

Genosensor Prototype, Motion Axis Setup

Revision History

12/15/98 5:42 PM. D.Wright

04/04/2000 3:02 PM D.Cline. Added Full Range Counts field

04/11/2000 11:36 AM D.Cline. Updated gear reduction and belt ratio data from Mark Brown’s memo.

Axis Name	SHUTTLE	SYRINGE	CAROUSEL	LOAD ELEVATOR	UNLOAD ELEVATOR	Filter Clamp
Address	A or X	B or Y	C or Z	E	F	G
+ Direction	Towards unload/imager	Exhaust/Push stroke	Clockwise from top view	Up	Up	Clamping
0(home) Location	RLS/Load position	FLS/End of push stroke	Tube 1 of 11	RLS	RLS	RLS
Full Range Counts (approx)	445,000	200,000	183,120 3600 (abs encoder)	245,000	245,000	400,000
Counts/Unit	89216 / Inch 3512 / mm 11152 / Revolution	81408 / Inch 3205 / mm 10176 / Revolution	508.666 / Degree 16647 / Tube 100 / Degree (abs encoder)	32512 / Inch 9645 / mm 1280 / Revolution	32512 / Inch 9645 / mm 1280 / Revolution	1265920 / Inch 49839 / mm 63296 / Revolution
Max no-load Velocity (12V)	9500		9500	7500	7500	
Velocity SP	4000	2000	6000	4000	4000	7000
Acceleration AC	16384	8192	16384	16384	16384	16384
Deceleration DC	16384	8192	16384	16384	16384	16384
Smoothing IT						
Position Error Limit ER(cnts)	100	100	25	25	25	25
Proportional KP	351	378	286	250	250	116
Integral KI	94	34	64	50	50	7
Differential KD	2750	3049	2500	2500	2500	2580
Stall Current @ 12V	1.38 A	0.330 A	1.38 A	0.490 A	0.490 A	
Amplifier Current Limit	0.700 A	0.327 A	0.700 A	0.400 A	0.400 A	
Amplifier Gain, Volts/Amp	1.5	1.5	1.5	1.5	1.5	1.5
Torque Limit TL	1.00	0.490	1.7	1.7	1.7	2.0
Motor Gear Reduction	246:1	159:1	1526:1	20:1	20:1	Delta 989:1
Belt Ratio	17:24	1:1	1.875:1			
Leadscrew Pitch	0.125" / 8 rev=1"	0.125" / 8 rev=1"	NA	0.050" / 20 rev=1"	0.050" / 20 rev=1"	0.050" / 20 rev=1"
Motor Counts/Revolution	64	64	64	64	64	64

RLS = Reverse Limit Switch
FLS = Forward Limit Switch