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OSC Define Active State of Home Switch

Version Z5

Type Set-Up
Syntax <a>OSCb
Units Mode
Range 0 or 1
Default 0
Response None
See also GH, OSG, OSH, SS

Attributes
[X] Buffered
[] Device specific
[X] Saved independently
[X] Saved in sequences

The OSC command sets the active state of the home input. It enables you to use either a normally closed or a normally open switch for homing. OSC0 requires that a normally open switch be connected to the home limit input. OSC1 requires that a normally closed switch be connected to the home limit input.

OSC0 Active state of home input is n = 0 (closed)
OSC1 Active state of home input is n = 1 (open)

Command	Description
> OSC1	Set the active state of the home input to open

OSE Jog Enable

Version Z5

Type Set-Up
Syntax <a>OSEb
Units Enabled or disabled
Range 0 or 1
Default 0
Response None
See also SS, GH, IM, JA, JV

Attributes
[X] Buffered
[] Device specific
[X] Saved independently
[X] Saved in sequences

The OSE command enables jogging the motor via the trigger inputs. Use the IM command to select the inputs to be used for jogging the motor.

OSE0 Jog disable
OSE1 Jog enable

OSG Final Homing Direction

Version Z5

Type Set-Up
Syntax <a>OSGn
Units Direction
Range 0 or 1
Default 0
Response None
See also OSB, OSH, GH

Attributes
[X] Buffered
[] Device specific
[] Saved independently
[] Saved in sequences

The OSG command allows you to set the direction from which the Compumotor Plus approaches the final home position. By specifying the direction for approaching home you get a more repeatable home position, and you can minimize the number of moves required to establish the home position.

OSG0 Sets the final Home approach direction to CW
OSG1 Sets the final home approach direction to CCW

This command will have no effect unless the OSB1 command has been issued, telling the Compumotor Plus to back-off from home.

OSH Reference Edge of Home Switch

Version Z5

Type Set-Up
Syntax <a>OSHn
Units Direction
Range 0 or 1
Default 0
Response aOSGn
See also OSG, OSB, GH

Attributes
[X] Buffered
[] Device specific
[] Saved independently
[] Saved in sequences

The OSH command allows you to select the side of the home area you want to use as the home position. This command allows you to specify a more repeatable home position.

OSH0 Selects the CW side of the home signal as the *edge* on which the final approach will stop
OSH1 Selects the CCW side of the home signal as the *edge* on which the final approach will stop

The CW edge of the home switch is defined as the side of home closest to the CW limit. Conversely, the CCW edge of the home switch is defined as the side of home closest to the CCW limit. If 1, the CCW edge of the home switch is the home position.

This command will have no effect unless the OSB1 command has been issued, telling the Compumotor Plus to back-off from home.

OSI	Save Sequence Scan Mode On Stop	Version Z5
Type	Set-Up	Attributes
Syntax	<a>OSIn	[X] Buffered
Units	Mode	[] Device specific
Range	0 or 1	[] Saved independently
Default	0	[X] Saved in sequences
Response	aOSIn	
See also	SSJ, XQ, IM	

OSI1 is used to preserve the Sequence Scan mode (SSJ1) during and after execution of a stop command. If OSI0 is issued, the Sequence Scan mode (SSJ) is cleared after execution of a STOP.

Care must be taken in the use of OSI1 to ensure that no sequences are unintentionally executed after a stop. The Sequence Interrupted-Run (XQ) command can help with this problem.

PR	Absolute Position Report	Version Z5
Type	Programming	Attributes
Syntax	<a>PR	[X] Buffered
Units	None	[] Device specific
Range	None	[] Saved independently
Default	None	[X] Saved in sequences
Response	*snnnnnnnnnn (where s is the sign and 2,147,483,647 steps)	
See also	D, MN, MPI, MPA, PZ, SP	

The PR command reports the motor's current position with respect to the absolute zero position.

The absolute zero position is established as the current position during power up and when an PZ or Z command is issued. The absolute position counter can track up to $\pm 2^{31} - 1$ or 2,147,483,647 steps. If the counter is overrun in the relative position mode (by running the motor continuously for long periods of time, (e.g., 24 hours at 20 revolutions per second and 5,000 steps per revolution), the absolute position reported is invalid.

Command	Description
> PZ	Resets the absolute counter to zero
> LD3	Disable both CW and CCW limits
> A10	Set acceleration to 10 rps ²
> V5	Set velocity to 5 rps
> D5000	Set move distance to 5,000 steps
> G	Execute the move
> 1PR	Request absolute position report
> *+0000005000	Indexer reposit position is 5,000

PS	Pause	Version Z5
Type	Programming	Attributes
Syntax	<a>PS	[X] Buffered
Units	None	[] Device specific
Range	None	[] Saved independently
Default	None	[X] Saved in sequences
Response	None	
See also	C, U	

The PS command pauses processing of the command buffer or active sequence until the Compumotor Plus receives a Continue (C) command. This command is useful if you want to enter a series of commands but not execute them until you have finished entering them.

This command is useful for interactive tests and in synchronizing multiple indexes that have long command strings.

