



# 1394 Analog Servo Firmware v6.01

## Catalog Number 1394x-SJTxx-A

The following information reflects enhancements made to several system parameters and faults in the 1394 Analog Servo firmware (version 6.01). Use this document in conjunction with the *1394 Digital AC Multi-Axis Motion Control System User Manual* (publication 1394-5.0-NOV99).

### Page 8-3

Parameters in *Chapter 8* are listed in alphabetical order. The following updated cross-reference table lists parameters in numerical order.

Parameter	Parameter Name
1	Software Version
2	Units Sel
3	Startup State
4	Language Sel
5	Slot 0 Opt Card
6	Sys Mod Data
7	Sys I/O Image
8	Status Display
9	Line Voltage
10, 11	D/A Gain
12, 13	D/A Value
14	System Type
16	Test Mode Sel
17	Type 1 Status
18	Type 2 Status
19	Drive OK Mode
20	Disp-D/A Monitor
21	Command Mask
22	Dig Cmd Mode
23	Typ 1 Logic Axis
24	Enble Input Mode
25	Hardware Version
30, 32, 34, 36	Option x Code
31, 33, 35, 37	Option x Status
38	Sys Mod Status 2
39	Bus Voltage
40	Rg Power Usage
41	Mt Power Usage
42	Shunt Usage
43	Shunt Type
44	Shunt R
45	Shunt P
46	Shunt Ks
47	Shunt KI
48	Shunt Ws
49	Shunt Type
50	DC Link Setup
51	Shunt Peak Usage

Parameter	Parameter Name
58-69	Rem. Data In/Out:Px
70-85	Rem. Data In/Out:Ax
90	Pwr On Minutes
91	Pwr On Days
92	Enabled Minutes
93	Enabled Days
94	Sum On Minutes
95	Sum On Days
100-103	Motor Type
104-107	Mtr Rated Cur
108-111	Mtr Inertia
112-115	Mode Sel
116-119	Current Limit
120-123	Vel Lim
124-127	Mtr Peak Cur
128-131	CW Vel Lim
132-135	CCW Vel Lim
136-139	Vel Rate Lim
140-143	Vel LowPas BW
144-147	Ld/Lg Degrees
148-151	Ld/Lg Freq
152-155	CW OvSpd Vel
156-159	CCW OvSpd Vel
164-167	Cur Preload
172-175	Id RPM Start
176-179	Id RPM End
180-183	Id Slope
184-187	Pos Cur Lim
188-191	Neg Cur Lim
192-195	Cur Rate Lim
196-199	Mod Rng Data
200-203	State
204-207	Vel Ref Whole
208-211	Vel Ref Fract
212-215	Dig Torq Ref
216-219	Resolvr Posn
220-223	Vel Command
224-227	Vel Feedback

Parameter	Parameter Name
228-231	Cur Lim Cause
232-235	Iq Cur Ref
236-239	Id Cur Ref
240-243	Stop Mode
244-247	Resolvr Turns
248-251	Up To Spd Tol
252-255	Desired BW
256-259	Vel Damp Sel
260-263	Bridge Lim
264-267	Cur Fbk Scale
268-271	Cur Fbk Rated
272-275	Anlg Vel Scal
276-279	Anlg Vel Ofst
284-287	ATune Vel
288-291	ATune Current
292-295	ATune Inertia
296-299	ATune Select
300-303	ATune Frictn
304-307	Max Bandwidth
308-311	Stopping Cur
324-327	Module Size
328-331	Axis Type
344-347	I(t) Cur Lim
348-351	Jog Vel
352-355	Int Vel Ref
356-359	Int Torq Ref
360-363	Torq Source
364-367	Vel Source
368-371	Prop Gain Kp
372-375	Intg Gain Ki
376-379	Feed Fwd Gain
380-383	Droop
384-387	Stop Time Lim
388-391	300% Torq Vel
392-395	100% Torq Vel
396-399	Mtr Pole Cnt
400-403	Fdbk Pole Cnt
404-407	Motor Type

## Page 8-16

The following description replaces the *[Motor Type]* description found in *Chapter 8*.

<p><b>[Motor Type]</b> The catalog number of the motor is attached to the axis. <b>Important:</b> This parameter configures many other parameters, set it carefully.</p> <p>Note: Before making modifications to Mtr Data parameters, [Motor Type] must be set to "custom motor".</p> <p>Note: Motors numbered 11 through 15 are available with Firmware version 2.01 or later.</p> <p>Note: Selection number might vary for parameters 404-407.</p> <p>Note: [Motor Type] parameters 404-407 are duplicates of parameters 100-103. This duplication allows you to display the selectable motor options in numerical order.</p>	<b>Parameter Numbers</b>	100, 101, 102, 103, 404, 405, 406, 407	
	<b>Parameter Group</b>	Configuration, Startup Params, Mtr Data	
	<b>Display Units</b>	None	
	<b>Parameter Type</b>	Read/Write	
	<b>Change While Running</b>	No	
	<b>Linkable</b>	No	
	<b>Default Value</b>	0	"custom motor"
	<b>Selections</b>	0	"custom motor"
		1	"1326AB-B410G"
		2	"1326AB-B420E"
		3	"1326AB-B430E"
		4	"1326AB-B515E"
		5	"1326AB-B520E"
		6	"1326AB-B530E"
		7	"1326AB-B410J"
		8	"1326AB-B420H"
		9	"1326AB-B430G"
		10	"1326AB-B515G"
		11	"1326AB-B520F"
		12	"1326AS-B310H"
		13	"1326AS-B330H"
		14	"1326AS-B420G"
		15	"1326AS-B440G"
		16	"1326AS-B460F"
		17	"1326AB-B720E"
		18	"1326AB-B730E"
		19	"1326AB-B740C"
		20	"1326AS-B210H"
		21	"1326AS-B220H"
		22	"1326AS-B630F"
		23	"1326AS-B660E"
		24	"1326AS-B690E"
		25	"1326AS-B840E"
		26	"1326AS-B860C"
		27	"1326AB-B505C"
		28	"1326AS-B360F"
		29	"1326AS-B515C"
		30	"1326AS-B360Z"
	31	"1326AB-B720C"	
	32	"1326AB-B720F"	
	33	"1326AB-B420C"	
	34	"1326AB-B530C"	
	35	"1326AN-B320H"	
	36	"External"	
	37	"1326AB-B740E"	

