



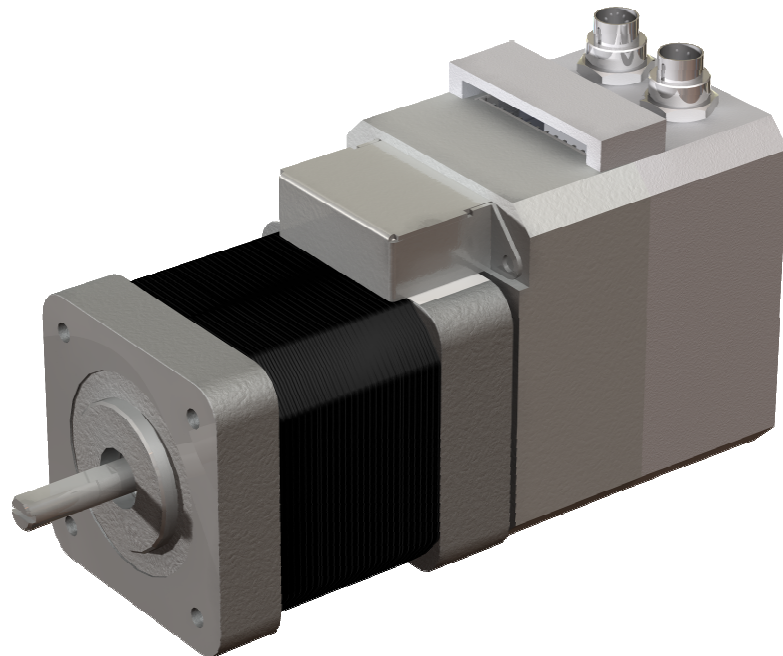
# Myostat Motion Control Inc

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## Cool Muscle

### CM1 RT3.12 Firmware Update

Document Version 1.01



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## RT3.12

RT3.12 is an update from 3.11. Changes include:

1. K14 – motor power up delay (0-32000 ms)
  - Units are changed to milliseconds
  - Range: 0-32000

Note: if you use a 3.11 motor the units are seconds. The motor is not usable for that many seconds on power up. 3.12 changes the unit to ms.

## RT3.11

RT3.11 is a major update from RT3.08. Changes include

### Motor power up delay:

1. K14 – motor power up delay (0-9999 seconds)
  - Units: seconds
  - Range: 0-999

Note: Please see the change in RT3.12. Unit is changed to milliseconds

### Digital or Serial I/O selection:

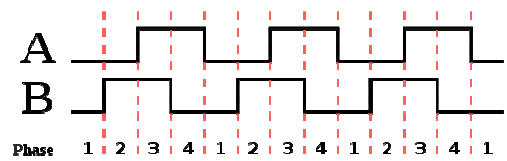
K52 allows I/O1 and I/O2 to be forced to digital or serial. This, for example, allows sensors on input 2 to be active on power up. Where previously this would set the input to a serial port it would now leave it as digital

1. K52
  - Range 0-21
  - Values:
    - 0 – automatic detection
    - 1 – force serial port
    - 2 – force digital port
  - As with I/O parameters the digits refer to the input/output number. E.g. K52=AB
    - A – I/O 2
    - B – I/O 1
  - It can be seen with max value 21 does not allow I/O 1 to be forced digital. This would render all communication to the motor useless.

### Quadrature encoder output:

The quadrature encoder output has been modified to adhere to standard quadrature output signal specifications. K24 still sets the quadrature pulses per motor pulse.

1. K34 – K34=77 sets the outputs to quadrature outputs. If a single output is set only a single channel is used.
2. K54 – quadrature encoder offset.
  - Description: sets an offset from 0 for the 1<sup>st</sup> pulse on the quadrature output.
  - Units: pulses
  - Range: 0-32767



## Internal Variables:

The following variables were added. They can be used like all other motor internal variables such as V1.1="Px" which captures the motor's current position

1. "AO2" – write to the analog output. Range is 0-255.
2. "Cx3" – read/write to counter on input3.
3. "Cx4" – read/write to counter on input4.
4. "Cx2" – read/write to counter on input2.
5. "Cx" – changed to a read/write. (was read only)

Note 1: "Cx" uses the internal high speed counter of Input2 but "Cx2" uses a separate low speed counter. "Cx" is quite sensitive so when used with relays or manual switches it can pick up 'bounces' on the line. "Cx2" does not pick up the bounce.

Note 2: "Cx2", "Cx3" and "Cx4" all have a minimum pulse width of 1ms.

## Operational revisions:

1. |11 – sending |11 will reset the encoder revolution counter. E.g. if the motor resolution is set to 1000 pulses per revolution, the motor is at position 1200, then by sending |11 the current position will be reset to 200.
2. K16=4 – K16=4 now allows input1 to be used as digital if no serial port is detected
3. "End!" and "Origin" are now included in the K23 event list. If a user switches off events these messages will not appear.
4. Low speed accelerations would set Ux=0. The correct message Ux=8 is now sent if the motor is in position.