Command	Description
> PS	Pauses execution of following commands until the Compumotor Plus a C
> A5	Sets acceleration to 5 rps ²

```

> V5           Sets velocity to 5 rps
> D25000      Sets move distance to 25,000 steps
> G           Execute the move (Go)
> T2         Delays the next move for 2 seconds
> G           Execute the move (Go)
> C           Continues execution

```

PZ Set Absolute Position to Zero

Version Z5

Type Programming
Syntax <a>PZ
Units None
Range None
Default None
Response None
See also MN, MPI, MPA, PR, D

Attributes
 Buffered
 Device specific
 Saved independently
 Saved in sequences

The PZ command sets the absolute position counter to zero. Subsequent absolute moves are made with reference to the zero position established with this command. The absolute position is also set to zero on initialization and during a reset (Z), or after a successful home move.

Command	Description
> PZ	Zero the absolute counter
> MPA	Make all preset moves with respect to absolute zero position
> A10	Set acceleration to 10 rps ²
> V5	Set velocity to 5 rps
> D2500	Set move distance to 2,500 steps
> G	Execute the move (Go)
> 1PR	Report Absolute Position (Response = *+2500)
> PZ	Zero the absolute counter
> 1PR	Report absolute position (Response = *0)

Q Set Velocity Profiling Mode

Version Z5

Type Programming
Syntax <a>Q0n
Units None
Range None
Default None
Response None
See also RM

Attributes
 Buffered
 Device specific
 Saved independently
 Saved in sequences

The Q command controls whether the Compumotor Plus is in or out of the Velocity Profiling mode. In this mode you use RM commands to control the instantaneous velocity of the motor. There is no acceleration ramping other than that provided by frequent changes in velocity using the RM command in this mode.

Q0 exits the velocity profiling mode
Q1 enters the velocity profiling mode

Note: The motor stops when Q0 is issued.

Command	Description
> Q1	Enter Velocity Profiling mode
> RM0011	Go to RM velocity of (11 hex) RM units/sec
> RM0055	Go to RM velocity of (55 hex) RM units/sec
> RM0100	Go to RM velocity of (100 hex) RM units/sec
> RM0055	Go to RM velocity of (55 hex) RM units/sec
> RM0011	Go to RM velocity of (11 hex) RM units/sec
> Q0	Exit Velocity Profiling mode

R Report Indexer Status

Version Z5

Type Status
Syntax aR
Units None
Range None
Default None
Response *x (where x is one of four letters described below)
See also RA, RB, RC, RSE

Attributes
 Buffered
 Device specific
 Saved independently
 Saved in sequences

The Request Indexer Status (R) command is used to get the general status of the indexer. Possible responses are shown below.

Response Character	Definition
*R	Ready
*S	Ready, Attention Needed
*B	Busy
*C	Busy, Attention Needed

The following conditions will cause a response indicating the indexer is busy:

- * Performing a preset move
- * Accelerating/decelerating during a continuous move
- * A time delay is in progress
- * In RM mode
- * Paused
- * Waiting on a Trigger
- * In Jog mode
- * Going home
- * In Power-On Sequence mode
- * Running a sequence
- * Executing a loop

The following conditions indicate attention is required.

- * A servo error exists
- * Go home failed
- * Limit has been encountered
- * Sequence execution was unsuccessful

When the response indicates that attention is required, more details on the condition are available from the RA, RB, and RE commands.

Do not repeatedly issue this command with little or no time between status requests. Doing so could result in overloading the Compumotor Plus. If you need to closely monitor the status of the Compumotor Plus, use a short delay before re-issuing the command.

This command is not intended to be used to determine if a move is complete. Rather it should be used after the move is complete to determine if there were errors or faults. Use a buffered status request command or a programmable output to indicate move completion.

Command	Description
> 1R	Request status
> *R	The indexer is ready to accept commands and no error conditions require attention

RA Limit Switch Status Report		Version Z5
Type	Status	Attributes
Syntax	<a>RA	[] Buffered
Units	None	[] Device specific
Range	None	[] Saved independently
Default	None	[] Saved in sequences
Response	*x (where x is a letter listed below.)	
See also	R, RB	

The Limit Switch Status Report (RA) command responds with the status of the end-of-travel limits during the last move as well as the present condition. This is done by responding with one of 16 characters representing the conditions listed below.

Response	Last Move Terminated By		Limit Switch Active	
	CW Limit	CCW Limit	CCW	CW
*@	no	no	no	no
*A	yes	no	no	no
*B	no	yes	no	no
*C	yes	yes	no	no
*D	no	no	yes	no
*E	yes	no	yes	no
*F	no	yes	yes	no
*G	yes	yes	yes	no
*H	no	no	no	yes
*I	yes	no	no	yes
*J	no	yes	no	yes
*K	yes	yes	no	yes
*L	no	no	yes	yes
*M	yes	no	yes	yes
*N	no	yes	yes	yes
*O	yes	yes	yes	yes

The RA command is useful when the motor will not move in either or both directions. The report back will indicate whether or not the last move was terminated by one or both end-of-travel limits.

