

Appendix III Error Codes

This section contains a list of error codes and their definitions for MDS, the Robot Module, and the Robot Controller.

MDS Error Codes

The following is a list of Error Numbers for the MDS Command Processor with their corresponding Error Messages.

- Items enclosed by arrows indicate that a value is supplied when the message is shown.
- Errors 1–100 are reserved for syntax errors, and errors 101 - 230 are execution errors.
- Syntax errors are caught during parsing of statements, whereas execution errors are not caught until the statement is being executed.
- Errors 231–256 are reserved for internal errors.

MDS Syntax Errors

Code	Error Message
1	Function missing parentheses, or unexpected token or id: <identifier>
2	Undefined identifier: <identifier>
3	Missing quote
4	Identifier <partialname>: name too long (must be <= 31 characters)
5	Variable Assignment: Bad data type
6	Invalid array dimension or index
7	GOTO: Unknown label: <name>
8	Improper IF/THEN/ELSE/ENDIF nesting
9	Unexpected ELSE
10	Unexpected ENDIF
11	Missing ENDIF
12	Unexpected ENDWHILE
13	Missing ENDWHILE
14	NEXT: Wrong variable
15	Unexpected NEXT
16	Missing NEXT
17	Unexpected UNTIL
18	Missing UNTIL
20	Procedure String Function must return a string
21	Procedure Real Function must return a real
22	Procedure Function: Missing RETURN
23	PARAMETER: Missing a parameter
24	PARAMETER: Variable type does not match - parameter <paramnum>
25	Not enough parameters
26	Invalid PRINT USING format string
27	Invalid parameter for PRINT USING format string
28	Cannot execute REMOVE ALL within a loop
29	RESUME can only be used in error handling procedures
30	ALERT(): Parameter must be 1, 2, 3, or 4
31	EXEC(): Window show parameter invalid

32	Unsupported DDE Data Format DDEREQUEST: Invalid variable type
40	Module statement syntax error
41	Overloaded module entry or keyword: Usage indicated command, not function. No value returned.
42	Invalid module keyword modifier: <modifier>
43	Function <function> not supported by module <module>

MDS Execution Errors

Code Error Message

101	Local memory allocation failed
102	Global memory allocation failed
103	Program overflow
104	Procedure nesting too deep
105	Symbol table memory allocation error
106	Cannot create dialog - possibly low on resources
107	String allocation failed
108	Array allocation failed
110	Resulting string too large
111	String index out of range
112	Invalid array dimension size
113	String array dimension(s) too large
114	Real array dimension(s) too large
115	Array index out of range
116	Value out of range
117	UBND: Invalid array dimension
118	Math function error
119	Attempt to divide by zero
120	Invalid directory path: <path>
121	Invalid file name: <filename>
122	MKDIR failed
123	RMDIR failed
124	DELETE failed
125	CHDIR failed
126	RENAME failed

127	COPY failed
130	Invalid TIMER number
131	TIMER value not valid
132	WAIT: Wait time too large
133	WAIT: Negative wait time
134	HMS(): String must be of form hh:mm:ss
135	HMS\$(): Time parameter is out of range
140	EXEC(): Cannot execute <program>
141	WINACTIVATE: Cannot find main window: <wintitle>
142	WINACTIVATE: Cannot find child window: <wintitle>
143	Active window no longer exists
144	No active window
145	SENDKEYS failed
148	INPUT: Input does not evaluate to a number
149	INPUT: Number text too large (over 255 characters)
150	OPEN: Too many open files and devices
151	Invalid OPEN Id#: <id>
152	OPEN: Device or File already open
153	Cannot OPEN File
154	File or Device not OPEN for INPUT
155	File or Device not OPEN for OUTPUT
156	Invalid File or Device Id#
157	Id #<id> is not a file
158	PRINT#: File write error
159	INPUT#: File read error
160	Attempt to read past end of file
161	Cannot access file
162	Device i/o does not support EOF()
163	File or Device i/o does not support SPOLL()
164	File or Device i/o does not support CLEAR
165	TIMEOUT#: Setting not valid
166	COM Port Error: <errmsg>
167	APG Server is offline

