



**QUARTERLY NEWSLETTER  
PUBLISHED BY  
GALIL MOTION CONTROL**

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“ 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. ”

**GALIL SUPPORT TEAM**



# SERVO TRENDS

JANUARY 2010, VOL. 25 NO. 1



For over 25 years, Galil has  
offered motion controllers that  
are high-performance, easy-to-  
use, cost-effective and backed by  
exceptional applications support.

From top:  
DMC-40x0 Accelera Controller  
DMC-21x3 Econo Controller  
DMC-18x6 PCI Controller  
RIO Pocket PLC

## Galil Achieves 100th Consecutive Quarter of Profitability

We are very proud to announce that Galil has completed its 100th consecutive quarter of profitability, despite the tough global economy of the past few years. We have been profitable each year since 1985 by focusing on our core competencies of providing high-performance and cost-effective motion controllers that are easy-to-use and backed by superior applications support.

“We are grateful to our customers because we know it is their loyalty that has been the bedrock of our success,” says Wayne Baron, President of Galil Motion Control. “We’ve always kept their genuine needs as

the basis of our product development. We understand that helping our customers achieve their success has allowed us to reach this milestone.”

Since the introduction of our first servo motion controller in 1983, Galil has delivered over 500,000 motion controllers worldwide. These controllers are used to successfully automate machines in many diverse industries such as semiconductor, medical, test and measurement, machine tools, entertainment and military.

➤(cont. pg 2)

Galil has kept on the leading edge of technology and is currently shipping its 5th generation motion controllers—the Accelera Series. These controllers use a powerful 32-bit RISC processor to process commands 10x faster than the prior generation. Plug-in, multi-axis drives for steppers and servos save cost, space and wiring. Galil recently expanded into the I/O market with the introduction of its RIO Pocket PLC. The RIO combines intelligence along with analog and digital I/O in a cost-effective, compact package. It can be used stand-alone or connected to the Ethernet for unlimited I/O expansion.

Many customers have used Galil controllers for over 20 years, in successive generations of their equipment. Customers like that the programming language for each new generation of Galil controllers is upward compatible with prior generations. They also appreciate the dedicated support of Galil's experienced application team. Tom Porat of GP2, a manufacturer of automated book binding machines, states "Galil technical support has always been very helpful. We're more inclined to try something new when we are confident the support is available. With Galil, we have that confidence." ■

*For more information about Galil Motion Control, see [www.galilmc.com](http://www.galilmc.com) or call 800-377-6329 to speak to an application engineer.*

## GalilTools supported on Windows 7

GalilTools, Galil's easy to use development, diagnostic, and configuration tool, is compatible with Microsoft's newest operating system, Windows 7. GalilTools is recommended for all new applications using Galil motion controllers and PLCs. In addition to the powerful 8-channel real-time scope, hardware watch window, Servo tuner, DMC editor, and terminal, GalilTools also includes a user-friendly programming library making it easier than ever to create custom made, high performance applications.

Compatible with Windows XP, Vista, and Windows 7, GalilTools is also available for Linux Redhat 5.4 and Fedora and other compatible Linux distributions. All Windows and Linux versions are available for 32 bit (x86) and 64 bit (x64) architectures. An alpha version of Mac OSX is also available. ■

*For more information contact Galil Motion Control at 800-377-6329 or visit <http://www.galilmc.com/support/software-downloads.php>*

## Interfacing BiSS Encoders to Galil Controllers

Galil controllers can interface to different types of encoders including quadrature, SSI and BiSS. This article discusses the basics of the options for using a BiSS encoder with a Galil controller or Pocket PLC.

Galil supports a point to point unidirectional BiSS interface. Each BiSS encoder is wired directly to the Galil controller, and the controller addresses each individual encoder independently.

The Galil BiSS interface is a standard upgrade option for the following controllers:

- *DMC-40x0 Ethernet/RS232 Accelera Series 1-8 axis*
- *DMC-21x3 Ethernet/RS232 Econo Series 1-8 axis*
- *RIO-47xxx Ethernet Intelligent I/O Controller*
- *DMC-18x6 PCI Accelera Series 1-8 axis*
- *DMC-18x2 PCI Econo Series 1-4 axis*
- *CDS-3310 Ethernet/RS232 1 axis controller & 500W servo drive*

Galil has supported single-turn and multi-turn rotary and linear absolute encoders from the following companies