Command **Response**
1RA *@ *@ The last move was not terminated by a limit and no limits are currently active

RB Loop, Pause, Shutdown and Trigger Status		Version Z5
Type	Status	Attributes
Syntax	<a>RBn	[] Buffered
Units	None	[] Device specific
Range	None	[] Saved independently
Default	None	[] Saved in sequences
Response	*x (where x is a letter listed below)	
See also	RA, RC	

The RB command reports the status of currently executing loops, if the command buffer is currently paused, if the amplifier is shutdown, and if a trigger is active. The command responds with the form *x[cr] where x is listed in the response column of the following table.

Response	Loop	Pause	Shutdown	Triggered
*@	no	no	no	no
*A	yes	no	no	no
*B	no	yes	no	no
*C	yes	yes	no	no
*D	no	no	yes	no
*E	yes	no	yes	no
*F	no	yes	yes	no
*G	yes	yes	yes	no
*H	no	no	no	yes
*I	yes	no	no	yes
*J	no	yes	no	yes
*K	yes	yes	no	yes
*L	no	no	yes	yes
*M	yes	no	yes	yes
*N	no	yes	yes	yes
*O	yes	yes	yes	yes

Command **Response**
> 1RB* *A The indexer is currently executing a move.

REG Set Registration Parameters

Version Z5

Type Motion
Syntax <a>REGa,v,d,l
Units a = rps/sec
v = rps
d = steps
l = steps
Range a = 0.001 to 247483
v = 0.00 to 60.00
d = 0 to 838860800
l = 0 to 838860800
Default None
Response None
See also SSK, IM

Attributes
[X] Buffered
[] Device specific
[] Saved independently
[X] Saved in sequences

The distance specified is the incremental distance the motor must traverse from the point at which the registration input goes active. The acceleration and velocity specified are parameters for the registration move. The velocity may be higher, lower, or the same as the move in progress. The lockout distance is the distance which the motor must traverse before recognizing the registration input (Trigger #1).

Registration is allowed in either preset or continuous moves, and can occur at any point in the move. Registration is disabled during jogging, homing, and when the motor is stopped. The registration input is recognized within 300 mS and is not debounced, the stopping position will vary by a small amount proportional to the speed of the motor. The motor's position will vary no more than the distance the motor can travel in 300 mS. Using a resolution of 5,000 steps per revolution, the motor can overshoot its desired position by no more than 1.5 steps/revolution/second. For example, at five revolutions per second, the motor could overshoot the desired position by 7.5 steps.

Registration is enabled with the SSK1 command, and disabled with the SSK0 command. When enabled, the registration move is performed upon receipt of an input on trigger #1 regardless of the input mode, but input mode #'s 4 and 5 dedicate Trigger #1 for registration input, and Trigger #'s 2 and 3 as JOG+ and JOG-, respectively. Input mode #5 selects trigger #1 as the registration input and leaves trigger #'s 2 and 3 designated as triggers. Output mode #5 allows the programmable outputs to be used to signal motion in progress on output #1 and registration move in progress on output #2.

When the registration command is issued in the interactive mode the indexer responds with *CALCULATING_REG_TABLES. If the amplifier is on the calculation takes about five to six seconds, if the amplifier is off the calculation takes less than a second. When finished, the indexer sends the message, *REG_TABLES_COMPLETE.

It is possible to define a registration move which is impossible to complete. When defining the registration distance, you need to obey the following relationship.

$$s \geq \frac{V_i^2 - V_o^2}{2a}$$

where,

s is the registration distance in revolutions
v_i is the initial velocity in rps
v_o is the target velocity in rps
a is the registration acceleration in rps/sec

If the registration move occurs during a continuous move the mode is switched to Normal mode. The next Go command will cause a preset or mode normal move to be executed. A Continuous mode (MC) command must be issued to return the indexer to its previous mode.

Command	Description
> MN	Set to Normal mode
> A10	Set acceleration to 10 rps ²
> V1	Set velocity to 1 rps
> D50000	Set distance to 50,000 steps
> G	Execute the move (Go)
> REG50, 20, 5000, 40000	Set registration move to accel = 50, vel = 20, distance from registration mark = 5000, wait until 40000-steps from start of move to start looking for registration mark

RFS

Return Drive Parameters to Factory Setting

Version Z5

Type Set-Up
Syntax <a>RFS
Units None
Range None
Default None
Response None
See also Z

Attributes
[] Buffered
[] Device specific
[] Saved independently
[] Saved in sequences

Return the drive to factory setting. The following settings are changed:

Deadband (CDB)	0
Gains (CIG, CDG, CVG, CPG)	Factory Default
Motor Resolution (CMR)	5000
Average Current (CCA)	Factory Default
Peak Current (CCP)	Factory Default
Following Error (CPE)	Factory Default

RG

Go Home Status Request

Version Z5

Type Status
Syntax <a>RG
Units None
Range None
Default None
Response *x (where x is a letter listed below)
See also RA, RC, R, RB, GH

Attributes
[] Buffered
[] Device specific
[] Saved independently
[] Saved in sequences

Go Home Status Request responds with either *@ or *A indicating success or failure of last go home attempt.

