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

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
TIME$ *	-	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