

# RSSidewinderX:

PRESENTING THE

## High-Speed Communication Interface to the Allen-Bradley SoftLogix 5 Controller



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Rockwell Software is pleased to offer **RSSidewinderX™** software for the Allen-Bradley SoftLogix™ 5 controller. **RSSidewinderX** software provides an automation model for the SoftLogix 5 controller based on Microsoft® ActiveX™ technology. A high-speed communication interface, **RSSidewinderX** is a next-generation Application Programming Interface (API) designed for the SoftLogix 5 controller. This new software acts as "middleware" between your application and the SoftLogix 5. The **RSSidewinderX** object is language independent and works with development environments such as Microsoft Visual Basic®, Visual C++™, Visual J++™, and Microsoft Office via Visual Basic for Applications (VBA). Through this feature you gain the benefit of selecting the right language for your control application.

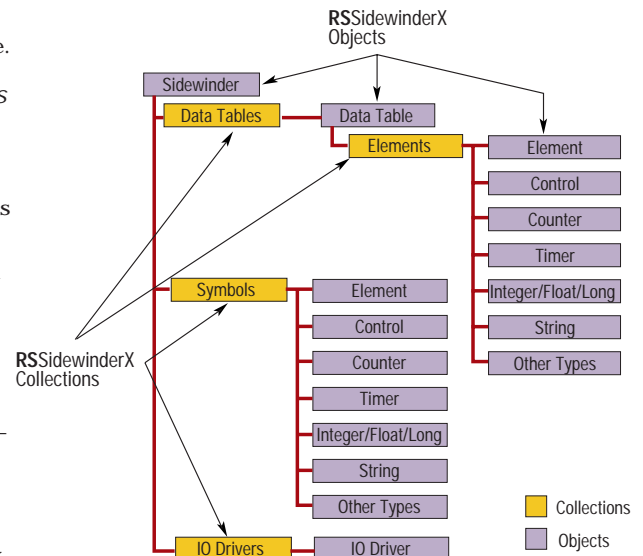
### What does RSSidewinderX Expose to Your Application?

**RSSidewinderX** gives you access to modes, data table files, and external

user interrupt programs in the SoftLogix 5 engine.

### Events and Properties that Provide the Current Mode of the Engine

**RSSidewinderX** accesses the current mode of the SoftLogix 5 engine via a series of events and properties exposed by the ActiveX interface. The modes are the familiar PLC-5® modes — Run, Program, Remote Run, Remote Program, Remote Test and Faulted. **RSSidewinderX** software exposes these modes as events, and you can execute code against them. You can also monitor the current mode via the **RSSidewinderX** Mode and ModeString properties. By programmatically accessing these events and properties, you make your application very adaptable to operational changes in the SoftLogix 5 engine.

