

## Galil Begins Shipment of RoHS Compliant Controllers

To comply with the RoHS directive as issued by the European Community, Galil has begun to ship RoHS compliant versions for some of its controller models and expects most products to have RoHS counterparts by April 2006.

Essentially, RoHS requires the elimination of certain materials, especially lead, in the manufacture of electronic equipment by July 2006.

It is important to note that implementing these changes for RoHS compliance will not impact the performance of Galil's products in any way and should not require any action by the user.

Please contact Galil at **800-377-6329** with any questions regarding the RoHS schedule for specific Galil controllers.

## Galil Now Offers Device Drivers for 64-bit Platforms

Because they are becoming more common, Galil has developed software installation packages for 64-bit CPUs with Windows XP x64 and Windows Server 2003 x64 operating systems. Supported CPU architectures are AMD's AMD64 (Athlon 64, Turion 64, and Opteron) and Intel's EM64T (Xeon and Pentium 4). Galil's 64-bit support includes the .NET 2003 programming environment. Download the latest 64-bit supported Galil software at <http://www.galilmc.com/support/download.html>.

### 64-Bit Supported Galil Software:

- WSDK
- ActiveX Toolkit
- DMC.NET
- SmartTERM
- DMCWIN

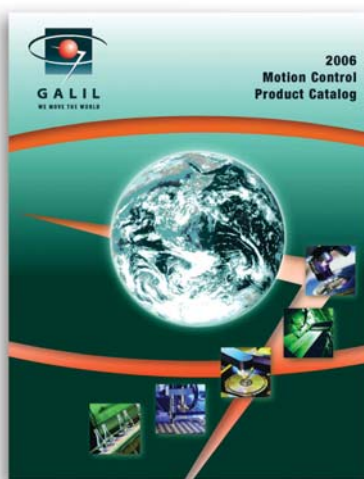
## Galil's 2006 Product Catalog with Updated Specs and Pricing is Now Available

At 96 pages, Galil's product catalog has been updated for 2006 with comprehensive technical specifications and pricing on all their motion controllers and drives. This includes Galil's popular DMC-18xx PCI bus controllers, DMC-21x3 Ethernet motion controllers and drives, and their new, latest generation Accelera Series motion controllers.

Get your free 2006 catalog by calling Galil at 800-377-6329 or by going to <http://www.galilmc.com/products/catalog.html>.

Accelera controllers are designed to provide the highest speed and performance. For example, the DMC-18x6 Accelera controller processes commands 10 times as fast as prior generation controllers.

Galil's acclaimed DMC-21x3 Controller n' Drive series combine a high-performance Ethernet motion controller with a multi-axis drive for stepper or servo motors. The drive attaches directly



to the controller without the need for additional wiring or cables, providing a very cost-effective solution that eliminates wiring headaches.

Also included in the catalog is a technical overview about motion control. This overview provides many programming examples for various modes of motion, including point-to-point positioning, jogging, linear and circular interpolation, contouring and electronic gearing. Additionally, the catalog gives details on Galil's WSDK servo tuning software for "one-button" PID tuning and ActiveX Toolkit for developing operator interfaces

for Galil controllers.

For a free hardcopy of the 2006 Galil catalog, call **800-377-6329** or visit <http://www.galilmc.com/products/catalog.html>. The catalog will also be available for download at this location.

# HelloGalil™

## Quick start for PC programming languages

For programmers developing Microsoft® Windows® applications that communicate with a Galil controller, Galil's new HelloGalil library of quick start projects enables you to communicate immediately with the controller using the programming language of your choice. In the "Hello World" tradition, each project contains the bare minimum code to demonstrate communication to the controller, and simply prints the controller's model and serial numbers to the screen as shown in *Figure 1*:



Figure 1. Sample program output

Each HelloGalil project (contained in a .zip file) includes:

- (1) All source files that comprise a fully working project

- (2) A file **GalilInstructions.txt** that explains how the project was created from scratch
- (3) A file **YourProgramShouldLookLikeThis.gif** that shows exactly what the running program should look like (see *Figure 1*)
- (4) A working executable (where possible)

Only the controller (motors and encoders are not necessary) is required to start programming. HelloGalil sample projects are available for the Windows

programming languages and Galil communication libraries shown in *Table 1*.