Response	Go Home Successful
*@	No
*A	Yes

RIFS

Return Indexer to Factory Settings

Version Z5

Type Set-Up
Syntax <a>RIFSn
Units None
Range None
Default None
Response None
See also RFS

Attributes
[] Buffered
[] Device specific
[] Saved independently
[] Saved in sequences

Execution of this command will cause all of the indexer and servo parameters to return to factory default settings, with the exception of the device address and the drive's motor configuration. The Compumotor Plus must have the amplifiers disabled when this command is executed (STO).

Command	Default
LD	LD0
LA	900 rps ²
JA	99 rps ²
JV	rps ²
GA	rps ²
GHF	0.1 rps
GHP	128
SS and OS	cleared
IM	IM1
CIP	2 (20 milliseconds)
SN	20 milliseconds
OM	OM1

The device address and the motor type are not changed. The sequences are cleared and the run time variables are initialized to the following settings:

A = 10 rps² R = RS-232C enabled
D = 1 rps REG = 99 rps²/5 rps, rps, 1
v = 1 rps/sec

RM Set Rate Multiplier Velocity

Version Z5

Type	Motion
Syntax	<a>RMh
Units	rps in hexadecimal
Range	00000 - FFFFF
Default	00000
Response	None
See also	Q1, Q0

Attributes
[] Buffered
[] Device specific
[] Saved independently
[] Saved in sequences

RM command specifies the immediate velocity in Velocity Streaming mode.

The command is followed by 5 hexadecimal digits which represent the desired velocity. The velocity resolution is 0.0008 to 800 rps.

The velocity change is essentially instantaneous; there is no acceleration or deceleration ramp between velocities. A limit switch input stops movement while in velocity profiling mode, but does not cause the indexer to exit velocity streaming mode. RM mode is unidirectional. The direction will be the last direction either from an actual move or from a D or H command.

Bidirectional moves using this mode can be made by returning to zero velocity, switching out of RM mode, changing the direction (with the H command), and re-entering RM mode. The overhead required by this approach should be acceptable given the time required to stop when changing directions.

Use the following formula to generate the hexadecimal numbers required by the RM command.

- ① Calculate the decimal velocity number.

$$v_d = v_{rps} \cdot 1,310.72$$

where,

V_d	is the decimal velocity number
V_{rps}	is the decimal velocity in rps

- ② Convert V_d to hexadecimal.

Example: 1 rps on the Compumotor Plus equates to a decimal velocity number of 1,310.72 decimal. Now convert 1,310.72 to hexadecimal: 051E hexadecimal.

Applications requiring non-linear accelerations may use the Q0, Q1 and RM commands. Q1 is used to enter the Velocity Profiling mode, and Q0 is used to exit the Velocity Profiling mode. While in this mode the RM command is used to generate velocity values that are immediately implemented, even while the motor is moving. This means that the RM command must be sent to the Compumotor Plus at the time the change in velocity is required. This creates a stair-step effect in velocity change. By implementing a large number of very small instantaneous velocity changes, a smooth, non-linear acceleration ramp can be achieved.

Command	Description
> Q1	Enter Velocity Streaming mode
> RMF3	Accelerate to 0.25 units/sec
> RM01E6	Accelerate to 0.5 units/sec
> RM03D7	Accelerate to 1 units/sec
> RM07AE	Accelerate to 2 units/sec
> T1	Run at 2 units/sec for 1 sec
> RM03D7	Decelerate to 1 units/sec
> RM012E6	Decelerate to 0.5 units/sec
> RM00F3	Decelerate to 0.25 units/sec
> RM00000	Decelerate to 0 units/sec
> Q0	Exit Velocity Streaming mode

RS Status of Sequence Execution

Version Z5

Type	Status
Syntax	<a>RSn
Units	None
Range	None
Default	None
Response	*x (where x is a letter listed below)
See also	XR

Attributes
[] Buffered
[] Device specific
[] Saved independently
[] Saved in sequences

The RS command reports the status of the currently executing sequence or of the last sequence executed. It also reports if an invalid loop has been encountered in a sequence. This command responds in the form *x[cr] where x is a response character listed below.

Response Character	Sequence Started	Sequence Ended	Bad Loop
*@	No	No	No
*A	Yes	No	No
*B	No	Yes	No
*C	Yes	Yes	No
*D	N/A	N/A	Yes

Whenever a sequence is started, the sequence start bit is set and the sequence end bit is cleared (this only occurs if the sequence is valid and is actually run). Whenever a sequence is completed, the start bit is cleared and the end bit is set.

*D is reported when there is an unbalanced number of loops and loop terminators inside a sequence. Starting a loop in one sequence and terminating it in another sequence is not allowed. Nested loops require complete closure before execution will begin.

Sequence started is true when: An XR, XRP or power-up successfully starts a sequence.
Sequence started is false when: A STOP or a KILL command is received, or limits are hit.
Sequence ended is true when: An XT is encountered, when a STOP or KILL is executed, or when end-of-travel limit is encountered.
Sequence ended is false when: A sequence is successfully started.

