6.3 Stage Commands

Command	Arguments	Response	Description
B	None	R	Moves Back by v steps as defined by the 'X' command below.
B	y	R	Moves Back by y steps.
BLSH	s,b	0	Sets the stage backlash value for stage move commands sent via the serial port (not joystick moves) to b. s = 1 enables backlash s = 0 disables backlash. B is a number of microsteps of the motor. There are 50,000 microsteps per revolution of the motor on a standard ProScan system.
BLSH	s	0	Enables / Disables the Stage (XY) backlash. S = 1 enables backlash s=0 disables backlash.
BLSH	None	s,b	Reports back s and b values for stage moves sent via the serial port (see above). In COMP 1 mode only s returned.
BLSJ	s,b	0	Sets the stage backlash value for joystick moves to b in microsteps. s = 1 enables backlash s = 0 disables backlash.
BLSJ	s	0	Enables / Disables the stage backlash for joystick moves. S = 1 enables backlash s = 0 disables backlash.
BLSJ	None	s,b	Reports back s and b for Stage (see above). In COMP 1 mode only s returned
F	None	R	Moves Forward by the v step size defined by the 'X' command
F	y	R	Moves Forward by y steps.
G	x, y, z	R	Go to the absolute position x, y, z. Z is optional.
GR	x, y,z	R	(Go Relative) Moves by the amount specified by x, y, z. Z is optional.
GX	x	R	Move to absolute position x (y position remains unchanged)
GY	y	R	Move to absolute position y (x position remains unchanged)
H	None	0	Turns OFF the joystick (Stage and Z axes) after completion of any current joystick move. The joystick is re-enabled using 'J' Command (see below) The joystick is always enabled on power up.
J	None	0	Turns ON the joystick (Stage and Z axes). This command is acted upon immediately.

Command	Arguments	Response	Description
JXD	c	0	Sets the direction of X axis under joystick control. c = 1 Joystick right, moves stage mechanically right c = -1 Joystick right, moves stage mechanically left.
JXD	None	c	Reads c.
JYD	d	0	Sets the direction of Y axis under joystick control c = 1 Joystick forward, moves stage mechanically forward. c = -1 Joystick forward, moves stage mechanically back.
JYD	None	d	Reads d.
L	None	R	Moves Left by u steps as defined by the 'X' command.
L	x	R	Moves Left by x steps.
M	None	R	Moves stage and focus to zero (0,0,0)
O	s	0	Sets the speed of the stage under joystick control. s is percentage in range 1 to 100.
O	None	s	Reports value of O allowing for joystick speed buttons effect (if the button speed is ½ and O is set to 50 the returned value will be 25)
P	None	x,y,z	Reports absolute position of x,y and z axes. This can be used whilst any axis is moving to give 'position on the fly' Note <CR> (Carriage return) only will also return position.
P	x, y, z	0	Sets absolute position of x, y, and z axis. No axis can be moving for this command to work. If there is a linear encoder fitted on the Z axis the position can only be set when the current position is within the encoder range and it has previously been at some lower position. If neither of these conditions has been met an error will be reported.

Command	Arguments	Response	Description
PS	None	x,y	Reports position of Stage only (x, and y).
PS	x, y	0	Sets Absolute position of x, and y axis. No axis can be moving for this command to work.
PX	None	x	Reports position of x only.
PX	x	0	Sets Absolute position of x axis. No axis can be moving for this command to work.
PY	None	y	Reports position of y only.
PY	y	0	Sets Absolute position of y axis. No axis can be moving for this command to work.
R	None	R	Moves Right by u steps as defined by 'X' command.
R	x	R	Moves Right by x steps.
RES	s,r		Sets the desired resolution for the stage, s is X and Y axes, r can be a non integer number setting the resolution for the axis in units of microns. e.g. RES,s,1.0 Resolution set to 1.0 micron
RES	a		Returns resolution for axis a.
RIS		R	Restore Index of Stage. This command is only effective if the SIS command has been used on installation. This Command can be used at any time and will re synchronise the stage and controller position should the stage have been manually moved when the controller was off. The stage will hit limits and then return to the position stored by the controller prior to the last power down. If the stage has not been manually moved this command will not normally be needed.

Command	Arguments	Response	Description
SAS	a	0	Sets the maximum stage acceleration to a. Range is 1 to 100.
SAS	None	a	Report current stage acceleration
SCS	c	0	Sets the current stage S-curve value. This is the rate of change of acceleration during the transition from stationary until the stage reaches the full acceleration set by SAS. Range of c is 1 to 100.
SCS	None	c	Report current stage S-curve setting.
SIS		R	Set Index of Stage. This command would normally only be used on first installation of the system. The stage moves to limits and sets absolute position to 0,0. The controller will always remember this internally as zero even with subsequent uses of Z and P, x , y command.
SMS	m	0	Sets the current Stage (x, y) maximum speed to m. Range is 1 to 100.
SMS	None	m	Report the current Stage (x, y) maximum speed setting m
STAGE	None	Text string	Prints information about the currently connected stage. There are 250 microsteps per full step of the motor. The final line of information is always a line saying END. This allows for the addition of extra fields of information without effecting application software. Users should always read lines in until the END is seen. Example STAGE = H101/2 TYPE = 1 SIZE_X = 108 MM SIZE_Y = 71 MM MICROSTEPS/MICRON = 25 LIMITS = NORMALLY CLOSED END
SKEW	None	a	Returns the skew angle a, in degrees, that had previously been set by the SKEW,A and SKEW,S commands or the SKEW,A command.

Command	Arguments	Response	Description
SKEW	A	0	Skew About command, when used in conjunction with SWEW S, can re-align samples which are not perfectly aligned to the XY motion of the stage. Use this command to skew the XY stage movement About this point. The SKEW S command must also be executed to complete this operation.
SKEW	S	0	Use this command after the SKEW A command AND moving a distance in X and Y axis to define the skew angle. This is equivalent to twisting the stage.
SKEW	a	0	Sets the skew angle a. IE SKEW 0.5 will skew the stage through 0.5 degrees. SKEW 0 disables skew function
TYA	None	0	Toggles Y axis of joystick between Y and A axis control
VS	x,y,u		Sets the stage speed to x, y for the X and Y axes respectively in units specified by u. u = values in microns linear travel per second. This is default if u is omitted, therefore VS,500,500 would set 500um/s in both X & Y. u = p are values in microsteps per second based on 250 microsteps per full step of motor. VS,500,500,p would set 2 full steps per second. To stop this 'virtual joystick' move use VS,0,0. If limits are hit the speed will be set to zero for the appropriate axis.
X	None	u,v	Reports the current step size (u and v) in x and y for the stage
X	u,v	0	Sets the current step size for the stage.
XD	C	0	Sets the direction of the X axis move (mechanical) with respect to the software move. Use this command if 'L' command moves stage mechanically right. C=1 or –1.
YD	C	0	Sets the direction of the Y axis move (mechanical) with respect to the software move. Use this command if 'F' command moves the stage mechanically backwards. C=1 or –1.
Z	None	0	Sets the stage and focus position to ZERO (0,0,0).