

# Lexium MDrive Motion Control firmware change summaries

## **Changes Ver. 6.010 to 6.012**

- Added % torque to the reading of TQ
- Added turning off the drive enable input upon loss of +V.
- Added a 250 mS delay before re-enabling drive following power loss if DE=1.
- Fixed bug when saving options.

## **Changes Ver. 6.008 to 6.010**

- Added updating internal Accel/ Decel tables when changing A or D and EE=1.
- Fixed code to keep 01 and 02 from pulsing on Ctrl-C (reset) or Power On.

## **Changes Ver. 6.007 to 6.008**

- Fixed List to support VA xx = y. (missing equal sign).
- Changed AV to be able to be read all of the time. Compensated value for when EE=0.
- Added new mnemonic, RP Referenced Position. Indicates position reference (P set to a value).
- Fixed BL to display and save BL properly, depending on the state of EE flag.
- Modified conversion of Backlash when printing BL when EE=1 .

## **Changes Ver. 6.006 to 6.007**

- Corrected an issue occurring when SL V1 then SL V2; when V2 > V1.
- Corrected an issue occurring with MA / SL when AS=0.
- Corrected an issue occurring during a Move on Move,, Slew on Slew or Slew on Move.
- Corrected an issue with the VC flag during velocity change.
- Corrected an issue occurring when trying to indirectly set an array with via pointer greater than the array size.
- Corrected an issue impacting detection of invalid array pointers.
- Updated Copyright year to 2017
- Added a test to prevent sending MA <position> multiple times while still moving to the previous commanded position,
- Corrected an issue regarding the outputting of Encoder on O1 and O2

## **Changes Ver. 6.004 to 6.006**

- Added code to determine if the number of floating point digits exceed format width and then convert to scientific notation.
- Fixed VA xx = minus number.
- Fixed problem when first character of user variable matches the opcode of Higher Math function and causes BAD\_DATA error.
- Added indicating when trying to create a variable with too large of a number.
- Fixed List to support user variable arrays.
- Set NE default to be 0 instead of 1.
- Added ability to set array size with a variable.
- Added ability to set a user var to a variable or previously defined user var.
- Added code to firmware to prevent multiple setting of OVR\_CUR\_FLT error; to prevent crashing the stack.
- Fixed code to allow, when defining a LBLVAR, setting it to a user variable.
- Added tests to HM/Hi/HF, SL and MA/MR to prevent running when in AS=3 (torque mode).
- Fixed detection of limits when in EE mode and doing a MA or MR.
- Changed version number to the released version number, 6.006

## **Changes Ver. 5.018 to 6.004**

- Added floating point math functions
- Added S-curve accelerations and deceleration types
- Additional feature additions: Software limits; home to index offset, backlash compensation

## **Changes Ver. 5.017 to 5.018**

- Added allowing Trips to be enabled when Address= 0
- Put AS settings save/restore back into Flash
- Added code to prevent buffer overflow.
- Fixed Flash location for Find Flat Value.
- Updated Copyright year.
- Added code to stop a running program if Print Buffer becomes full.
- Added code to only stop printing and program when not tracing a program.

## **Changes Ver. 5.016 to 5.017**

- Fixed Homing issue.

## **Changes Ver. 5.014 to 5.016**

- Added Homing to Shaft Flat after Find Flat initiated.
- Updated copyright years.
- Added a new variable, FS (Flat Setting), and made it r/w by user.
- Fixed UART communication problem created when Ethernet SPI function added.
- Fixed a potential move problem.
- Modified OUTPUT 1 & 2 Fault detection, such that the error can be cleared, but the Fault has to be cleared by setting OF to 1, 2 or 3.

## **Changes Ver. 5.013 to 5.014**

- Added support for higher speed LMD Ethernet products
- Added ability to print the setup of individual IOs by adding line parameter to the PR IS/OS, line, i.e. Pr Is,2 to print the settings of Input 2
- Added Ability to print OT

## **Changes Ver. 5.010 to 5.013**

- Increased +V MAX, for each drive size, by 1 volt. And, the low voltage warning reduced by 1 volt to 11 volts.
- Updated copyright date.
- Fixed save to allow saves while user program running.
- Added code to detect NEMA size 17 (42mm) and not test for output faults on O1 and O2
- Fixed bug in TR -Trip Relative functionality
- Removed restriction on using the Attention Output mask (AO) on Ethernet TCP/IP based Lexium MDrives.

## Changes Ver. 5.009 to 5.010

- Removed Calibration Fault from Attention Out bit list
- Converted Attention Out/No Aux. Volts to Voltage Warning if VT status is not = 0
- Added prevention to stop voltage fault from stopping programs from running.
- Added setting an error (96) if Motion attempted while +V out of range.
- Added setting an error (94) if motion attempted while drive disabled.
- Added stopping motion if Drive is Disable (DE=0).
- Fixed Attention Output stall indication.

## Changes Ver. 5.007 to 5.009

- Fixed equation for when RD (Rotation Direction) changes state.
- Added test for Locked Rotor Flag in Move and Slew.
- Fixed problem with MU not being restored after an ESC'd motion.

## Changes Ver. 5.004 to 5.007

- Changed Acceleration and deceleration range test when in encoder mode (EE=1)
- Fixed rotation direction bit not being set following reset/power cycle
- Fixed motion at initial velocity (VI) when a move relative (MR) or move absolute (MA) encounters a limit switch in encoder mode (EE=1).
- Moved communications interrupt enable until after sign on message
- Added a status parameter to the read voltage variable (VT). PR VT will display status, aux voltage, +V
- Fixed option decoding for upper +V limit test via motor stack size
  - 0 = +V and Aux both in range
  - 1 = +V in range, Aux out
  - 2 = +V out, Aux in range
  - 3 = +V and Aux out of range

## Changes Ver. 5.003 to 5.004

- On ESC input, MU is disabled until motion stops, then MU is re-enabled.
- Changes to prevent swapped characters in Print responses

## Changes Ver. 5.002 to 5.003

- Added Stall Flag to Attention Out (AO).
- Fixed saving Trip on Position (TP) (was double saving TI).
- Fixed saving/restoring Trip on Input (TI).
- Fixed saving/restoring Trip on Main Power Loss (TM).
- Fixed Trip on Capture input (TC) working during slews.

Source: <http://motion.schneider-electric.com/downloads/firmware.html>