

Axis Parameters

ACCEL	- Set / Read acceleration rate
AFF_GAIN	- Acceleration feed forward gain
ATYPE	- Axis type
AXISSTATUS	- Read axis status
BOOST	- Enable stepper boost output
CLOSE_WIN	- Registration window close
CREEP	- Creep speed
D_GAIN	- Derivative Gain
DAC	- Force voltage to output
DAC_OUT	- Output from servo algorithm
DATUM_IN	- Datuming input
DECEL	- Set / read deceleration rate
DPOS	- Demand position
ENDMOVE	- Read position of end of move
ERRORMASK	- Error mask
FAST_JOG	- Fast jog input
FASTDEC	- Read fast deceleration
FE	- Following error
FEGRAD	- Following error limit gradient *
FELIMIT	- Following error limit
FEMIN	- Stationary following error limit *
FERANGE	- Following error report range *
FHOLD_IN	- Feedhold input
FHSPEED	- Feedhold speed
FRAME	- Set alternate coordinate transformation
FSLIMIT	- Forward software limit
FWD_IN	- Forward limit input
FWD_JOG	- Forward jog input
I_GAIN	- Integral gain
JOGSPEED	- Jogging speed
LINKAX	- Read link axis for gearbox etc
MARK	- Registration event flag
MERGE	- Enable / disable merging of moves
MICROSTEP	- Enable microstepping mode
MPOS	- Measured position
MSPEED	- Measured speed
MTYPE	- Read move type
NTYPE	- Read next move type
OFFPOS	- Demand position offset value
OPEN_WIN	- Registration window open
OUTLIMIT	- Voltage output limit
OV_GAIN	- Output velocity gain
P_GAIN	- Proportional gain
PP_STEP	- Encoder feedback scaling
REG_POS	- Registration position
REMAIN	- Read remainder of move
REP_OPTION	- Set repeat distance mode
REPDIST	- Machine repeat distance
REV_IN	- Reverse limit input
REV_JOG	- Reverse jog input
RSLIMIT	- Reverse software limit
SERVO	- Servo ON/OFF control
SPEED	- Read or set speed
SRAMP	- S ramp factor
SSI_BITS	- SSI encoder resolution
UNITS	- Unit conversion factor
VFF_GAIN	- Velocity feedforward
VPSPEED	- Velocity profile speed

Constants

OFF	- 0
ON	- 1
FALSE	- 0
TRUE	- -1
PI	- 3.14159

Logical / Arithmetic Operators

+	- Add
-	- Subtract
*	- Multiply
/	- Divide
=	- Equals
<	- Less than
<=	- Less than or equal to
>	- Greater than
>=	- Greater than or equal to
<>	- Not equal to

Axisstatus / Errormask Values

BIT	Value	Description
0	1	- Unused
1	2	- Following error warning range
2	4	- Unused
3	8	- Unused
4	16	- In forward limit
5	32	- In reverse limit
6	64	- Datuming
7	128	- Feedhold applied
8	256	- Following error exceeds limit
9	512	- In forward software limit
10	1024	- In reverse software limit
11	2048	- Cancelling move

MTYPE Values

Value	Motion Type
0	- Idle (No move)
1	- MOVE
2	- MOVEABS
3	- MHELICAL
4	- MOVECIRC
5	- MOVEMODIFY
10	- FORWARD
11	- REVERSE
12	- DATUMING
13	- CAM
14	- Forward JOG
15	- Reverse JOG
20	- CAMBOX
21	- CONNECT
22	- MOVELINK

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Specifications are subject to change without notice

Trio Motion Technology

Motion Coordinator Series

Multi-Tasking BASIC

Quick Reference



BREATHING LIFE INTO MACHINES

Motion Control Commands

ACCEL	- Set acceleration rate
ADDAX	- Adds axes for complex profiles
AXIS	- Specify axis for a motion command
BASE	- Specify axis for subsequent commands
CANCEL	- Cancel a movement
CAM	- Move along CAM profile
CAMBOX	- CAM profile using software gearbox
CONNECT	- Connect using software gearbox
CREEP	- Set creeping speed
DATUM	- Predefined datuming sequence
DECEL	- Set deceleration rate
DEFPOS	- Define current position
FORWARD	- Set continuous forward motion
MOVEABS	- Move to absolute position.
MOVECIRC	- Move circular arc.
MHELICAL	- Move helical arc
MOVELINK	- Move Link. motion for flying shears etc.
MOVE	- Move incremental position.
MOVEMODIFY	- Modify the end position of a move
REVERSE	- Set continuous reverse motion
RAPIDSTOP	- Quickly stops all axes
SPEED	- Sets speed
MERGE	- Enable or disable merging
UNITS	- Set number of encoder edges/steps in users mechanical units.
VERIFY	- Stepper axis feedback mode

