Equipment Solutions, Inc.
SCA814 Servo Controlled Amplifier
Firmware Change Log
- July 12, 2011 -

P>$ 06-Jun-08, 10:59:53	O>$ 4.073

1. Modified to include a profile generator cycle counter. The cycle counter is reset to zero (0) when the profile generator is started using the "V" command. The counter is incremented once every time the profile cycle is executed but, only when the amplifier is NOT faulted. The cycle counter can be interrogated using the "V" command and is the last parameter in that list. The cycle counter is a 32 bit variable so it will count up to 4,294,967,295 and then wrap around to zero (0).

P>$ 09-Sep-08, 14:07:09	O>$ 4.073

WARNING: This release did not include bootloader support. Use next release to include bootloader support.

1. Added Configuration Dump command 'd' which provides the user with three different dump modes 'd0' which dump the entire configuration memory 'd1' which will dump only the configuration values that are writeable and 'd2' which dumps the entire profile memory. Note that all of these commands output the data in a way such that they can be recorded using a program such as HyperTerminal and then resent at a later time, again using an application such as HyperTerminal. This provides a good method to annotate backup an restore a controller.

2. Corrected error in 'a' command such that binary values greater than 127 could not be sent properly.

3. Added a Brake Fault Check. This enhancement can be optionally turned ON and OFF using the first bit, bit 0 of the new Configuration Byte using the 'c' command. To turn the BrakeFault Check on the user will need to send a 'c1' and turn it OFF a 'c0'. Note that will be best if the user first reads the value of 'c' and then masks off all bits but the lower bit as upper bits may be used at a later date. Added the ability to software to clock the profile using the new 'v' command. Like the internally clocked version the user will need to start the profile generator using the 'V' command and then issue 'v' commands to begin stepping through the profile. The 'v' command can optionally take on a single value. A 'v0' will cause the command to turn off position announcements during every subsequent 'v' command. A 'v1' will cause the command to announce DAC positions during subsequent 'v' commands. Note that the value associated with the 'v' command is not stored and is initialized to zero (0) on power-up. In all other respects the software clocking source behaves identically to the internally clocked version.

4. Add new parameter to the end of the Profile Configuration list. This new parameter will be used to describe the profile clocking source and as such is directly related to the aforementioned 'v' command. This parameter can take on a value of 0) to use the internal processor clock to periodically step through the profile or 1) which will allow the 'v' command to step through the profile or finally 2) in the future, a external electrical pin toggled to cause the profile to be stepped.

5. Added the ability to hide the "$" character from being sent as part of the "Q" command. By setting bit 1 of the value sent in the "Q" command the "V$" will not be sent but by clearing it, the default, it will be sent.

6. Added a two (2) second time delay to the power-up if and only if the Enable State is set to Enabled (k1). This should allow the user sufficient time to disable the amplifier should they wish to.

7. Modified the Enable State command, 'k' such that bit '1' needs to be set in order for the Enable State to be stored in non-volatile memory. In order for the controller to start-up in the enabled state the user will need to send a 'k3' and conversely to start-up in a disabled state a 'k2' needs to be sent. Sending a 'k0' or k'1' will do an immediate disable or enable without affecting the stored state. This change was made to avoid the unintended stored state from being changed during loss of power.

8. Removed support for digital encoder input. This was done because earlier observations should that noise on these lines could cause the controller to become unresponsive.

P>$ 09-Sep-08, 14:34:51	O>$ 4.073

1. This release corrected prior release which did not support bootloader.

P>$ 12-Sep-08, 10:41:15	O>$ 4.073

1. Modified SetFaultMode() such that support for indicating the fault mode using two (2) hardware bits, RA0/RA1 has been eliminated since number of fault modes has now exceeded representation capability of those two bits. The fault state command "L" has been modified such that "No Fault"=0, OVER_CURRENT=1, MOTOR_OVER_TEMP=2, BOARD_OVER_TEMP=3, POSITION_LIMIT=4 and BRAKE_ENAGAGED=5

2. Modified MotorOverTemp(), BoardOverTemp() and BakeEngaged() such that they now return a boolean type. This change was necessary to modify the ServoStartup() to avoid a startup condition if any were generating the fault.

3. Removed all support of digital encoder to conserve on dwindling code and data space. This means that the "X" and "Y" commands have been eliminated.

P>$ 12-Sep-08, 11:44:38	O>$ 4.073

1. Modified to remove "X" and "Y" commands from the dump command "d".

P 17-Sep-08, 14:08:01	O 4.073

1. Removed print statement associated with the setting of IO1 and IO2 bit direction and state.

P>$ 30-Sep-08, 10:13:11	O>$ 4.073

1. Modified to correct an error in the profile generator "SOFTWARE" timer that prevented announced position from being properly set.

P>$ 30-Sep-08, 16:17:27	O>$ 4.073

1. Modified the 'v' command such that it no longer needs to have a carriage return sent after it. This allows the profile to be updated at a considerably faster rate.

2. Modified the "F" command such the profile is turned off only if a new setpoint is specified.

3. Corrected an error in the linear profile generator mode where 'n+1' steps were executed when 'n' steps were specified.

P>$ 09-Oct-08, 09:52:07	O>$ 4.073

1. Modified to eliminate second 'v' echo when performing a software profile.

P>$ 15-Oct-08, 15:34:17	O>$ 4.073

1. Modified software profile command such that it returns a single 'v' in response to the 'v' sent when processing an active profile and return a carriage return and line feed when not processing an acive profile. The returned 'v' occurs when the profile update has been accomplished.

P>$ 16-Oct-08, 16:27:48	O>$ 4.073

1. Modified to cause a single character to be returned when using the software profile clocking source, 'v'.

P>$ 21-Oct-08, 11:07:28	O>$ 4.073

1. Modified software profile generator such that the 'v' command would only be active if the profile generator was configured to be triggered by software and a profile is active.

P>$ 31-Oct-08, 11:29:17	O>$ 4.073

1. Modified 'd' dump command to list 'c' state variable.

P>$ 02-Sep-09, 14:47:11	O>$ 4.096

1. Modified to correct error that caused the stored Enable State to be changed when saving changes to other parameters. As part of this refinement, the saved Enabled State is reported as a second parameter when sending a 'k' command.

P>$ 14-Nov-10, 11:50:18	O>$ 4.112

1. Modified to accommodate new compiler. Required changes to structure reference pointers.
2. Modified the "k" command behavior to make startup behavior more predictable.