Overview over the changes and new functionality of Motion Controller V3.0 firmware revision M (compared to L).

Changes and fixes

No.	Affected Feature	Change Description
1	CSP operation mode	Full supporting shortest way option respecting the position range limits.
2	PP operation mode	Refinement of trajectory generator: In some cases the previous profile generator used to generate a small position step before reaching the final position. This is now fixed provides an even smoother positioning.
3	Full modulation	Improved utilization of the DC-voltage in case of operating close to 100% PWM.
4	EtherCAT / Home Offset	Writing via SDO over EtherCAT to the home offset parameter 0x607C.00 caused a software reset. This is fixed.
5	EtherCAT	Now always DC-synch. Therefore synch module file does not exist anymore.
6	MC3001 voltage threshold parameter	Write access to object 0x2325.02 lower motor threshold voltage to allow for not checking the motor supply at all.
7	NMT	Improved the filter of the messages @ Id 0. Messages having Id 0 will only be considered as NMT, when their length = 2 bytes.
8	Handling of Software Position Limits	Added a corridor around the software position limits where the drive is still considered to be sitting in the limit to prevent the system from bouncing in and out of the limits.
9	Sign of actual speed	When using an additional incremental encoder (DigIn 1 – DigIn 3) – the actual speed sign is influenced by the sign of the gain of the reference encoder (0x2316.04)
10	Handling of speed/position polarity when reaching limits	When position and speed sign have been inverted the software position limits had nit been handled accordingly – fixed now. Limits are given in user scaling and thus does reflect the sign now.

New functions

No.	Affected Feature	Description
1	IoT Ready	Providing functions to evaluate values like min, max, mean of any traceable signal
2	Logic Trigger	New additional logic trigger for graphical analysis to e.g. trigger @ a position being flagged as reached.
3	NTC of BX4 motors	Supporting the NTC sensor which is available for 22 BX4 motors as temperature source.
4	Basic scripting Extension	Added commands: RESET, ERROR and EVENT
5	Poti4Speed	A analog position feedback like a potentiometer can be used for speed feedback too allowing for this potentiometer being the only feedback source.
6	Emulated Digital Input	Emulated digital inputs (AnIn 1 / AnIn2) can be used a reference switch input.
7	Options	Added two more options **Bit 6:** explicitly hold the position when at zero target speed in speed modes **Bit 7:** signal the voltage enabled bit in the 0x6041.00 status word when enabling the drive 0x233F.00: `15                    8  7              0`