RSE Report Servo Errors

Version Z5

Type Status
Syntax <a>RSE
Units None
Range None
Default None
Response None
See also R, XFK

Attributes
[] Buffered
[] Device specific
[] Saved independently
[] Saved in sequences

You can find out what error condition exists in the servo drive using this command. If a red LED' on the front panel illuminates, you should troubleshoot the unit using the RSE command. The possible error messages are:

Response	Description	Shown On Front Panel
00	No Errors	Yes
20	Maximum position error exceeded	Yes
22	Maximum average current exceeded	Yes
23	Drive enable plug not inserted	Yes
30	EEPROM Checksum error	Yes
60	RS-232C commanded shutdown (using the ST1 or OFF commands)	No
61	Indexer incoming pulses (non-indexer version only)	Yes

RV Revision Level

Version Z5

Type Status
Syntax <a>RV
Units None
Range None
Default None
Response *92-nnnnnn-nn<xn> (where n is a digit from 0 to 9, and x is a letter)
See also None

Attributes
[] Buffered
[] Device specific
[] Saved independently
[] Saved in sequences

The Revision (RV) command responds with the software part number and its revision level. The response is in the form shown below:

*92-nnnnnn-nn<xn>[cr]

The part number may be used to identify which product the software is written for, as well as any special features that the software may have. The revision level also identifies when the software was written. You may want to record this information in your records for future use. This information is useful when you consult Parker Compumotor's Applications Department.

Command > 1RV
Description *92-007730-01Z5

The product is identified by 92-007730. The revision level is identified by 01Z5.

S Stop Motion

Version Z5

Type	Motion
Syntax	<a>S
Units	None
Range	None
Default	None
Response	None
See also	A, K, QØ, STOP, SSH

Attributes
[] Buffered
[] Device specific
[] Saved independently
[] Saved in sequences

This command decelerates the motor to a stop using the last defined Acceleration (A) command. This command normally clears any remaining commands in the command buffer, unless prevented from doing so by the Clear/Save The Command Buffer On Stop (SSH1) command. When the SSH1 command is present, the S command stops only the current move. The indexer executes the next command in the buffer. The Stop (S) command does not stop the motor in Velocity Streaming or Rate Multiplier (RM) mode. If you are in the RM mode, issue an Exit Velocity Profiling Mode (QØ) command to stop the motor.

Command	Description
> MC	Sets to Continuous mode
> A1	Sets acceleration to 1 units/sec ²
> V1Ø	Sets velocity to 10 units/sec
> G	Execute the move (Go)
> A5	Sets acceleration to 5 units/sec ²
> S	Stops motor (motor comes to 0 units/sec at a deceleration rate of 5 units/sec ²)

SAVE Save Set-Up and Sequences

Version Z5

Type	Set-Up
Syntax	<a>SAVE
Units	None
Range	None
Default	None
Response	None
See also	SV

Attributes
[] Buffered
[] Device specific
[] Saved independently
[] Saved in sequences

The SAVE command is identical to the SV command. See the SV command for a complete description.

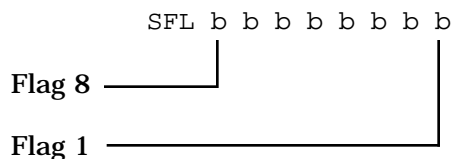
SFL Set User Flag

Version Z5

Type	Programming
Syntax	<a>SFLbbbbbbb
Units	Flag
Range	0 or 1
Default	0
Response	None
See also	IFFL, NIF

Attributes
[] Buffered
[] Device specific
[] Saved independently
[] Saved in sequences

This command sets a condition of 8 user flags. You can define the state of flags 1 through 8 using this command to be either a Ø, 1, or X. A Ø clears the corresponding flag, 1 sets the corresponding flag, and an X retains the flag's state. You need not specify the state of all of the flags in an SFL command: SFL11 sets flags 8 and 6 while leaving the remaining flags unaltered. Thus SFL11 is equivalent to SFL11XXXXXX.



Once you set flags 1 through 8, you can use the IFFL command to check the state of the flags and execute different commands based on the check.

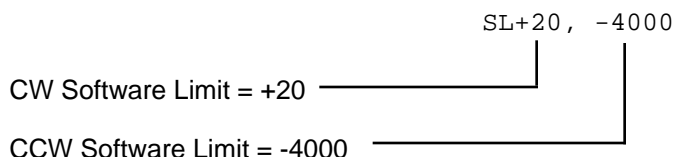
Command	Description
> SFL1010	Set bits 5 and 7, and clear bits 6 and 4
> IFFL1010	If user flag bits 5 and 7 are set, then issue the following commands
> A10	Set acceleration to 10 rps ²
> V5	Set velocity to 5 rps
> D25000	Set distance to 25,000 steps
> G	Execute the move (Go)
> NIF	End of IFFL
	If the IFFL pattern matches the SFL pattern, the motor will move 25,000 steps