168	Cannot create APG Server Link
169	Cannot create APG Server HP-IB Device
170	HP-IB Device Error
171	HP-IB Device #<id> is busy—cannot access
180	PARALLEL#<id> execution ended in error
181	Parallel CP execution failed
182	PARALLEL#: Invalid Id#: <id>
183	PARALLEL#: Id# currently active
184	WAIT FOR PARALLEL: CP#<id> is not an immediate child
190	DDEINITIATE: DDE Error
191	DDEINITIATE: Cannot establish link
192	DDE Channel invalid: Not initiated or terminated?
193	DDEREQUEST: Data not available
194	DDEPOKE: Poke failed
195	DDEADVISE: DDE Error
196	DDEADVISE: Cannot advise on link
197	DDEUNADVISE: DDE Error
198	DDEEXECUTE: Other channel responded busy
199	DDEEXECUTE: Execution failed
205	REMOTE LOCK: Already locked
206	REMOTE UNLOCK: Remote channel does not own lock
207	Module <module> is locked
208	Module <module> unlock failed: not the owner of lock
210	Module command execution error
211	Module function execution error
212	Module entry execution error
213	NOWAIT Module entry execution error
214	NOWAIT Module command execution error
215	String does not contain a module name or alias
216	Entry's module is not active
230	Error in command or function: <name>

MDS Internal Errors

Code	Error Message
235	Internal Error: DDEPOKE: Bad Data Type
236	Internal Error: Command or Function %s: Not Yet Implemented
237	Internal Error: Program Execution Overflow
238	Internal Error: Param: Unexpected Symbol
239	Internal Error: Bad Data Type
240	Internal Error: Input: Bad Symbol Type
241	Internal Error: APG Server
242	Internal Error: Unknown IO Type
243	Internal Error: IO List
244	Internal Error: Unknown Device Mode
245	Internal Error: GetTimerList Failed: CP#%d
246	Internal Error: Unknown Nest Type
247	Internal Error: BoolStrCmp: Unexpected Symbol
248	Internal Error: BoolCmp: Unexpected Symbol
249	Internal Error: ArrInit: Unexpected Symbol
250	Internal Error:: EvalStr: NULL hStrLit
251	Internal Error: EvalSym: Bad data type
252	Internal Error: EvalSym: Unexpected Symbol
253	Internal Error: Assign Expected Symbol
254	Internal Error: EvalVar: Unexpected Symbol
255	Internal Error: EvalNum: NULLhNumLit

The following errors are untrappable. They result from internal library errors or Windows errors. Typically, the strings below are appended to the string supplied by the library or Windows.

MDS Math Errors

Argument domain error

Argument singularity

Overflow range error

Partial loss of significance

Total loss of significance

Underflow range error

MDS Comm Function Errors

Invalid or Unsupported COM Port

Device Already Open

Device Not Open

Unable to Allocate Queues

Error in Default Parameters

Hardware Not Present

Illegal Byte Size

Unsupported Baud Rate

MDS Comm Error Flags

Receive Queue overflow

Receive Overrun Error

Receive Parity Error

Receive Framing Error

Break Detected

CTS Timeout

DSR Timeout

RLSD Timeout

TX Queue is Full

LPTx Timeout

LPTx I/O error

LPTx Device not selected

LPTx Out of Paper

Requested mode unsupported

System Variables

System variables begin with underscore (“_”) character. System variables cannot be assigned values; they are set automatically. Each parallel command processor maintains its own set of system variables.

<code>_BUTTON</code>	Indicates user response to a dialog box (OK=1, Cancel=0).
<code>_DATAPATH\$</code>	The default data path for MDS procedures to access data files.
<code>_ERRENTRY\$</code>	The module defined entry producing the error (Robot Module only).
<code>_ERRLINE</code>	The procedure line number producing the error.
<code>_ERRMDS</code>	MDS error number.
<code>_ERRMODULE</code>	The module error number.
<code>_ERRMODULE\$</code>	The name of the module producing the error.
<code>_ERRMSG\$</code>	The contents of the most recent error message.
<code>_ERROR</code>	The most recent CP error number.
<code>_ERRPARALLEL</code>	The id of the parallel operation in error. 0 = no parallel operations.
<code>_ERRPROC\$</code>	The name of the procedure producing the error.
<code>_ERRUSER</code>	An offset for the valid range of user error numbers.

Robot Module Error Codes

The following is a list of Error Numbers for the Robot Module with their corresponding Error Messages.