**Page 8-17**

The following new parameter [*Mtr Peak Cur*] description is added to *Chapter 8*.

<p><b>[Mtr Peak Cur]</b> Motor peak current. This parameter addresses the necessary lower current limits needed for 1326AS-B3xxxx motors.</p> <p>Note: Before making modifications to Mtr Data parameters, [Motor Type] must be set to "custom motor".</p>	<p><b>Parameter Numbers</b> 124, 125, 126, 127</p> <p><b>Parameter Group</b> Mtr Data</p> <p><b>Display Units</b> amps</p> <p><b>Parameter Type</b> Read/Write</p> <p><b>Change While Running</b> No</p> <p><b>Linkable</b> No</p> <p><b>Minimum Value</b> 0 %</p> <p><b>Maximum Value</b> 300 %</p> <p><b>Default Value</b> Rated motor peak current</p>

**Page 8-20**

The following description replaces the [*Shunt R*] description found in *Chapter 8*.

<p><b>[Shunt R]</b> Shunt resistor resistance. Set this parameter only when using a custom resistor.</p> <p>Active on all Smart Power 22 kW systems and 5 and 10 kW (Series C or later) systems.</p> <p>Note: [Shunt Type] must be set to "custom shunt" before making modifications to this shunt parameter (44-48).</p>	<p><b>Parameter Numbers</b> 44</p> <p><b>Parameter Group</b> Linear List</p> <p><b>Display Units</b> Ohms</p> <p><b>Parameter Type</b> Read/Write</p> <p><b>Change While Running</b> No</p> <p><b>Minimum Value</b> 4 (22kW systems) 16 (5 and 10 kW systems)</p> <p><b>Maximum Value</b> 255</p> <p><b>Default Value</b> Set by [Shunt Type]</p>

**Page 8-20**

The following description replaces the [*Shunt Type*] description found in *Chapter 8*.

<p><b>[Shunt Type]</b> Selects shunt module model number or type.</p> <p>Active on all Smart Power 22 kW systems and 5 and 10 kW (Series C or later) systems.</p> <p>Note: [Shunt Type] must be set to "custom shunt" before making modifications to associated shunt parameters (44-48).</p> <p>Note: [Shunt Type] parameter 43 is a duplicate of parameter 49. This duplication allows you to display the selectable shunt options in numerical order.</p>	<p><b>Parameter Numbers</b> 43, 49</p> <p><b>Parameter Group</b> Linear List</p> <p><b>Display Units</b> None</p> <p><b>Parameter Type</b> Read/Write</p> <p><b>Change While Running</b> No</p> <p><b>Linkable</b> No</p> <p><b>Default Value</b> 1 "1394-SR-9A" (22 kW systems) 6 "Internal" (5 and 10 kW systems)</p> <p><b>Selections</b> 0 "Custom Shunt" 1 "1394-SR-9A" 2 "1394-SR-9AF" 3 "1394-SR-36A" 4 "1394-SR-36AF" 5 "1394-SR-10A" 6 "Internal" (5 and 10 kW systems)</p>

**Page 9-10**

The following fault is removed from the list of analog servo system module faults found in *Chapter 9*.

<p><b>Ctrl Power</b> 24V control logic was lost.</p>	User supplied control voltage was interrupted.	Check the 24V into the system module.
	Control voltage supply has malfunctioned.	Replace the system module.

For more information refer to our web site: [www.ab.com/motion](http://www.ab.com/motion)

---

**Reach us now at [www.rockwellautomation.com](http://www.rockwellautomation.com)**

Wherever you need us, Rockwell Automation brings together leading brands in industrial automation including Allen-Bradley controls, Reliance Electric power transmission products, Dodge mechanical power transmission components, and Rockwell Software. Rockwell Automation's unique, flexible approach to helping customers achieve a competitive advantage is supported by thousands of authorized partners, distributors and system integrators around the world.

**Americas Headquarters**, 1201 South Second Street, Milwaukee, WI 53204, USA, Tel: (1) 414 382-2000, Fax: (1) 414 382-4444  
**European Headquarters SA/NV**, avenue Herrmann Debroux, 46, 1160 Brussels, Belgium, Tel: (32) 2 663 06 00, Fax: (32) 2 663 06 40  
**Asia Pacific Headquarters**, 27/F Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