### Using HelloGalil—Example

You have been tasked with coordinating a Galil motion controller with a vision system. Your favorite programming language is Visual Basic 6.0, and you like the features provided by Galil's ActiveX Toolkit. To get started, you would download the appropriate .zip file, glance at **GalilInstructions.txt**, double click on the .vbp (Visual Basic Project) file, and the source code shown below would pop up:

```
Private Sub Form_Load()
    DMCShell11.DMCConnect = True 'Connect to controller 1

    DMCShell11.DMCCommand = Chr$(18) + Chr$(22) 'Get model number
    Text1.Text = "Connected to: " + DMCShell11.DMCResponse

    DMCShell11.DMCCommand = "MG_BN" 'Get serial number
    Text1.Text = Text1.Text + "Serial number: " + DMCShell11.DMCResponse
End Sub

Private Sub Form_Unload(Cancel As Integer)
    DMCShell11.DMCConnect = False
End Sub
```

Table 1. HelloGalil programming languages and communication libraries.

Manufacturer	Programming Language	Version	DMCWin32 (DMC32.dll)	ActiveX Toolkit (dmcshell.ocx)	DMC.NET (DMCdNet.dll)
Borland	Delphi	5	x	x	
Entivity	Think & Do Live!	5.4	x		
Entivity	Think & Do Studio	6.5	x		
MathWorks	MATLAB	6 Release 12		x	
Microsoft	Visual Basic	6.0	x	x	
Microsoft	Visual Basic	.NET 2003	x	x	x
Microsoft	Visual Basic	2005 Express	x	x	
Microsoft	Visual C#	.NET 2003	x	x	x
Microsoft	Visual C#	2005 Express	x	x	
Microsoft	Visual C++	6.0	x	x	
Microsoft	Visual C++	.NET 2003	x	x	x
Microsoft	Visual C++	2005 Express	x	x	
Microsoft	Visual J#	.NET 2003	x	x	x
Microsoft	Visual J#	2005 Express	x	x	
National Instruments	LabVIEW	8.0	x	x	
Wonderware	InTouch	9.0		x	

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After hitting the F5 (run program) key, the window in *Figure 1* will pop up, indicating that you have communicated with the controller from VB 6.

To start making headway on your motion control project, you can copy the “MG\_BN” line, paste it somewhere else in your program, and replace “MG\_BN” with a command string like those shown in *Table 2* at right. Now, from your PC program, you can generate motion, query whether motion is complete, set and get I/O point states, query axis positions, variables, array elements, and much more.

**Table 2. Common command strings sent from a PC program to the controller.**

Command String	Description
PRX=1000	Move the X axis 1000 counts
BGX	Begin motion
MG _BGY	Y axis still in motion?
MG _RPZ	Z axis commanded position?
MG @IN[1]	State of digital input 1?
SB1	Set digital output 1
MG _LFW	State of W axis forward limit switch?
MG MyArray[3]	Value of element 3 of MyArray?
MG MyVar	Value contained in the variable MyVar?

For more information and to download a HelloGalil quick-start project, please go to: [http://www.galilmc.com/support/hello\\_galil.html](http://www.galilmc.com/support/hello_galil.html)

## New Galil Library of Sample DMC Controller Code

Galil has created a new Sample DMC Code Library designed to teach both novice and expert users more about Galil’s programming language.

For novice users, there are many simple examples that will help get them up and running quickly. Here is an example that shows a program that simply moves the motor using the Position Relative command:

```

'*****
'Description:
'This example will move the motor 20000cts
'*****
#RELMOVE
DPA=0;           'Define current position as zero on the A axis
PRA=20000;      'Relative position move of 20000 cts
SPA=10000;      'Specify speed of 10000 cts/sec
ACA=500000;     'Specify accel of 500000 cts/sec^2
DCA=500000;     'Specify decel of 500000 cts/sec^2
BGA;            'Begin motion on the A axis
AMA;            'Wait for profiled motion to complete
EN;             'End Program

```

For experienced users, there are more complex examples that go beyond the basic motion commands, including examples on various modes of motion, program structures, I/O control, automatic subroutines, and much more. See *Table 1* at right for a subset of the current DMC code examples in the library.

Galil will continuously add new examples to create a more comprehensive, user-friendly library. Additionally, a link is provided for users to request specific examples to be created and added. Or, if you have sample code that might be of use to others, you can submit it to be added to the online library.

To visit this new library, just go to [www.galilmc.com/support/sample\\_code.html](http://www.galilmc.com/support/sample_code.html).

**Table 1. Galil Sample DMC Controller Code**

<b>Modes of Motion</b>
Position Absolute Move
Position Relative Move
Jog Mode
Vector Mode
Linear Interpolation Mode
Contour Mode
ECAM Mode
<b>Program Flow/Structure</b>
Using Variables for Axis Designators
<b>I/O Control</b>
Bounce Off Limits
Use Input to Choose Subroutine

# Galil. We Move the World.

With over 350,000 controllers installed worldwide, Galil is the #1 leading supplier of motion controllers. Galil's legacy of innovation began in 1983 when they introduced the first microprocessor-based servo motion controller. Today, Galil continues its leadership by offering the most powerful, cost-effective and easy-to-use motion controllers to accommodate all your motion needs.

