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# NIRSPEC

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## NIRSPEC Cryomechanics Application Note xx.00 Mechanism Engineering-Level Control Information

### Motor Half-Steps Per Position

Mechanism	Half-Steps Btw. Positions	Total Half-Steps
Image Rotator	300 half-steps per degree	54000 half-steps between limits
Filter Wheel #1	9000 half-steps per filter	108000 half-steps per revolution
Filter Wheel #2	9000 half-steps per filter	108000 half-steps per revolution
Slit Wheel	9000 half-steps per slit	108000 half-steps per revolution
Echelle Grating	300 half-steps per degree	39600 half-steps between limits
Cross Disperser	200 half-steps per degree	11600 half-steps between limits
Cal. Flip Mirror	11850 half-steps btw. positions	not measured
Cal. Pinhole	N/A	N/A
Cal. Cover	N/A	N/A

### Switch Bit Order

Mechanism	bit 1	bit 2	bit 4	bit 8
Image Rotator	init.	cw limit	ccw limit	N/A
Filter Wheel #1	primary pos.	primary init.	secondary pos.	secondary init.
Filter Wheel #2	primary pos.	primary init.	secondary init.	secondary pos.
Slit Wheel	primary init.	primary pos.	secondary pos.	secondary init.
Echelle Grating	primary init.	“LR flat” pos.	cw limit	ccw limit
Cross Disperser	init.	ccw limit	cw limit	N/A
Cal. Flip Mirror	init.	“in beam” pos.	ccw limit	cw limit
Cal. Pinhole	N/A	N/A	N/A	N/A
Cal. Cover	N/A	N/A	N/A	N/A

## Initialization Switches

<b>Mechanism</b>	<b>Primary Switch Activated</b>	<b>Secondary Switch Activated</b>
Image Rotator	not measured	N/A
Filter Wheel #1	not measured	not measured
Filter Wheel #2	not measured	not measured
Slit Wheel	not measured	not measured
Echelle Grating	64.84° (half-step 88548)	N/A
Cross Disperser	34.06° (half-step 6812)	N/A
Cal. Flip Mirror	“out of beam” (half-step 0)	N/A
Cal. Pinhole	N/A	N/A
Cal. Cover	N/A	N/A

## Home Position

<b>Mechanism</b>	<b>Home Position</b>
Image Rotator	180.00° (half-step 54000)
Filter Wheel #1	blank (half-step 99000)
Filter Wheel #2	N1 filter (half-step 0)
Slit Wheel	1-pix HIRES slit (half-step 0)
Echelle Grating	63.50° (half-step 88950)
Cross Disperser	35.00° (half-step 7000)
Cal. Flip Mirror	out of beam (half-step 0)
Cal. Pinhole	N/A
Cal. Cover	N/A

## Position Switches

<b>Mechanism</b>	<b>Position Activated</b>
Image Rotator	N/A
Filter Wheel #1	every filter position
Filter Wheel #2	every filter position
Slit Wheel	every slit position
Echelle Grating	180.00° (LR flat position)
Cross Disperser	N/A
Cal. Flip Mirror	in the beam
Cal. Pinhole	in the beam
Cal. Cover	open

## Limit Switches

<b>Mechanism</b>	<b>Clockwise Limit Position</b>	<b>Counterclockwise Limit Position</b>
Image Rotator	not measured	not measured
Filter Wheel #1	N/A	N/A
Filter Wheel #2	N/A	N/A
Slit Wheel	N/A	N/A
Echelle Grating	not measured	not measured
Cross Disperser	not measured	not measured
Cal. Flip Mirror	not measured	not measured
Cal. Pinhole	N/A	N/A
Cal. Cover	N/A	N/A