Code	Error Message
1	The robot command was improperly formed. Please reenter it.
2	Windows refused to lock a block of memory. Command aborted.
3	The line number is invalid. Motion command aborted.
4	The robot is busy, command ignored.
5	Can't find the taught tool entry. Command aborted.
6	Windows refused to allocate a new block of memory for me. Command aborted.
7	The currently executing command was interrupted. Command aborted.
8	Couldn't get a block of memory to complete the current command. Command aborted.
9	The rack point specified is out of range. Command aborted.
10	More than six (6) axis positions were specified in the MOVETO command. Command aborted.

11	Please supply a rack position parameter. Command aborted.
12	Please supply a position parameter. Command aborted.
13	The REL keyword is not valid for RACK entries. Command aborted.
14	An error occurred in the frame calculations. Edit the motion to check the frame list.
15	The frame entry required with the AT keyword is missing or garbled. Command aborted.
16	The tool entry or offset required with the WITH keyword is missing or garbled. Command aborted.
17	The required parameter is missing or garbled. Command aborted.
18	The keyword function does not accept parameters. Use empty parentheses. Function aborted.
19	The ROBOTSTR\$ function requires a string parameter. Function aborted.
20	The < Robot Module Name > module has been closed. You must exit and reenter MDS to reactivate it

Robot Controller Error Codes

The following is a list of Error Numbers for the Robot Controller with their corresponding Error Messages.

Code	Error Message
00	NO ERRORS
20	SERVO—GENERAL
21	SERVO—CALIB
22	SERVO—LOCATE
30	UNKNOWN COMMAND
31	PARAMETER OUT OF RANGE
32	NOT ENOUGH PARAMETERS
33	TOO MANY PARAMETERS
35	ARM MUST BE POWERED ON
36	ARM MUST BE INITIALIZED
37	TEACH PENDANT MUST BE ATTACHED
39	INPUT BUFFER OVERFLOW
40	ILLEGAL MOVE FOR ARM
50	ROBOT STOPPED—EMERGENCY BUTTON PRESSED
51	ROBOT STOPPED—PAUSE BUTTON PRESSED
52	ROBOT STOPPED—TEACH EMERGENCY BUTTON PRESSED
53	ROBOT STOPPED—INTERFACE CLEAR RECEIVED

60	CALIBRATION MODE TERMINATED
62	PENDANT NOT CENTERED—TEACH MODE TERMINATED
63	PENDANT NOT CENTERED - CALIBRATION MODE TERMINATED
61	TEACH MODE TERMINATED
70	EMERGENCY BUTTON NOT CONNECTED
90	ILLEGAL INITIALIZATION
91	ILLEGAL INITIALIZATION—ELBOW MUST BE UP
93	ILLEGAL INITIALIZATION REACH TOO FAR
95	ILLEGAL INITIALIZATION RECALIBRATE
99	B—E—E—P

Robot Servo Error Codes

The following is a list of Error Numbers for the Robot Servos with their corresponding messages. This list contains only most common codes.

Code Error Message

A1	Position Error: Servo actual position minus command position exceeds TWICE the error window. This can occur during higher speed moves. In this case the servo automatically disabled upon sensing the error.
C1	Position Error: The error exceeds TWICE the error window, then disabled itself, and was polled for status after the following position command but before the SYNC command.
40	Servo is busy with the previous position command and has not received the SYNC command. When an error occurs on another servo, all status codes are read. Some servos may be in the busy state. This is not specifically an error.
81	Position Error: Servo actual position minus commanded position exceeds the current error window setting.
85	Position Error and Communication Error: The Comm error bit position may be combined with other codes listed if a communications error was caused by interference on the ORCA bus. This will be very rare since these errors do not by themselves cause the robot controller to flag an error and halt. Normally, if one happens, the controller will simply retransmit the previous message, and if the interference is gone, the system will proceed as if there were no error. Only if a communications error coincides with a more serious fault such as a position error would the code show both conditions.
88	Locate Error: A hardware error prevented the axis from sensing the absolute encoder (or twist shutter blade). Can also occur for the twist axis if an obstruction prevents rotation of the gripper box.
90	Timeout: The communications controller in the controller did not get a response from the addressed servo. This error is flagged after three attempts and no response within 1 millisecond for each try.