Software Version History

Product: **ARM7 based Controllers**
Applies to: **MC302-X**
Started: **Version 1.9200**
Notes: **Versions with 0.001 increments are development builds ONLY**

Current Manufacturing Release:

   1.xx Released xxx

Version Number:	Bug Fixes:	New Features:	Notes:
1.9200			First Released Version.
1.9201	ADDAX did not work when a CONNECT was also active for the same axis. Potential for axis measured position to be outside of REPDIST for 1 servo cycle.	Added VRSTRING command.	12th May 2006
1.9202	Specifying a DECEL value for an axis other than the base axis by using an axis modifier (eg DECEL AXIS(1)=50000) did not work correctly resulting in the wrong deceleration for AXIS 1 and also AXIS 0. Using port #0 for Modbus via SETCOM sometimes caused the controller to reset.		17th May 2006
1.9203	Corrected REP_OPTION=1 bug whereby it did not allow MPOS=0 to be a valid position. TICKS now managed correctly – previously it always counted in 250us steps regardless of Servo Period, now it counts in Servo Periods.	Added Program Encryption. Added CANopen support via axis types 18 (position) & 19 (velocity) and CAN_ENABLE/CAN_ADDRESS axis parameters.	14th July 2006
1.9204	32-Bit Floating-Point Modbus protocol (SETCOM mode 7) corrected.	Axis 0 default type is now Servo (2) rather than Encoder (3). Maximum number of Local Vars increased from 255 to 512. Added DIM variable types STRING, VECTOR and ARRAY.	20th September 2006
1.9205	32-Bit Floating-Point Modbus (SETCOM mode 7) did not read (via function 03) the correct VR data, the address specified by the HMI should be divided by 2 before accessing the VR variable, hence only the base address of 0 would work correctly.		29th September 2006
1.9300	New flash management for parameters incorporated – there was a potential problem when storing a parameter that required a new flash page to be initialised, plus flashing VRs above 253 would not work	The serial number can now be read via SERIAL_NUMBER. HOSTLINK master & slave functionality added.	16th November 2006

	correctly. DeviceNet command now successfully stores a startup baud rate for CAN in flash. The 'Control' parameter now behaves correctly when the controller is LOCKed – the previous behaviour meant that MotionPerfect thought the controller was unlocked even when it was locked.		
1.9301	INPUTS0/1 now correctly accessed via Scope feature.	Added CANopen IO functionality.	21st February 2007
1.9302		The commands IF, REPEAT, WEND, WHILE, WAIT and WA are now available on the command line.	28th February 2007
1.9303	Fix in 1.9301 for INPUTS0/1 storage via the scope introduced a bug – only 16 inputs for each should be stored in the Table.		6th March 2007
1.9304	Fixed CONNECT bug – a new CONNECT command issued for an axis that is already connected shouldn't cause any break in its position profile; this was happening for 1 servo cycle.		26th March 2007
1.9305	Low-level CAN message reading was not implemented correctly, it was reading 1 more byte than necessary causing overflow of array elements when reading a fully loaded 8-byte CAN message ie. Stomping on RAM locations causing random side effects. Corrected bug preventing certain types of functions being used as parameters for other commands eg CAN(-1,7,1,VR(0),VR(1)) would not work but CAN(-1,7,1,TABLE(0),TABLE(1)) did work.	Added Piezo Motor functionality (new axis parameters D_ZONE_MIN/MAX and NEG/POS_OFFSET). Added FASTDEC support. Added new axis types 26 (Position) & 27 (Velocity) for extended CANopen support – as axis types 18 & 19 but with Status & Control Words cyclically transferred. New DRIVE_CONTROL axis parameter added. CAN command function 2 can now be used to read the current baud rate setting eg PRINT CAN(-1, 2). CAN command functions 8 & 9 for SDO access modified to be consistent with all other controllers.	11th May 2007
1.9306	The fix in 1.9305 to correct a bug when using function calls as parameters for other functions introduced a new bug causing unexpected BASIC errors to be produced at random intervals when running more than 1 program.		21st May 2007
1.9307	CANIO modules were not always initialised correctly when powered-up at the same time as the controller. DeviceNet protocol problems when handling Expicit Message requests at the same time as Polled IO requests.		22nd May 2007
1.9308	Corrected HLM_READ to expect Hex values in return rather than Decimal.	Added ENCODER_RATIO and STEP_RATIO commands.	18th July 2007
1.9309	Resource management problems when processes are halted – a halted process may not relinquish all held resources. Hostlink problems with HLM_READ and HLM_WRITE – these commands		8th August 2007