Loops, Sequence & Program Control

BASICERROR	- Set branch for program error
ELSE	- IF..THEN..ELSE..construct
ENDIF	- IF ..THEN..ELSE termination
FOR	- FOR..NEXT loop construction
GOTO	- Branch to a label
GOSUB	- Branch to a subroutine
HALT	- Halts all processes
IDLE	- Waits for move termination
IF	- Conditional branch
NEXT	- FOR..NEXT loop
ON . . .	- Multiple GOTO/GOSUB via expression
REPEAT	- REPEAT UNTIL loop
RETURN	- Return from subroutine
RUN	- RUN program
STEP	- Set FOR..NEXT loop step
STOP	- Stop program
THEN	- IF..THEN..ELSE
TO	- FOR ..NEXT loop
TRON	- Set trace on
TROFF	- Set trace off
UNTIL	- REPEAT/WAIT loop
WEND	- Terminate WHILE ..WEND loop
WHILE	- Start WHILE ..WEND loop
WAIT	- Waits for condition
WA	- Waits for time

Mathematic Functions & Variables

ABS	- Absolute value
ACOS	- Arc Cos
AND	- Logical and bitwise AND
ASIN	- Arc Sin
ATAN	- Arc Tan
ATAN2	- ATAN2(x,y) function
CLEAR	- Clear all global variables
COS	- Cos function
EXP	- Exponential
FRAC	- Return fractional part of number
INT	- Return integer part of number
LN	- Natural logarithm
MOD	- Modulus function
NOT	- Logical NOT function
OR	- Logical and bitwise OR
RESET	- Reset local named variables to 0
SGN	- Return sign of function
SIN	- Sin function
SQR	- Square root function
TABLE	- Global battery-backed array
TABLEVALUES	- Display a range of table entries
TSIZE	- Index of last entry in table
TAN	- Tan function
XOR	- XOR function
VR	- Global battery-backed variables

Input / Output Functions

AIN	- Reads from analogue input channel
CAN ††	- Direct control of CAN bus communications
CHR	- Allows for printing of control characters
DATE\$ *	- Print date from real time clock
DAY\$ *	- Print day from real time clock
DEFKEY	- User definition of membrane keypad keys
FLAG	- Read/Set PLC flag bits
FLAGS	- Read/Set multiple flag bits
GET	- Read character from serial channel
IN	- Read status of input channel(s)
INPUT	- Read a number from a serial port
LINPUT	- Input text from serial port to an array
KEY	- Test for characters read on serial port
MARK	- Test if REGIST function is completed
OP	- Set single or multiple outputs
PRINT	- Printing to serial devices and network
PSWITCH	- Set output to be on at specified position
READPACKET	- Transfer data from serial port
REGIST	- Set registration mode and window area
SEND	- Send data to fibre optic network
SETCOM	- Set serial port parameters
TIMES\$ *	- Print time from real time clock

Registration Functions

MARK	- Test if registration event has occurred
MATCH	- Compare transition pattern
OPEN_WIN	- Position at which window opens
CLOSE_WIN	- Position at which window closes
RECORD	- Record registration transitions
REGIST	- Enable registration and set mode
REG_POS	- Returns captured position / offset

Program Control

COPY	- Copies a program on the controller
DEL	- Deletes a program
DIR	- Display directory of programs
EPROM	- Save controller memory to Eprom
HALT	- Halts all processes
NEW	- Delete programs from memory
PROCESS	- Lists running programs and priorities
RENAME	- Renames a program
RUNTYPE	- Sets run time priority and mode
SELECT	- Selects a program for screen editing

System Information

CHECKSUM	- Read checksum
CONTROL	- Returns controller type
DATE ††	- Returns date
DAY ††	- Returns day of week
ERROR_AXIS	- First axis to trip on error
ERROR_LINE	- Line at which error occurred
INDEVICE	- Read current input device
LOCK	- Lock parameter
NETSTAT	- Returns network status
NIO	- Returns number of Input/Outputs
OUTDEVICE	- Read current output device
POWER_UP	- Sets power up mode
PROCESS	- Lists running programs and priorities
RUN_ERROR	- Last recorded error code
SERVO_PERIOD	- Define servo update rate
TIME ††	- Returns Time
TICKS	- Returns system Counter
VERSION	- Returns software version
WDOG	- Set watchdog / Enable

	User RAM	max. axes	max. tasks
† MC204 Only	122k	4	5
* MC2 Only	122k (500k)	12	14
‡ MC216 Only	500k	16	14