SL Set Soft Limits

Version Z5

Type	Set-Up	Attributes
Syntax	<a>SLn,n	[X] Buffered
Units	Steps	[] Device specific
Range	± 838860800	[X] Saved independently
Default	0	[X] Saved in sequences
Response	*CW_SOFTWARE_LIMIT_n_CCW_SOFTWARE_LIMIT_n	
See also	OUT, SLD	

This command defines the absolute positions for the CW and CCW soft end-of-travel limits. Once you define the CW and CCW soft limits, the Compumotor Plus does not allow the motor to pass outside the specified absolute positions, unless the software limits are disabled by the SLD3 command. You may use the OUT command to configure one or more outputs to signal when a software end of travel limit is encountered. When the motor reaches a software limit, it comes to an immediate stop, using the acceleration specified with the Limit Acceleration (LA) command.



Command	Description
> SL+10000,-26944	Set CW software limit to +10000 steps, set CCW software limit to -26944 steps
> SLD0	Enable both CW and CCW software limits
> PZ	Set absolute position to zero
> A10	Set acceleration to 10 rps ²
> V5	Set velocity to 5 rps
> D40000	Set distance to 40,000 steps
> G	Execute the move (Go)
> SL,-29000	Set CCW limit to -29000
> SL+29000	Set CW limit to +29000

SLD Soft Limit Disable

Version Z5

Type	Set-Up	Attributes
Syntax	<a>SLDn	[X] Buffered
Units	Enable/disable state	[] Device specific
Range	0 to 3	[X] Saved independently
Default	3	[X] Saved in sequences
Response	0_CW_CCW_SOFTWARE_TRAVEL_LIMITS_ENABLED 1_CCW_SOFTWARE_TRAVEL_LIMIT_ENABLED 2_CW_SOFTWARE_TRAVEL_LIMIT_ENABLED 3_NO_SOFTWARE_TRAVEL_LIMITS_ENABLED	
See also	OUT, SL	

This command enables or disables the soft end-of-travel limits defined by the SL command. This command is very similar to the Hardware Limit Disable (LD) command, except that it specifies soft limits instead of hard limits.

SLD0	Enables both CW and CCW software limits. Motion will not be allowed to go past the software limits.
SLD1	Disables CW Software limit. Can travel past CW software limit.
SLD2	Disables CCW Software Limit. Can travel past CCW software Limit.
SLD3	Disable both CW and CCW Software limits. Motor will ignore both CW and CCW software limits.

You can use the OUT command to configure an output to indicate that the software limit has been reached. However, if you disable the limits, the output will not be activated even if the motor passes the software limit.

Command	Description
> SL0,0	Set CCW software limit to 0 and CW software limit to 0
> PZ	Set absolute position to zero
> A10	Set acceleration to 10 rps ²
> V5	Set velocity to 5 rps
> D25000	Set distance to 25,000 steps
> SLD3	Disable both CW and CCW software limits
> G	Execute the move (Go)

SN	Scan	Version Z5
Type	Set-Up	Attributes
Syntax	<a>SNn	[X] Buffered
Units	ms	[] Device specific
Range	1 to 200	[X] Saved independently
Default	12	[X] Saved in sequences
Response	None	
See also	None	

The Scan (SN) command allows you to define the debounce time (in milliseconds) for external sequence selection inputs. The debounce time is the amount of time that the sequence inputs must remain constant for a proper reading from a remote controller, such as a programmable logic controller (PLC). If you are using a PLC you should change the debounce time to match the *on time* of the PLC outputs.

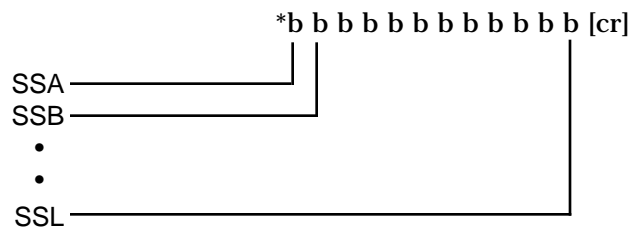
Command	Description
> SN150	Sets scan time of sequence select inputs to 150 mS

SP	Set Position Absolute	Version Z5
Type	Set-Up	Attributes
Syntax	<a>SPn	[] Buffered
Units	Counter	[] Device specific
Range	0, 1	[] Saved independently
Default	None	[] Saved in sequences
Response	aSPn = aSP*n	
See also	SSA, SSB, SSD, SSF, SSG, SSH, SSJ, SSL	

The SS command reports the status of the SS commands (SSA - SSL) settings, b represents a zero or a one as specified by the respective SS commands.

SS	Set-Up Report	Version Z5
Type	Status	Attributes
Syntax	aSS	[X] Buffered
Units	None	[] Device specific
Range	None	[] Saved independently
Default	None	[X] Saved in sequences
Response	aSS = *bbbbbbbbbbb	
See also	SSA, SSD, SSG, SSH, SSI, SSJ, SSL, SSN, SSO, SSP	

The SS command reports the status of the SS commands (SSA - SSL) settings, b represents a zero or a one as specified by the respective SS commands.