	do not wait for a complete packet of response data causing potential problems within the receive protocol.		
1.9310	Corrected issue whereby CANIO inputs 16..31 would toggle uncontrollably if the corresponding input had the INVERT_IN flag set.	Added RS232_SPEED_MODE as per other Trio controllers – default setting is for High Speed 38400 baud comms. New SETCOM functions 10&11 added to allow the command line to be disabled with port#0 available for program use instead. 10=XON/XOFF disabled, 11=XON/XOFF enabled	13th November 2007
1.9311		Added Virtual IO access for unused Outputs. Added support to Modbus protocol for configuring VR/TABLE as the data source – achieved through a 7th parameter in the SETCOM command (0=VR, 1=TABLE), if not specified the default is VR.	23rd November 2007
1.9312	Version 1.9310 prevented registration from operating for axis type 4 (Stepper/Encoder with position feedback). REG_POS was incorrectly updated following a DEFPOS operation. Corrected VR range checking for various commands that specify a VR index.		12th March 2008
1.9313	Version 1.9310 incorrectly removed the offset (hex 8000) applied to the DAC output for a servo axis.		25th March 2008
1.9400	Low-level floating-point multiplication problem – if 2 small numbers very close to 0.0 are multiplied that should give a result of 0.0 then the exponent is miscalculated causing the result to be a potentially large number. This is particularly noticeable when applying a MOVE operation close to 0.0 because the motion calculations involve a square of the distance to move.		23rd April 2008
1.9401	A small window of opportunity existed for REG_POS to be based upon old FPGA data because the registration data from the FPGA was read before the FPGA status word, hence if the actual event occurred between these 2 read accesses then REG_POS would be calculated incorrectly.		16th May 2008
1.9402	The INPUT command was echoing an extra SPACE character before the CR/LF sequence.		27th May 2008
1.9403		Added support for REGIST_SPEED. Added support for latest Atmel onboard flash device.	4th August 2008
1.9404		Added CRC16 command.	7th August 2008
1.9405	Fixed potential CAMBOX problem when the repeat option bit is set and the link axis is moving in a reverse direction. Fixed possible lock-up of command line if channel 5 is being heavily loaded with serial data.	Added BITREV8 and SHIFTR commands. Serial data is now validated with bad characters 'junked' when there are parity/framing/overrun errors.	18th September 2008

	Fixed problem with TRACE_ON/TRACE_OFF stopping the wrong program		
1.9406	Corrected potential problem when using AND, OR and XOR functions with large numbers (>31 bit).

Corrected low-level hardware watchdog behaviour such that if the watchdog trips it will now cause a full external reset rather than just an internal processor reset.

FAST_DECEL was not fully implemented.

Corrected problem with Stepper Counts written to FPGA, sometimes it would be out by 1. | | 10th December 2008 |
| 1.9500 | Negative CANIO Analogue voltages were not processed correctly, a positive result was always produced – this bug was introduced with v1.9201. | | 22nd December 2008 |
| 1.9600 | When programming flash with BASIC programs and CAN activity is present, a controller with the latest Atmel processor could reset, the same activity on a controller with the previous Atmel processor would not behave this way. This can only be explained by flash erase/programming timing differences because in theory the problem could have occurred.

Corrected 'ON x GOSUB a,b,c,...' behaviour when x is > than the range of labels provided, the next RETURN command executed would not return to the expected code line, instead it would return to the erroneous 'ON x GOSUB a,b,,c…' line. | | 16th January 2009 |
| 1.9601 | Corrected processing of negative positions in PSWITCH command.

Corrected INVERT_STEP behaviour for stepper axis.

Bit 1 of REP_OPTION now functions for MOVELINK requests. | Added READ_OP command.

Added BIT 5 option bit for MOVELINK/CAMBOX – positive motion from link axis only. Old BIT5 (CAMBOX offset start position) now BIT7. | 15th February 2010 |
| 1.9602 | DAC voltage can now be applied to any ATYPE on axis 0, apart from the CAN communication ATYPEs. | Added support for ENCODER_FILTER. | 15th July 2011 |
| 1.9603 | Corrected problem when using a GLOBAL variable as a loop control index – the loop would not execute for the correct number of iterations.

Added fix for Encoder problems. (Hardware bug ID48) | | 22nd July 2011 |
| 1.9604 | | PSWITCH now supports any IO point including CAN & virtual IO. | 2nd August 2011 |
| 1.9605 | Implemented fix for MOVEABS when trying moving away after a Software Limit switch has triggered, due to rounding errors (in the first servo cycle after the MOVEABS is loaded) the firmware sometimes determined that the demand was in the other | | 16th January 2012 |

		direction causing the MOVEABS to be cancelled in error.	
1.9606		Added SETCOM function 9 to support 32-bit integer ModBus.	17th April 2012
1.9607		Modified CANIO code to utilise the alternate OKI CAN registers thus allowing simultaneous access with the CAN command.	13th February 2013