

## **Firmware Revision Info:**

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### **DMC-1600 Controller**

#### ***New feature for Rev 1.0q & 2.0q December 22, 2006:***

- No new features added

#### ***New feature for Rev 1.0p & 2.0p October 3, 2005 :***

- Added Stepper Motor Position Maintenance Mode (<http://www.galilmc.com/support/appnotes/optima/note2445.pdf>)
- Added ECAM with two linear segments (<http://www.galilmc.com/support/appnotes/optima/note2444.pdf>)

#### ***New feature for Rev 1.0o & 2.0o July 6, 2004 :***

- Improved BS command for AMP-540
- Added ELO support. TA3 and CN operand added for abort input application program disable
- Added Ramp to Gearing based on position. Added GD command for Gearing Distance and \_GP returns lost distance
- Position Follower Mode added (PT command)

#### ***New feature for Rev 1.0n & 2.0n December 18, 2003:***

- Added RS-1 functionality to temporarily set controller back to factory defaults without doing a Master Reset
- Added ~a to ~h operands for variable axis designators
- Added AG, AU, AW, BR, QH, and TA for AMP-19540
- Modified BS command for AMP-19540
- Added TK command to set peak motor torque
- Optimized cornering motion profile
- Added bus communication interrupt within IN command

#### ***New feature for Rev 1.0m & 2.0m December 23, 2002:***

- Added LC command to set stepper in low current mode via ampen

- Added BK and SL commands to debug user application programs
- Added GA interrogation
- Added AUTOERR special label
- Added \_RS operand
- Added double read of selective axis abort input
- Special bus interrupts added for new software drivers

***New feature for Rev 1.0l & 2.0l April 9, 2002:***

- OE and DV can now use "?"
- JP command will no longer inhibit Timer interrupt
- @AN function will no longer inhibit interrupts in fast firmware

***New features for Rev 1.0k October 12, 2000:***

- Operand \_EO returns the state of echo-on
- Operand \_BV returns the number of axes

***New features for Rev 1.0j May 15, 2000:***

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***New features for Rev 1.0i March 8, 2000:***

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***New features for Rev 1.0h December 8, 1999:***

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***New feature for Rev 1.0e October 21, 1999:***

- ' can start a comment line in an application program
- Added DMC-1348 support
- BZ<time sets the time of the BZ timeout
- Option jumper now causes Motor Off on power up. Note: must have operating system rev 2.0 or higher

***New feature for Rev 1.0d June 24, 1999:***

- AD,AP,AV when not running won't generate error

***New feature for Rev 1.0b February 8, 1999:***

- Analog inputs can be recorded through record array with \_AF
- Analog inputs added to the DMA record

***New feature for Rev 1.0a December 28, 1998:***

- A virtual axis, N, added for commands GA,SP,PR,JG,AC,DC,IT,ST,DP,RP,BG,EA,PA
- Analog inputs now reported as part of QZ
- Ability to abort motion on an individual axis with the fourth field of CN as a 1

***New feature for Rev 1.0 September 18, 1998:***

- Auxiliary encoders can be used as general inputs
- SQRT function resolution improved to give .0001 accuracy
- #CMDERR subroutine upgraded for multitasking:
  - Threads other than 0 are shut off if cause error
  - IN command on thread 0 can be interrupted
  - It is possible to restart threads using XQ \_ED1,\_ED2,1 to retry failed instruction and XQ \_ED1,\_ED3,1 to start next instruction.
- \_VM returns instantaneous vector velocity
- Two coordinated masters S and T:
  - BGST STST AMST
  - VA2000,4000 VDT=10000
- CN can be interrogated \_CN0, \_CN1, \_CN2
- ECAM slave tables and slave modulus can be changed if that axis isn't actively ECAMing.
- KI resolution extended to 1/128
- Fourth field of II is a mask where a 1 will make an input active high for interrupt. \_II1 returns mask.

- `_AVX` will return the distance traveled in a move.