The following table briefly describes the function of each SS command.

Command	Description	Status
SSA	RS-232C Echo	0 = on, 1 = off
SSB	TRIG1 clears pause	0 = no, 1 = yes
SSC	Not defined	
SSD	TRIG1 dedicated stop line	0 = no, 1 = yes
SSE	Not defined	
SSF	TRIG1 sequence strobe	0 = no, 1 = yes
SSG	Clear/Save buffer on limit	0 = clear 1 = Save
SSH	Clear/Save buffer on stop	0 = clear 1 = Save
SSI	Enable/Disable Interactive Mode	0 = enable, 1 = disable
SSJ	Enable/Disable Continuous Scan mode	0 = enable, 1 = disable
SSK	Enable Registration mode	0 = no, 1 = yes
SSL	Resume execution enable	0 = no, 1 = yes

SSA RS-232C Echo Control

Version Z5

Type Set-Up

Syntax <a>SSAn

Units Enabled/disabled

Range 0 or 1

Default None

Response None

See also None

Attributes

- [X] Buffered
- [] Device specific
- [X] Saved independently
- [X] Saved in sequences

The SSA command enables and disables echoing. When echoing is enabled the Compumotor Plus retransmits all characters sent to it over the RS-232C interface. When echoing is disabled, characters are not echoed from the Compumotor Plus. You must enable echoing when your Compumotor motion controllers are in a daisy chain.

SSA0 = Echo enabled (default)

SSA1 = Echo disabled

Command	Description
> SSA1	Turns echo off (characters sent to the Compumotor Plus are not echoed back to the host)

SSB TRIG1 Clears Pause

Version Z5

Type Set-Up

Syntax <a>SSBn

Units Enabled/disabled

Range 0 or 1

Default 0

Response None

See also C, SSD, SSF, SSK, SSL, PS, U

Attributes

- [X] Buffered
- [] Device specific
- [X] Saved independently
- [X] Saved in sequences

If you issue a SSB1, TRIG1 will clear a pause when connected to ground. The result of activating TRIG1 is identical to sending a C command. When SSB is set to 1, SSD, SSF, SSK, and SSL are all forced to 0.

SSD TRIG1 Dedicated Stop Line

Version Z5

Type Set-Up

Syntax <a>SSDn

Units enable/disable

Range 0 or 1

Default 0

Response None

See also S, SSB, SSF, IM

Attributes

- [X] Buffered
- [] Device specific
- [X] Saved independently
- [X] Saved in sequences

If SSD is set to 1, TRIG1 is dedicated as a stop line in input modes IM1 and IM2. This input is treated like a Stop command. In IM3 mode, TRIG1 is automatically dedicated as a stop input.

When the stop input is closed to ground, any active sequence is aborted, and the move in progress is stopped using the last specified acceleration. When SSD is set to 1, SSB, SSF, SSK, and SSL are all forced to 0.

SSD1 = stop motion immediately
 SSD0 = stop motion at end of current cycle

Command	Description
> SSD1	Set Alternate mode stop to 1
> MA	Set Alternate mode
> G	Execute the move
> S	Stops motion immediately

SSF TRIG1 Dedicated as Sequence Strobe

Version Z5

Type	Set-Up	Attributes
Syntax	<a>SSFn	[X] Buffered
Units	Enable/disable	[] Device specific
Range	0 or 1	[X] Saved independently
Default	0	[X] Saved in sequences
Response	None	
See also	SSB, SSD, SN, SSJ, IM	

When SSF is set to 1, TRIG1 is dedicated as a sequence select strobe in IM1 and IM2. When TRIG1 is dedicated as a sequence select strobe, it must be connected to ground, held there for the period of time specified by the SN command, and then released in order for the sequence specified by the sequence select inputs to be run. When SSF is set to 1, SSB, SSD, SSK, and SSL are all forced to 0.

SSG Clear/Save Command Buffer on Limit

Version Z5

Type	Set-Up	Attributes
Syntax	<a>SSGn	[X] Buffered
Units	Enable/disable	[] Device specific
Range	0 or 1	[X] Saved independently
Default	0	[X] Saved in sequences
Response	None	
See also	SSH, LS	

The SSG command controls whether the command buffer is saved or discarded upon encountering an end-of-travel limit.

In most cases, it is desirable that upon activating an end-of-travel limit, all motion should cease until the problem causing the limit is rectified. For this reason the command buffer is normally discarded upon encountering a limit. By specifying SSG1 you are telling the Compumotor Plus to save the command buffer when a limit is encountered. When you do this the Compumotor Plus attempts to execute the commands which occur after the command which caused the motor to trip the limit.

CAUTION

Encountering an end-of-travel is a potentially dangerous situation if the limit was encountered due to a machine fault.

In the example below, if an end-of-travel limit becomes active during the move (refer to the G command), the move is aborted but the outputs will still be turned on.