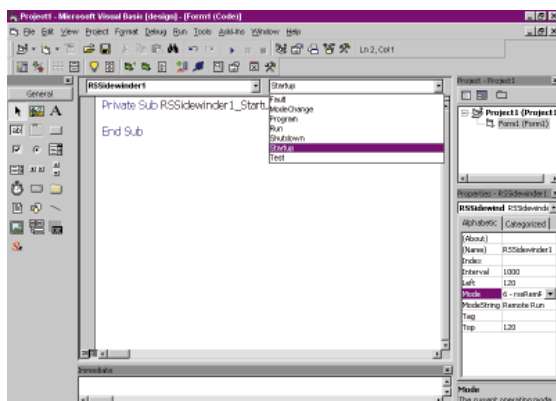


RSSidewinderX Object Model

### Objects and Collections that Access Data Table Information

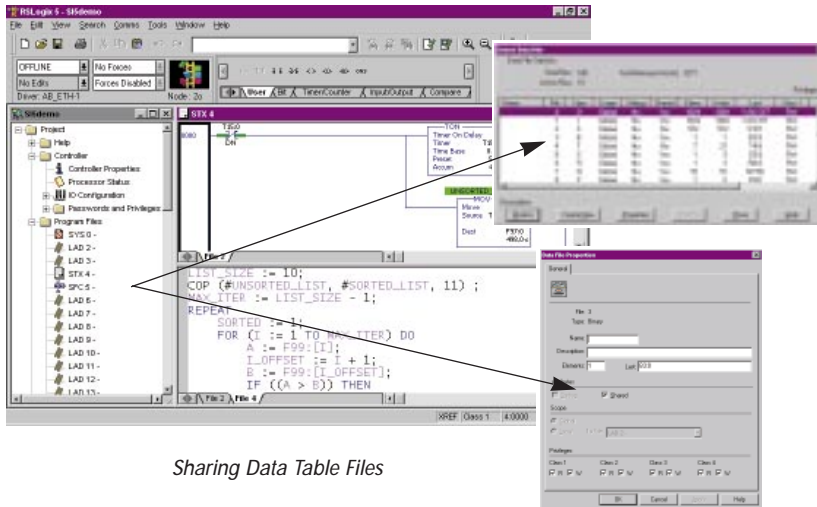
**RSSidewinderX** has an Object Model that mirrors the memory of PLC-5 family processors, including Data Tables and Data Elements. The Object Model also includes Symbols, a new feature of the SoftLogix 5 controller taken from our programming editors. **RSSidewinderX** groups these objects into collections that logically describe the current layout of memory in the engine of the SoftLogix 5 controller. These **RSSidewinderX** objects provide information on Data File Addresses, Names, Data Types, and Shared status in the SoftLogix 5 engine.

**RSSidewinderX** software is easy to program, because it interacts with the Microsoft Visual Basic 5.0



Code that Executes when an Event Occurs





Sharing Data Table Files

Development Environment through IntelliSense™. IntelliSense helps you by presenting context-sensitive syntax information based on the Object Model. This feature is an excellent aid in the successful completion of complex programming instructions.

#### Access to Data Values

**RSidewinderX** objects and the engine in the SoftLogix 5 controller work with Shared Memory. Shared Memory under Windows NT™ is a special form of memory that allows multiple applications to share a common memory space. It is the fastest way to exchange information between Windows NT-based applications. In order to share a data

table, you mark it as a shared data table using **RSLogix 5™** software. Once this is done, the **RSidewinderX** object can read and write data in the SoftLogix 5 engine. **RSidewinderX** acts as "middleware" that resides between your application and the SoftLogix 5 controller, providing access to shared memory values.

#### External User Interrupts (EUIs)

**RSidewinderX** objects can interact with the Task Execution Model of the SoftLogix 5 controller via the SetEUI method. The **RSidewinderX** SetEUI method causes the engine in the SoftLogix 5 controller to asynchronously execute one of the four available EUI program files.

Should I Use **RSInx** or **RSSidewinderX** with the Allen-Bradley SoftLogix 5 Controller?

The best way to decide which package to use is to learn through the following examples.

*RSInx Applications: When Communication Flexibility is Most Important*



Some data acquisition applications by their nature require a generic communication interface to a wide variety of devices. An example of this might be a Man-Machine Interface (MMI) application like **RSView32™** software. Since the application mainly requires **communication flexibility**, a dynamic data exchange/OLE for Process Control (DDE/OPC) interface is the best architecture to build.

The engineering decision is this: *The need to accommodate a large number of generic devices is greater than the need to engineer a specific, full-featured, high-performance device interface into the product.*

Given this need, use **RSInx™** software to communicate with the SoftLogix 5 for data exchange. The trade off is loss of the faster performance,

## Spotlight on ActiveX

### What is COM, and how does it relate to ActiveX?

COM is a Microsoft acronym that stands for Component Object Model. COM describes what a software object is with respect to its Windows operating system. COM objects are self-expressive and use methods and events to communicate with applications that encapsulate them. Working with objects helps software developers because they can focus on overall application functionality without concern for the minor details of exactly how objects function. **ActiveX controls** are based directly on COM.

