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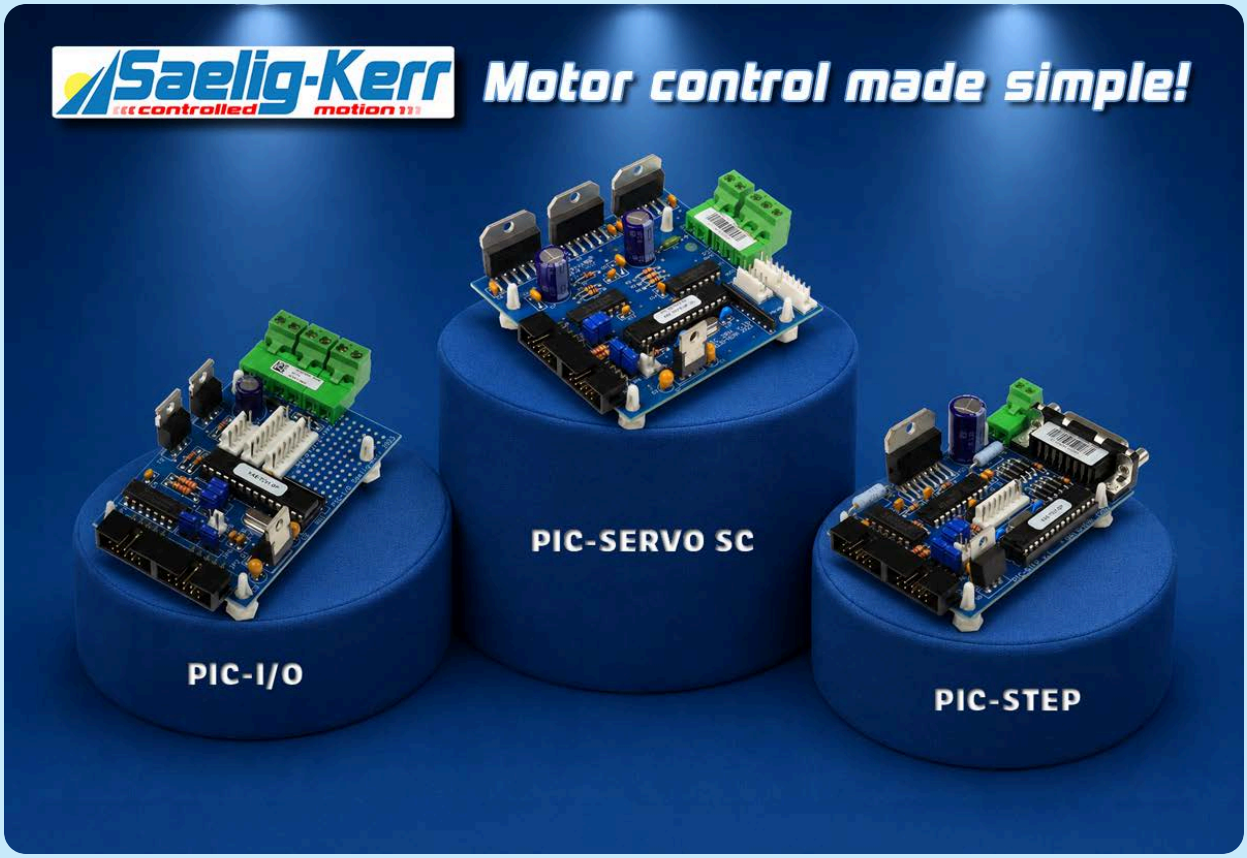


CEO's Corner

Saelig-Kerr PIC-based motion control products provide a practical, reliable way to control stepper, brushed DC servo, and brushless motors in robotics, CNC machinery, medical equipment, laboratory systems, and industrial automation. Their modular design combines high-level motion-control functions and power amplification on compact, easy-to-use boards.

Originally developed by JR Kerr Automation, the product line is now manufactured exclusively by Saelig Company Inc. under the Saelig-Kerr name. Saelig continues to provide the established PIC-SERVO, PIC-STEP, and PIC-I/O products with dependable availability, careful quality control, and experienced technical support.

Alan Lowne
CEO, Saelig Company Inc.

What's New?

