Tel +1 (717) 767-6511
Fax +1 (717) 764-0839
www.redlion.net

AC Tech Simple Servo

Information Sheet for Crimson v2.0

Compatible Devices

- AC Tech Simple Servos

Verified Device

- SSi1004A

IMPORTANT: Writes to configuration items, such as Gain parameters, are stored only in the working RAM of the servo. On power up, the servo loads its working area with the data stored in EEPROM overwriting changed data.

The programmer MUST take measures to save desired changes, and ensure they are reloaded on power-up of the servo.

Note: The suggested RS485 connection could not be verified on the unit tested. Swap A&B if necessary, and please notify Red Lion Controls technical support.

Accessible Data

Prefix	Description	WRITE OPCODE	READ OPCODE	Notes
Header	**DRIVE PARAMETERS...**	-	-	1
CL	Current limit	30	43	
PC	Peak current	31	44	
PFPG	Position filter P-gain	32	45	
PFIG	Position filter I-gain	33	46	
PFDG	Position filter D-gain	34	47	
VFFG	Position filter VFF-gain	35	48	
PFIL	Position filter I-limit	36	49	
VFPG	Velocity filter P-gain	37	50	
VFIG	Velocity filter I-gain	38	51	
MPE	Maximum position error	39	52	
MPET	Maximum position error time	32	53	
DCC	Drive current capabilities	-	42	

Prefix	Description	WRITE OPCODE	READ OPCODE	Notes
Header	**IO CONTROL...**	-	-	1
OC	Output configuration	54	58	
EIC	Enable input configuration	55	59	
O	Set/Get Output states	56	60	
AOV	Set/Get Analog output voltage	57	98	
DIS	Get digital input states	-	61	
AIV	Get analog input voltage	-	62	

Prefix	Description	WRITE OPCODE	READ OPCODE	Notes
Header	**LIMITS HANDLING...**	-	-	1
SL	Configure soft limits	63	67	
HL	Configure hard limits	64	68	
NSL	Negative soft limit	65	69	
PSL	Positive soft limit	66	70	

Prefix	Description	WRITE OPCODE	READ OPCODE	Notes
Header	**MONITORING FUNCTION...**	-	-	1
MPF	Last program fault	-	71	
MS	Status	-	72	
MRMS	RMS current	-	73	
MMER	Motor encoder resolution	-	76	
MERR	Command Execution Fault	Set to 0	YES	4

Prefix	Description	WRITE OPCODE	READ OPCODE	Notes
Header	**INDEXER VARIABLES...**	-	-	1
U	Units	1	12	
A	Acceleration	2	13	
D	Deceleration	3	14	
QD	Quick deceleration	4	15	
MV	Maximum velocity	5	16	
SP	Set/Get position	6	17	
IPL	In-position limit	7	20	
V	Velocity	8	21	
MER	Master encoder resolution	9	22	
GC	Gearing coefficient	10	23	
VAR	Variable	11	24	
GAP	Get actual position	-	17	
GTP	Get target position	-	18	
GLR	Get last registration	-	25	

Prefix	Description	WRITE OPCODE	READ OPCODE	Notes
Header	**MOTION COMMANDS...**	-	-	1
RI	Reset indexer	78	-	
MCE	Motion controller enable	79	-	
MCD	Motion controller disable	80	-	
SUSP	Suspend motion	81	-	
RM	Resume motion	82	-	
MP	Move to position	83	-	
MD	Move distance	84	-	
MDV	Send MDVD + MDVV...	85	-	3
MDVD	...Move distance to velocity - Distance	YES	YES	2
MDVV	...Move distance to velocity - Velocity	YES	YES	2
MPI1	Move positive while input = 1	86	-	
MPI0	Move positive while input = 0	87	-	
MNI1	Move negative while input = 1	88	-	
MNI0	Move negative while input = 0	89	-	
MDUR	Send MDUD + MDUS...	90	-	3
MDUD	...Move distance until registration - Distance	YES	YES	2
MDUS	...Move distance until registration - Displacement	YES	YES	2
VME	Velocity mode enable	91	-	
VMD	Velocity mode disable	92	-	
GME	Gearing mode enable	93	-	
GMD	Gearing mode disable	94	-	
S	Stop motion	95	-	
SQ	Stop motion quick	96	-	
MPUR	Send MPUD + MPUS...	97	-	3
MPUD	...Move to position until registration - Position	YES	YES	2
MPUS	...Move to position until registration - Displacement	YES	YES	2
SIP	Send SIPP + SIPD...	99	-	3
SIPP	...Start indexing program - Position	YES	YES	2
SIPD	...Start indexing program - Distance	YES	YES	2

Notes:

General:

Items marked with '-' in the Write column ignore write attempts.
Items marked with '-' in the Read column return 0 when read.

1) Headers separate functional groups. They cannot be selected as commands. Selecting them opens the list of items in that group.

2) These values are stored internally for use by the "Command…" preceding them. A read returns the most recent value written to that item. See Note 3.

3) A non-zero value written to these items sends the values currently in the two following items. See Note 2.

4) MERR – Command Execution Fault: This item returns the opcode and error code for the most recent command or data access that could not be executed by the Simple Servo.

The high 16-bit word contains the opcode number listed in the Write or Read column. The low 16-bit word contains the error number returned by the servo. A value is kept until a subsequent value is received, or any number is written to **MERR**. It is recommended two decimal items be created for evaluating a non-zero result, (MERR << 16) and (MERR & 0xFFFF).
An example error display could be MERRHI=79, MERRLO=11. This would mean command 79 – Motion Controller Enable could not be executed because the drive program is not running.

Error Codes for Command Execution Faults

Code	Error Name	Description
0	No error	Indicates successful execution of command
1	Command not supported	Command id is out of supported range
2	Value too big	A parameters is bigger than maximum allowed
3	Value too small	A parameters is smaller than maximum allowed
4	Not enough data	Not enough parameters for the command
5	Not enabled	Motion attempt while drive is not enabled
6	Velocity mode	Motion attempt while drive is in velocity mode
7	Gearing mode	Motion attempt while drive is in gearing mode
8	Motion FIFO overflow	
9	Program at fault	Indexing drive at fault (execute 'reset indexer' command to clear)
10	Position Mode	Command can not be executed in this mode
11	Program not running	Command can not be executed because drive's program not running
12	Interface disabled	Interface control disabled by user program

Cable Information

Earth Ground of both units must be connected for proper operation.

RS232 Serial Connection

SSi – TB505	SIGNAL NAME	G3
2	Tx >> Rx	2
3	Rx << Tx	5
5	0V	3/4

RS485 Serial Connection

SSi – TB508	G3
RS485 Data +	TxB (1 or 7)
RS485 Data -	TxA (2 or 8)

Ethernet – AC Tech recommends using a hub for optimal data transfer. If a direct connection is to be made, use a cross-over cable.