### What is an ActiveX control?

ActiveX is Microsoft's name for a set of technologies and services based on COM. An ActiveX control performs a common task in a standard way. For example, an ActiveX control might be a visual button, pilot light, or spreadsheet grid. An ActiveX control is almost

identical to a COM object in its use of method interfaces, but ActiveX places more emphasis on encapsulation through methods, properties (a special case of methods), and events. An ActiveX control provides tools that let you configure various control properties at design time. The ActiveX control uses the Property Page dialog box to group design-time functionality into a common interface. The control uses COM to communicate with the application that serves as its container. As a result, a new class of applications emerges — **ActiveX containers**.

### What is an ActiveX container?

An ActiveX container uses COM to communicate with the ActiveX controls it hosts. Through the COM interface, the container negotiates screen real estate and mouse interaction, and delegates messages from the system to its hosted ActiveX controls.

extended operating information and interaction available with **RSSidewinderX**.

*RSSidewinderX Applications: When Performance is Most Important*  
Some control



applications by their nature require a specific communication interfaces to a limited set of devices. An example of this might be a custom Visual Basic application linking a real-time database to a SoftLogix 5 controller and a bar-code reader on a material handling application. Since the application requires the fastest communication between the SoftLogix 5 controller and the database, performance is most important. An ActiveX object using a shared-memory interface between the database and the SoftLogix 5 controller on a local machine is the best interface architecture to build.

The engineering decision is this: *The need for high-speed communication and extended operational interaction between your application and a specific device outweighs the need to accommodate a large number of generic devices.*

Given this need, use **RSSidewinderX** to communicate with the SoftLogix 5 for real-time data exchange and synchronization with the NT-Kernel Mode Events thrown by the SoftLogix 5 controller. The trade off is a loss of flexibility involving the choice of multiple devices available in your system.

## For Which Applications is RSSidewinderX Best Suited?

The SoftLogix 5 controller and **RSSidewinderX** software are naturally suited for many applications. Most are custom applications that would perform supervisory control or closely interface the SoftLogix 5 controller with your company's internet/intranet enterprise network. Such applications include:

- ▶ Supervisory Control
- ▶ Machine Diagnostics
- ▶ Database Integration
- ▶ Report Generation
- ▶ Web-Page Integration

At Rockwell Software, we also used **RSSidewinderX** to extend the functionality of the SoftLogix 5 controller by creating a new Integrated Development Environment called **CtrlContainer** software.

**CtrlContainer** is the VBA framework for the SoftLogix 5 controller that combines **RSSidewinderX**, **RSTools™** software, and VBA. This combination forms a superior platform for VBA-based supervisory control, ActiveX embedding, machine diagnostics and enterprise information integration.



## Where Can I Find More Information?

The SoftLogix area of the OpenAutomation Web site, [www.softautomation.com/SLX](http://www.softautomation.com/SLX), is an excellent source of information about

**RSSidewinderX** and the SoftLogix 5 controller. The site lets you access such Web-based services as:

- ▶ The latest information about **RSSidewinderX**
- ▶ A Code Library of **RSSidewinderX** programming examples
- ▶ "Getting Started" **RSSidewinderX** Tutorials for Visual C++/J++
- ▶ Communication with technical support concerning **RSSidewinderX** and access to the **RSSidewinderX** Knowledge Base
- ▶ Articles about **RSSidewinderX** and SoftLogix 5 controller applications
- ▶ The Allen-Bradley SoftLogix 5 controller version 1.1 demo
- ▶ Online help for **RSSidewinderX** software and the SoftLogix 5 controller
- ▶ Discussion groups for registered users

**RSSidewinderX** software is now available. For more information about **RSSidewinderX** and other Rockwell Software products that support the Allen-Bradley SoftLogix 5 controller, please contact the author by phone at 414-321-8000 or by e-mail at [andy.sailor@software.rockwell.com](mailto:andy.sailor@software.rockwell.com).

If you have an interest in developing **RSSidewinderX**-enabled applications for independent resale, we would like to hear from you. Please e-mail your name, your company's name, your phone number, and a description of the **RSSidewinderX** application you want to create to [RSSidewinderX@software.rockwell.com](mailto:RSSidewinderX@software.rockwell.com).