Click here for Update

Contact Information

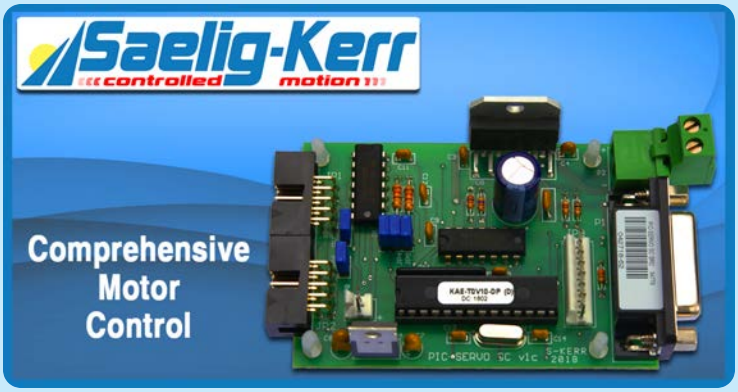
Voice: 585-385-1750

FAX: 585-385-1768

Sales: sales@saelig.com

Tech Support: support@saelig.com

Quotes: quotes@saelig.com



Promotions

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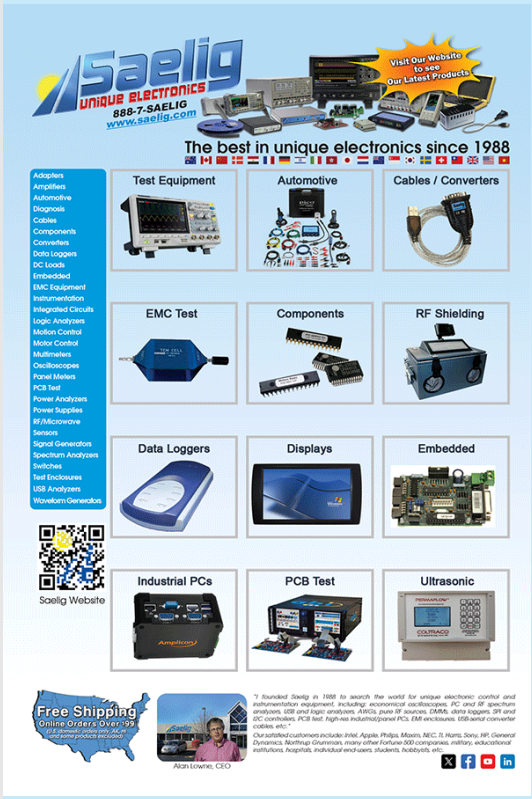
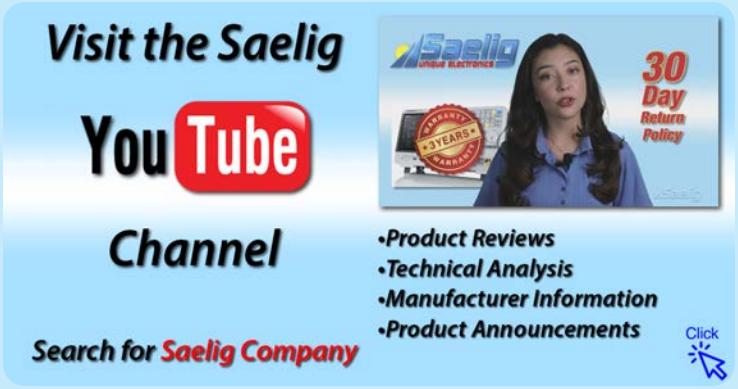
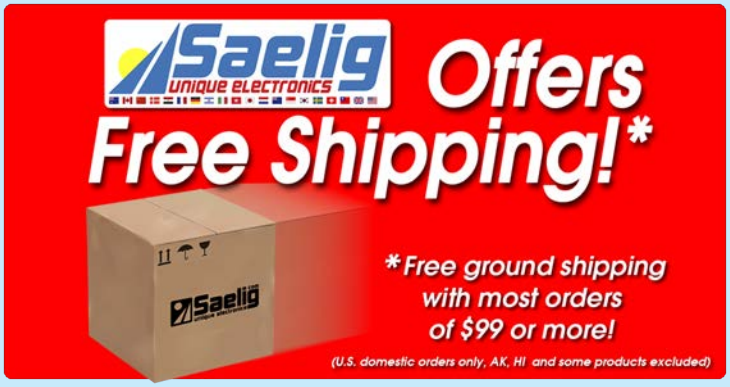






A Long History of Modular Motion Control

For approximately 30 years, Jeffrey Kerr, LLC produced PIC-based motion-control boards and integrated circuits for a wide variety of motor-control applications. The company became known for its DC servo controllers, stepper motor controllers, brushed and brushless motor solutions, industrial DC motor controls, and modular products for multi-axis motion systems.

Saelig served as JR Kerr's primary stocking distributor for 12 years, working closely with the manufacturer to supply and support the product line. In January 2018, Saelig Company Inc. assumed responsibility for manufacturing these products, helping ensure their continued availability and providing fast access to stocked components.
The products are now manufactured under the **Saelig-Kerr** name. The original JR Kerr **PIC-SERVO**, **PIC-STEP**, and **PIC-I/O** products continue without fundamental changes, preserving the functionality and architecture familiar to existing users.

