



Trio Motion Technology Ltd.
 Shannon Way, Tewkesbury,
 Gloucestershire. GL20 8ND
 United Kingdom
 Tel: +44 (0)1684 292333
 Fax: +44 (0)1684 297929

1000 Gamma Drive
 Suite 206
 Pittsburgh, PA 15238
 United States of America
 Ph: +1 412.968.9744
 Fx: +1 412.968.9746

Doc No.: TN20-80 - 2
Date: 14 April 2010
Subject: MC206 -> MC206X Differences

Application Note

Introduction:

Trio Motion Technology's new medium level product, the MC206X, is designed to be a drop-in replacement for the MC206. While this necessary upgrade to the design was made because of certain components becoming obsolete, Trio have taken the opportunity to increase the performance of the MC206X and include many of the features that were only available in other controllers like the Euro205x, MC224 and PCI208.

This document lists the changes that may affect certain applications which use the MC206 at present.

Section added to list the MC206X software functions that are not available in the MC206. (Document version 2)

Ordering Information:

MC206: P135
 MC206X: P136

Please order Feature enable codes using the same part numbers as for the MC206; P3xx, P3xx, P3xx. Also the Daughter Board Adapter, P399, remains unchanged.

Hardware and Software Changes:

MC206 (P135)	MC206x (P136)
256k User Ram	512k User Ram
16000 Table points	32000 Table points
Incremental encoders only	Incremental and Tamagawa absolute encoders
Infineon CAN chip	OKI CAN chip – Requires R/W setup
WDOG relay = voltage-free contact reed relay.	WDOG relay is solid state
	New Digital output drivers
	New Encoder RS422 Transceivers

MC206 (P135)	MC206x (P136)
System software (1.60 to >1.6450) Parameter CONTROL = 206	New system software only (>1.6442) Parameter CONTROL = 207

Advice for systems integrators:

Although the changes are minimal, each application of the MC206 should be reviewed to see if any compatibility issues might arise when changing to the new MC206x. Extended user memory and the extra table storage should not have any impact on existing projects. Things like the earlier system software not being available, however, may pose problems for a minority of customers as there have been BASIC command changes that could cause compiler or run-time errors to occur.

Applications using the CAN command will need the addition of the R/W parameter in function 5. Programs that check the controller type with IF CONTROL<>206 THEN, will need modifying. Any project that checks the controller system software version with IF VERSION<>1.64 THEN, will also need changing.

Certain software features have changed in V1.65 system software. The allowable values for ATYPE is now limited to those that are allowed by the Axis Features that have been enabled. Changing ATYPE while the axis is enabled may cause the MOTION_ERROR flag to be set.

Systems with more than 100mA load on the watchdog relay will need modifying as the solid state relay will begin to shut down at this current level. The addition of the Tamagawa functionality will have no effect on applications ported from the MC206, as the default is for incremental encoders.

New software functions added for MC206X:

All the following functions were added since the MC206 went out of production. They are therefore only available on the MC206X and NOT on the MC206.

FASTDEC (v1.6305)

Support for PLM axis types atype 20. (v1.6306)

Support for analog input daughter board p225.

Support for Tamagawa absolute encoders:

ENCODER_ID, ENCODER_TURNS, ENCODER_STATUS. (v1.6309)

ENCODER_RATIO (v1.6315)

MHELICAL; optional 7th parameter to allow z distance to be ignored in path length calculation. (1.6316)

MOVEABSSP, MOVESP, MOVECIRCSP, MHELICALSP, MOVETANG, FORCE_SPEED, ENDMOVE_SPEED, MOVES_BUFFERED, VECTOR_BUFFERED – Lookahead only.

Can baudrate can set on power up using the canio_address parameter. (v1.6320)

Can change ModbusTCP port number (1.6321)

SERCOS –string and idn array parameters can be written into vr variables. (1.6322)

Hostlink enabled (1.6323)

New format of Lenze can drives implemented (replacing old format) drives connect in position mode only (v1.6326)

Xon/xoff protocol for the rs485 (1.6327)

Encrypted projects - first release (1.6335)

READ_OP(start,end)

Ethernet IP daughter board support.

Lenze drives support includes trio datuming functions and registration. (1.6341)

Built-in analog inputs ain(32) (1.6343)

Canopen parameter reads can use "type" 67 requests which respond as type 66.

FLASHVR(-3,flashpage,tablepage)

FLASHVR(-4,flashpage,tablepage) (1.6411)

FE_LATCH

Unused io's can be used as "virtual" io's. Including via modbus. (1.6420)

STEP_RATIO(x,y) (1.6422)

FE_LIMIT_MODE (1.6430)

AXIS_ENABLE, DISABLE_GROUP(x,y,...)

Canopen i/o mode

SETCOM supports modbus serial data area. VR or Table. (1.6477)

Activex can access the controller via serial ports 1 or 2. (1.6491)

RS232_SPEED_MODE (1.6498)

MSPHERICAL - lookahead version only. (1.6505)

Canopen i/o mode: up to 128 inputs and 128 outputs (1.6508)

CANOPEN_OP_RATE (1.6514)

DATUM(7) (1.6515)

PSWITCH(chan,5,... (1.6520)

Local variables for each task increased from 1,024 to 1,536. (1.6521)

DATUM_IN range increased to 0..63 (1.6522)

Modbus – function 1 (read coils) now returns the output status, and function 2 (read discrete inputs) now returns the input status. (1.6522)

Added modbus (serial) support for 32 bit integers (SETCOM(<>,9), and for function 15 (write multiple coils) (1.6524)

BACKLASH(), BACKLASH_DIST (1.6602)

Feature enable codes extended to 0..23 (1.6610)

Canopen axis types 26 (CAN 402 position mode) and 27 (CAN 402 speed mode) added (1.6614)

ENCODER_RATIO support for SLM axes (1.6616)

SPLINE function supports nurbs maths using type=2 (1.6619)

SD card support (1.6619)

Main build incorporates FRAME 6, 5, 2 and 1 transformations. (v1.6625)

TIMER (1.6627)

Text files can be opened and read from BASIC programs (v1.6628)

Support for FIFO files. (v1.6632).

Added CALCULATE_CRC and TERMINATE_CRC (v1.6638)

Modbus serial – increased speed with which holding register response messages are transmitted (v1.6638)

FILE FIND_FIRST / FIND_NEXT / FIND_PREV / PWD functions (v1.6640)

MPE_CHANNEL (v1.6640)

NAIO made writable (v1.6641)

TABLE_POINTER (v1.6651)

INTEGER_READ and INTEGER_WRITE functions (v1.6650)

REGIST_SPEED and REGIST_SPEEDB (v1.6652)

SERCOS – added ability to ‘pause’ an executing procedure command (1.6653)

Move options for MOVELINK/CAMBOX allow bit 5 (32) to be set. This ignores motion on the link axis in a negative direction. (1.6654)

New SETCOM parameter which enables the time of the rs485 transmit enable signal to be defined by the user (v1.6660)

New SETCOM parameter which enables the user to select modbus over 2-wire rs485 (the protocol handles the response echoes.) (1.6662)

SERCOS - added ability to return the service channel ‘last error’ using the SERCOS(0,slot,17) cmd. (1.6665)

FRAME 13 - added support for dual arm robot similar to 2d “flex-picker” (1.6671)

AXIS_MODE bit 1 option to not cancel connect moves when limit hit but to override ratio to zero instead. (1.67)