Galil provides you with the widest choice of single or multi-axis, bus-based or stand-alone, and box-level or card-level controllers. Interface options include PCI, ISA, PC/104, VME, cPCI, USB, RS232 and Ethernet. Select from 1-, 2-, 3-, 4-, 5-, 6-, 7- and 8-axis controllers, and configure them to run stepper or servo motors on any combination of axes.

Additionally, Galil provides various accessories that enable you to complete your project quickly. These include servo motors, amplifiers and software tools for quick set-up and "one-button" servo tuning.

## Motion Controllers - PCI

**DMC-18x6.** PCI, 1-8 axes. *Accelera*

**DMC-18x0.** PCI, 1-8 axes

**DMC-18x2.** PCI, 1-4 axes

**DMC-1417.** PCI, 1 axis

## Motion Controllers - Ethernet/RS232

**DMC-20x0.** USB/RS232, 1-8 axes

**DMC-22x0.** Ethernet/RS232, 1-8 axes

**DMC-21x2/x3.** Ethernet/RS232, 1-8 axes

**CDS-3310.** Ethernet/RS232, 1 axis controller and servo drive unit

**DMC-14x5.** Ethernet/RS232, 1-2 axes

**IOC-7007.** Ethernet I/O controller

## Motion Controllers - Other

**DMC-12x0.** PC-104, 1-8 axes

**DMC-13x8.** VME, 1-4 axes

**DMC-16x0.** cPCI, 1-4 axes

**DMC-17x0.** ISA, 1-8 axes

**DMC-1410.** ISA, 1 axis

**DMC-1411.** PC/104, 1 axis

**DMC-1412.** RS232, 1 axis

## Plug-In, Multi-axis Drives

**AMP-20341.** 4 axis, 20W servo drives

**AMP-204x0.** 2 & 4 axis, 200W servo drives

**AMP-205x0.** 2 & 4 axis, 500W servo drives

**SDM-20240.** 4 axis, full/half stepper drives

**SDM-206x0.** 2 & 4 axis, microstep drives

## Software Tools

**Communication Drivers.** For DOS, QNX, Linux and all current versions of Windows

**SmartTerm.** Provides a friendly interface to all Galil controllers

**WSDK.** Servo Tuning and analysis software

**ActiveX Toolkit.** Custom controls for Visual Basic or other ActiveX software

**CAD-to-DMC.** Translates AutoCAD DXF files into DMC controller files

For complete specifications and pricing on all Galil products, please go to [www.galilmc.com](http://www.galilmc.com). Request a free catalog at <http://www.galilmc.com/products/catalog.html>.

## Rely on Galil for Unmatched Support and Service

With every Galil controller you own, you also get the industry's most skilled team of motion specialists as well as an impressive array of online support tools.

Galil's motion specialists have over 100 man-years of experience, and they stand ready to specifically address your application. You can reach them today at 800-377-6329.

Galil's free online support tools include:

FREE	ONLINE SUPPORT TOOLS
✓	Application bulletins, white papers and industry articles <a href="http://www.galilmc.com/literature/technotes.html">http://www.galilmc.com/literature/technotes.html</a>
✓	Over 20 tutorials about servo tuning, motion programming, & motors and drives <a href="http://www.galilmc.com/training/webconf.html">http://www.galilmc.com/training/webconf.html</a>
✓	MotionCode™ Toolkit, step-by-step solutions with downloadable code <a href="http://www.galilmc.com/support/motioncode/index.html">http://www.galilmc.com/support/motioncode/index.html</a>
✓	MotorSizer™ Tool for quick sizing of stepper and servo motion systems <a href="http://www.galilmc.com/support/motorsizer/index.html">http://www.galilmc.com/support/motorsizer/index.html</a>
✓	Interactive bulletin board with knowledge base for fast answers to your questions <a href="http://www.galilmc.com/cgi-bin/ubb/ultimatebb.cgi">http://www.galilmc.com/cgi-bin/ubb/ultimatebb.cgi</a>
✓	Extensive motion controller and drive product catalog with specs and prices <a href="http://www.galilmc.com/products/catalog.html">http://www.galilmc.com/products/catalog.html</a>



*"The mission of Galil's experienced Applications Department is to provide prompt and accurate technical assistance to help OEMs successfully deliver their products to market"*