Designed for Distributed Multi-Axis Systems

JR Kerr Automation introduced its original modular servo and stepper motor-control boards in the late 1990s. Unlike systems that required complex, dedicated multi-axis motion-control cards installed in a PC, the JR Kerr architecture allowed multiple independent controller boards to be connected through an RS-485 serial network.

This approach made it possible for a single host computer to manage several motors and control functions through one serial connection. Multiple controller types could be combined within the same network, allowing designers to build systems that matched the requirements of a particular machine or application.
The modular architecture proved useful in university robotics laboratories, NASA research prototypes, CNC equipment, custom automation systems, medical devices, and laboratory research. JR Kerr boards and their serial-networked architecture were also used or referenced by engineers and hobbyists during the early development of desktop 3D-printing systems.

Today, Saelig-Kerr boards continue to be used in equipment such as laser cutters and automated quilting machines, where straightforward implementation, reliability, and functional flexibility are important.

Integrated Motor Control on a Single Board

Saelig-Kerr motion-control modules integrate the principal functions needed to control a motor from a PC or another host device. Depending on the controller selected, the system can support:

- Stepper motors
- Brushed DC servo motors
- Brushless motors
- General-purpose input and output functions
- Multi-axis motion-control applications

The motor-control boards combine high-level motion-control capabilities with the required power amplifier on a single module. This reduces the number of separate components required to build a complete motion-control system and simplifies communication between the motor controller and the host.

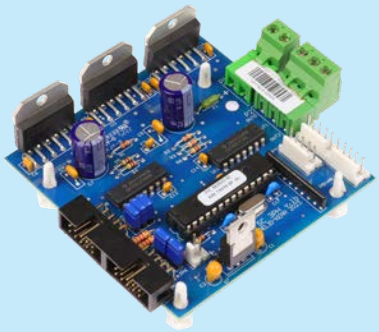
At the core of each module is a preprogrammed PIC-based controller chip. These controller chips are also available separately for designers who want to incorporate the established Saelig-Kerr control architecture into custom hardware.

PIC-SERVO, PIC-STEP, and PIC-I/O

The Saelig-Kerr product family includes three principal modular product categories.

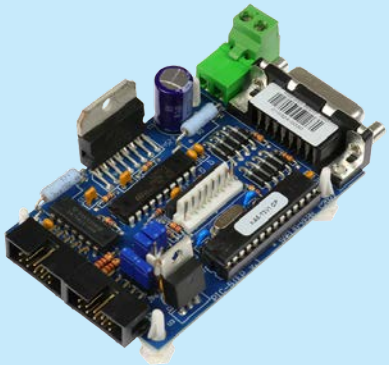
PIC-SERVO

PIC-SERVO products are intended for servo-motor applications requiring coordinated motion control and communication with a host computer or controller. They can be integrated into modular, multi-axis systems alongside other Saelig-Kerr controllers.



PIC-STEP

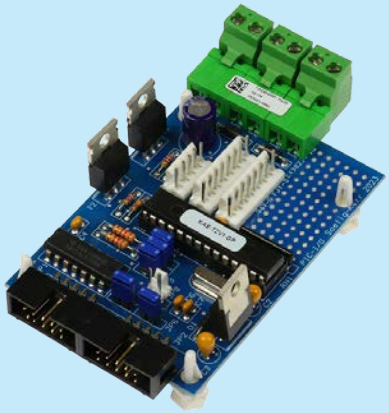
PIC-STEP products provide modular control for stepper-motor applications. They are suitable for automated machinery and positioning systems that require repeatable control from a PC, PLC, embedded processor, or stand-alone controller.



PIC-I/O

PIC-I/O modules add general-purpose input and output capabilities to a Saelig-Kerr control network. They can be combined with PIC-SERVO and PIC-STEP modules to support sensors, switches, actuators, and other machine-control functions.

Together, these modules allow engineers to create distributed systems that combine motion control and machine I/O over a common communications network.



RS-485 Communications for Up to 32 Modules

All Saelig-Kerr controllers communicate with a host using full-duplex, four-wire RS-485 serial communications. RS-485 is well suited to industrial and laboratory environments because it supports reliable serial communication between multiple devices.

Up to **32 PIC-SERVO, PIC-STEP, or PIC-I/O modules** can be connected to a single serial port. This allows a system designer to control multiple motors and I/O functions without installing a dedicated multi-axis motion-control card in the host computer.
The host can be a:

- PC
- Programmable logic controller
- Embedded processor
- Other compatible host controller

The modular network can contain different types of Saelig-Kerr controllers, enabling the system to be configured according to the number and type of motors, axes, and I/O points required.