- *Renishaw Resolute*
- *Hengstler Absolute BiSS encoders (AD/AC series)*

If your encoder is not on the above list, please contact Galil at 800-377-6329 to speak with an application engineer to discuss your application. ■ *For more information on the BiSS protocol see <http://www.biss-ic.de/>*



## New 2-Minute Technical Videos

Galil announces its new library of informative videos which present solutions to common motion and I/O problems. Perfect for busy engineers, these technical tutorials are two minutes each. The tutorials can be accessed at no charge 24/7 at:  
<http://www.galilmc.com/learning/two-minute-videos.php>

Galil currently has four 2-minute tutorials in its library and will be adding more tutorials often. If you have an idea for a 2-minute tutorial, contact a Galil application engineer at 800-377-6329 or [support@galilmc.com](mailto:support@galilmc.com).

### Current 2-Minute Videos

*Achieving Precise Temperature Control of a Liquid using RIO Pocket PLC*

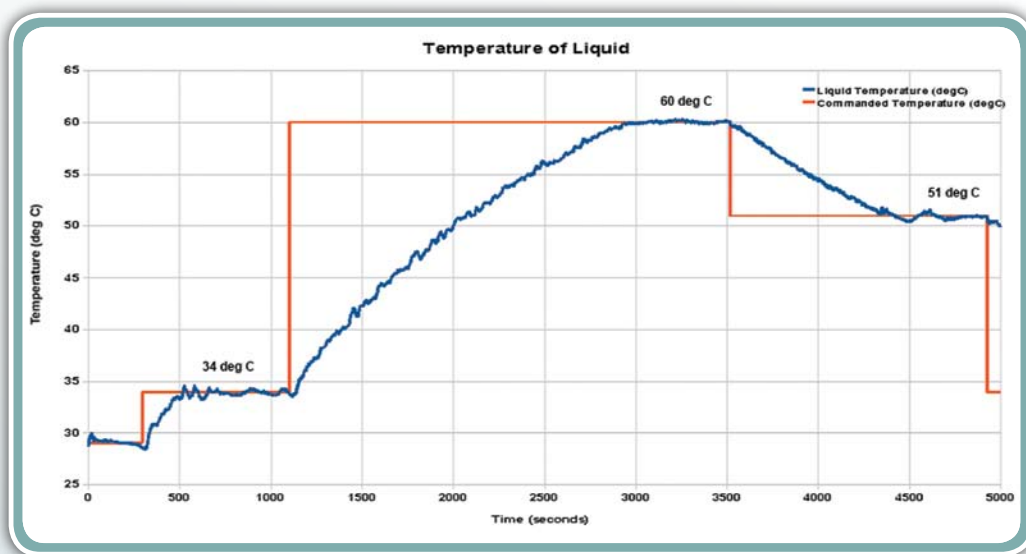
*Smooth Multi-Axis Motion through Arbitrary Points using PVT Mode*

*Introduction to the Accelera Motion Controller Series*

*Introduction to the RIO Pocket PLC*

#### *Achieving Precise Temperature Control of a Liquid using RIO Pocket PLC*

This tutorial shows how to achieve precise temperature control of a liquid which is a common problem in many industries. Galil's RIO-47120 PLC is an ideal solution for this problem due to its internal PID loops and analog I/O. The temperature of the liquid is read by an RTD (Resistive Temperature Device), and the RIO's PID loop generates a signal to drive an amplifier which controls the temperature of a peltier heater/cooler. ■



**Figure 1:** The RIO PID filter is tuned for speed of response, stability and accuracy. The response of the system is shown here where the RIO is used to hold a temperature of 34 deg C within  $\pm 0.5$  deg C for five minutes, then raised to 60 deg C within  $\pm 0.5$  deg C and held for five minutes, then lowered to 51 deg C within  $\pm 0.5$  deg C and held for five minutes.



# Galil. We Move the World.

With over 500,000 controllers installed worldwide, Galil is the leading supplier of motion controllers. Galil's legacy of innovation began in 1983 with the introduction of the first microprocessor-based servo motion controller. Today, Galil continues its leadership by offering the most powerful, cost-effective and easy-to-use controllers to accommodate all your motion and I/O needs.

Galil offers a broad array of motion controllers in a variety of formats: single and multi-axis, card-level and box-level, bus-based and stand-alone. Galil's Ethernet/RS232 and PCI controllers are available in an Econo version for lowest cost and Accelera version for ultra high-speed performance. Plug-in, multi-axis drives for steppers and servos save space, cost and wiring. For intelligent I/O control, the RIO Pocket PLC is compact, low-cost and packed with analog and digital I/O.

