

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 reprt 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 job 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



MC Series Controller Quick Reference



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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 interger part of number
LN	Natural logarithm
MOD	Modulus function
NOT	Logical NOT function
OR	Logical and bitwise OR
RESET	Reset local named variable 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
DATES\$ *	Print date from real time clock
DAYS\$ *	Print day form 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