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SMC LC8 Controller Driver

Information Sheet for Crimson v2.0

Overview

This document was written to provide assistance in communication access with an SMC LC8 Controller. Please read this document carefully before attempting to configure communications with these devices.

Unless otherwise noted, the simple principle of "pass-through" is maintained: there is no attempt to validate a value in terms of the end use of the unit: both familiarity with the drive functions, and knowledge of system operation are assumed.

Compatible Devices

- SMC LC8 Controller Axis

Verified Device

- SMC LC8 AC Servo Motor Controller LC8-B1H1P-M master axis

Accessible Data

As recommended per the SMC LC8 Serial Communication Specification, the following parameters have been provided:

Parameter	Description	Usage Notes
InReg	Command I/O Input	Flag access: E Stop, Pause, Home, Reset, Step 0-6 In, Start
OutReg	Command I/O Output	Flag access: Step 0-6 Out, Set-On, Busy, Alarm, Error
Alarms	Alarm Register	Alarm flag data access
Errors	Error Register	Error flag data access
EncRes	Encoder Resolution	Read access to Encoder Resolution value (counts per rev)
FdScrw	Feed Screw Lead (mm)	Read access to Feed Screw Lead value converted to mm
PosTim	Position Sample Time (s)	Read access to Position Sample Time value converted to secs
Motor	Motor Voltage & Power	Flag Access: Power 0-2, Volt
CurPos	Current Position (mm)	Read access to Current Position value converted to mm
CurVel	Current Velocity (mm/s)	Read access to Current Velocity value converted to mm/s
CurTor	Current Torque	Read access to Current Torque value converted to %

Likewise, the following Commands (write only access) have been also provided:

Command	Description	Usage Notes
IOInp	Enable/Disable IO Input Cmd	Enable (1) or disable (0) IO Input Command *
RESET	Assert a Reset	Perform a reset via a toggle button
HOME	Assert a Home	Perform a home via a toggle button
START	Assert a STEP Start	Perform a Start via a toggle button for STEP specified Note: STEP is an internal parameter only sent to the controller when a START is asserted.
PAUSE	Turn Pause On or Off	Start (1) or Stop (0) a Pause
ESTOP	Turn E-Stop On or Off	Start (1) or Stop (0) an E-Stop

* It is recommended for safety purposes to ensure that the IOInp is disabled when using the RS232 Start, Stop, Reset and Home commands. It is the programmer's responsibility to ensure its proper state.

In order to assist with Jog/Teaching operations, the following has been provided

Register	Description	Usage Notes
Steps	Set Number of Steps	Write only access to set number of steps
StpPos	Step Position (mm)	Step position access for steps 1-117 converted to mm
StpVel	Step Velocity (mm/s)	Step velocity access for steps 1-117 converted to mm/s
StpAcc	Step Acceleration (mm/s²)	Step acceleration access for steps 1-117 converted to mm/s²
StpDec	Step Deceleration (mm/s²)	Step deceleration access for steps 1-117 converted to mm/s²
StpTor	Step Torque (%)	Step torque access for steps 1-117 converted to %
AbsRel	Step Abs/Rel Flag	Step abs/rel flag access for steps 1- 117
JogVel	Set Jog Velocity (mm/s)	Set jog velocity expressed in mm/s

In addition, the following is also provided:

Register	Description	Usage Notes
RAM	RAM Memory Access	RAM Memory Access 0x3800 –0x3925 **
NV	Non-Volatile Memory Access	Non-Volatile Memory Access 0x000 –0x7FF **

** This register access provides data on a "pass through "approach. It is very important to designate the proper data type based on the register accessed. In some applications where many data items are in use, it may be more efficient to obtain data through these registers.

Cable Information

Programming Port:

G3 RS232 Port	SMC LC8 RS-232 Port
1 - CTS	8 - CTX
2 - RX	2 - RXD
3 - COMM	5 - COMM
4 - COMM	5 - COMM
5 - TX	3 - TXD
6 - RTS	7 - RTS

Revision History

02/20/09 –v1.00+ - Command write only access clarification.