Networked Modular Control Protocol

Communication between Saelig-Kerr controllers is based on the company's **NMC, or Networked Modular Control, communications protocol**. NMC provides the command and communications structure used by the controller modules and their internal PIC-based control chips.

Applications can initially be developed using standard Saelig-Kerr NMC controller boards. For higher-volume production, the design can then be transferred to a custom circuit board using the same controller chips and communications protocol.

This provides a practical development path from prototype to production. Engineers can begin with complete, tested controller modules and later create optimized custom hardware without abandoning the original control architecture.

Two Ways to Implement a Motion-Control System

Saelig-Kerr products support two basic implementation methods.

Host-Controlled Operation

A PC, PLC, embedded processor, or other host controller can send commands directly to the Saelig-Kerr motion-control modules. This approach is appropriate when the host system manages the overall application, user interface, machine sequencing, or coordination between multiple axes.

The host communicates with the controllers through the RS-485 network. Systems with standard RS-232 or USB ports can connect to the controller network through the SSA-485 Smart Serial Adapter.

Stand-Alone Operation

For applications that do not require continuous control from a PC, the SSA-485 Smart Serial Adapter can also operate as a stand-alone controller when equipped with the optional Motion Basic controller chip.

Simple programs can be created using the Windows-based Motion Basic programming application. The completed program is then downloaded to the SSA-485/Motion Basic controller, allowing the adapter to execute the application independently.

Stand-alone operation can simplify machines that require predefined sequences or repetitive motion routines without the cost or complexity of a dedicated host computer.

The SSA-485 Smart Serial Adapter

The SSA-485 Smart Serial Adapter provides an interface between the Saelig-Kerr RS-485 controller network and host systems equipped with standard RS-232 or USB communications.
Its functions include:

- Connecting a PC or other host to the RS-485 controller network
- Supporting networks containing up to 32 control modules
- Providing an interface for PIC-SERVO, PIC-STEP, and PIC-I/O products
- Supporting optional stand-alone operation
- Storing and executing Motion Basic programs when the optional controller chip is installed

This flexibility allows the same motion-control hardware to be used in both host-managed and stand-alone applications.

From Prototyping to Production

Saelig-Kerr's modular approach allows developers to build and test a motion-control application using standard controller boards before committing to a custom hardware design.

During development, engineers can connect complete PIC-SERVO, PIC-STEP, and PIC-I/O modules to a host system through an SSA-485 adapter. This provides a convenient platform for evaluating motors, developing software, testing communications, and refining machine operation.

For higher-volume applications, the controller chips at the heart of the standard boards can be incorporated into a custom circuit board. Because the custom design can continue to use the same NMC communications protocol, much of the original application architecture can be retained.

Continuing Availability and Quality Control

Saelig Company Inc. manufactures the Saelig-Kerr product line with the goal of maintaining long-term availability for both new and existing applications. This continuity is especially important for equipment manufacturers and system integrators that need to maintain, reproduce, or update established machinery.
Saelig provides:

- Manufacturing continuity for established JR Kerr designs
- Stock availability for faster access
- Careful quality control
- 100% inspection of manufactured products
- Sales assistance
- Application and technical support

Customers familiar with the original JR Kerr products can continue using the same established product line under the Saelig-Kerr name.

Applications

The flexibility of Saelig-Kerr modular motion-control products makes them suitable for a broad range of applications, including:

- Robotics
- CNC automated machinery

- Laser cutters
- Automated quilting machines
- Medical equipment
- Laboratory research systems
- Custom automation equipment
- Positioning systems
- Multi-axis motion platforms
- Prototype and research systems

Their modular structure is particularly useful when a system requires several independently controlled axes or a combination of motor control and general-purpose I/O.

Saelig-Kerr Sales and Technical Support

Saelig provides sales and technical support for Saelig-Kerr motion-control products by email. Customers can contact Saelig with product-selection questions, application requirements, or technical problems.

For applications or technical issues requiring a more detailed discussion, customers may email Saelig to arrange a telephone consultation. This gives engineers access to experienced assistance when selecting components, configuring an RS-485 network, or integrating Saelig-Kerr controllers into a new or existing system.

Proven Motion Control—Now from Saelig

Saelig-Kerr **PIC-SERVO**, **PIC-STEP,** and **PIC-I/O** products combine a proven modular architecture with flexible host-controlled or stand-alone operation. Their integrated motor-control functions, RS-485 networking, and support for as many as 32 modules provide a straightforward foundation for single-axis and multi-axis automation systems.

By continuing to manufacture, inspect, stock, and support the original JR Kerr product line, Saelig Company Inc. helps engineers maintain existing equipment while developing reliable new motion-control applications.