,2000

GP2 response -11000216

MPR2,-10000000,2000

GP2 response -15438473

MPR2,35000000,2000

GP2 response 15438473

**## FRM2,0 makes the axis move in Positive direction , see ref mark, move in negative direction and stop at mid point. The axis set itself to 0mm position.**