At Galil, we share our expertise with our customers. You will find a wealth of information on our website at <http://www.galilmc.com>. Here you can view any of Galil's free web-tutorials, read an application note or white paper, post a question on our bulletin board, or download the latest software and manuals.

Exceptional application support is a top priority at Galil. Call Galil today at 800-377-6329 to discuss your project with one of our highly-trained applications engineers. ■



ACCELERA CONTROLLERS AND DRIVES	
<b>DMC-40x0</b>	Ethernet/RS232
<b>DMC-18x6</b>	PCI

ECONO CONTROLLERS AND DRIVES	
<b>DMC-21x3</b>	Ethernet/RS232
<b>DMC-18x2</b>	PCI

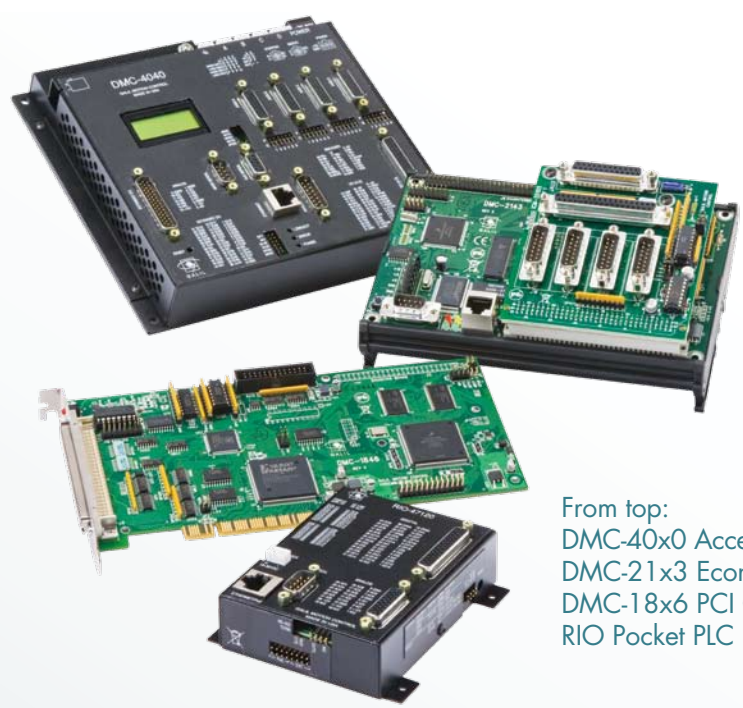
  

SINGLE-AXIS CONTROLLERS AND DRIVES	
<b>DMC-1415</b>	Ethernet/RS232
<b>CDS-3310</b>	Ethernet/RS232

POCKET PLC I/O CONTROLLER	
<b>RIO-47xxx</b>	Ethernet/RS232

SOFTWARE TOOLS	
<b>GalilTools.</b>	Servo Tuning and analysis software
<b>Ladder Interface.</b>	Converts Ladder program into DMC code for RIO Pocket PLC.



From top:  
DMC-40x0 Accelera Controller  
DMC-21x3 Econo Controller  
DMC-18x6 PCI Controller  
RIO Pocket PLC

FREE	Online Support Tools
✓	Application notes, white papers and industry articles <a href="http://www.galilmc.com/support/application-notes.php">http://www.galilmc.com/support/application-notes.php</a>
✓	Over 20 tutorials about servo tuning, motion programming, & motors and drives <a href="http://www.galilmc.com/learning/tutorials.php">http://www.galilmc.com/learning/tutorials.php</a>
✓	MotionCode™ Toolkit, step-by-step solutions with downloadable code <a href="http://www.galilmc.com/learning/motioncode.php">http://www.galilmc.com/learning/motioncode.php</a>
✓	MotorSizer™ Tool for quick sizing of stepper and servo motion systems <a href="http://www.galilmc.com/learning/motorsizer.php">http://www.galilmc.com/learning/motorsizer.php</a>
✓	Interactive bulletin board with knowledge base for fast answers to your questions <a href="http://www.galilmc.com/support/forums.php">http://www.galilmc.com/support/forums.php</a>
✓	Customer stories and videos <a href="http://www.galilmc.com/support/smartmoves.php">http://www.galilmc.com/support/smartmoves.php</a>
✓	Product catalog with specs and pricing <a href="http://www.galilmc.com/support/catalog.php">http://www.galilmc.com/support/catalog.php</a>