Command	Description
> SSG1	Save buffer on limit
> A10	Set acceleration to 10 rps ²
> V5	Set velocity to 5 rps
> D25000	Set distance to 25,000 steps
> G	Execute the move (Go)
> O11	Activate programmable outputs #1 and #2

SSH Clear/Save Command Buffer on Stop

Version Z5

Type	Set-Up	Attributes
Syntax	<a>SSHn	[X] Buffered
Units	Enable/disable	[] Device specific
Range	0 or 1	[X] Saved independently
Default	0	[X] Saved in sequences
Response	None	
See also	SSG, S	

The SSH command enables or disables saving the command buffer upon receiving a stop command (either from the RS-232C port or from an input dedicated as a stop input).

SSH0 = Clears command buffer

SSH1 = Saves command buffer

In Normal Operation (SSH0) the Stop (S) command or a dedicated stop input causes any commands in the command buffer to be cleared. If you select the Save Command Buffer On Stop (SSH1) command, a remote stop input or Stop (S) command will only stop execution of a move in progress. It continues executing commands in the command buffer.

Command	Description
> SSH0	Clears buffer on stop
> A10	Sets acceleration to 10 rps ²
> V5	Sets velocity to 5 rps
> D25000	Sets distance to 25,000 steps
> L50	Loops 50 times
> G	Execute the move (Go)
> T.5	Pauses for 500 msec
> N	Ends loop
> S	Stops execution

SSI Enable/Disable Interactive Mode

Version Z5

Type	Set-Up	Attributes
Syntax	<a>SSIn	[X] Buffered
Units	Enable/disable	[] Device specific
Range	0 or 1	[X] Saved independently
Default	0	[X] Saved in sequences
Response	None	
See also	None	

The SSI command enables or disables the Compumotor Plus' interactive mode.

SSI0 enables the interactive mode. The device address must be set to one
SSI1 disables the interactive mode.

In the interactive mode the Compumotor Plus responds with a (>) when it understands a command and a (?) when it doesn't. Both responses are preceded with a line feed, carriage return sequence. In the interactive mode, the Compumotor Plus transmits a *READY and a (>) when energized or when a Reset (Z) command is executed.

When you define a loop or sequence, the Compumotor Plus will not send back a (>) until you complete the loop or sequence.

The SSI1 command disables the interactive mode. The Compumotor Plus does not respond with (>) or (?) when the interactive mode is disabled.

SSJ Enable/Disable Continuous Scan Mode

Version Z5

Type	Set-Up	Attributes
Syntax	<a>SSJn	[X] Buffered
Units	Enable/disable	[] Device specific
Range	0 or 1	[X] Saved independently
Default	0	[X] Saved in sequences
Response	None	
See also	IM, INL, OSI, SN, SS, XD, XR, XT, XQ	

When SSJI is enabled the Compumotor Plus continuously scans the inputs designated as sequence select inputs by the IM command and executes the sequence represented by the BCD number presented on the inputs. If Interrupted Run Mode (XQ) is active, then all the sequence input lines must go inactive prior to scanning the next sequence. A stop command discontinues continuous sequence scanning unless the OSI command switch has been turned on (OSI1).

When SSJ0 is disabled the Compumotor Plus does not scan the BCD numbers for sequence execution. In this mode, you could execute sequences using the RS-232C interface.

SSK Enable Registration

Version Z5

Type	Set-Up
Syntax	<a>SSKb
Units	Enable/disable
Range	0 or 1
Default	0
Response	None
See also	IM, REG

Attributes
[X] Buffered
[] Device specific
[X] Saved independently
[X] Saved in sequences

The SSK command allows you to enable and disable registration mode. Before using registration you must define a valid registration move with the REG command and you must define an input to be used for a registration trigger signal using the IM command.

SSK1 enables registration
SSK0 disables registration

When enabled, registration can occur in any move. The SSK1 command supercedes the SSB1, SSD1, and SSF1 commands, which use trigger #1 for clearing a pause, stopping, and a sequence strobe, respectively.

SSL Resume Execution Enable

Version Z5

Type	Set-Up
Syntax	<a>SSLb
Units	Enable/disable
Range	0 or 1
Default	0
Response	None
See also	S, C

Attributes
[X] Buffered
[] Device specific
[] Saved independently
[X] Saved in sequences

The SSL command allows you to use a Stop command as a Pause. Normally, a Stop command causes the current move to terminate, the current sequence to abort, if any, and the command buffer to be flushed. The SSL1 command instructs the Compumotor Plus to interrupt motion and program execution upon a Stop command, and to continue with the program when a Continue is received.

SSL1 Resume execution of the sequence or commands in the buffer when a Continue (C) command is entered
SSL0 Disable resume feature

You can stop a program or a move using the Stop (S) or Remote Stop input. If SSL1 is enabled, the move will resume as soon as you enter the Continue (C) command.

Command	Description
> SSL1	Enable resume function
> XE1	Erase sequence 1
> XD1	Define sequence 1
> A1	Set acceleration to 1 rps ²
> V1	Set velocity to 1 rps
> D2000000	Set distance to 200,000 steps
> G	Execute the move (Go)
> T2	Wait 2 seconds
> G	Execute the move (Go)
> XT	End sequence definition
> XR1	Run sequence 1