

JSB23x API Overview

Document Purpose

This document provides information for controlling the jsb23x Relay IO module from various programming languages using either the newer managed class library dll or the older standard dll for applications that do not support the managed class library. The sample source code directories contain samples for various languages that demonstrate use of each of the functions in a simple straight-forward manner and can be used as a starting point for user application. The samples applications show the exact calling sequence for each of the function described in this document including the full variable and function declarations. This text is meant to just give an overview of what is available. The user will need to have the programming language software installed on the pc used, and should be familiar with that language operation and use. This document only contains material related to the unique module dll software and is not intended as a programming language tutorial. All examples on the CD have been built and tested for a given version of programming software. Updated versions of programming software may require slight modifications to code or option settings. The JSB23x is controlled by the JSB21x software as the only difference between the modules is the relay connections.

Hardware Overview

The hardware has 8 or 16 DPDT relays. Relays are number 1 – 16. Each 25 pin 'sub D' connector on the module contains 4 relays connections. Refer to the pin-out documents for exact locations.

Class Library API

The class library is a set of functions that can be called from any programming language supporting calls to a managed class library. It provides the necessary calls to the modules usb driver to do the requested action on the module, providing simple user interface. The class library name is "jsb210CL.dll". Included with the class library is an .xml file that is used by Visual Studio to support IntelliSense help to make using the functions quick and easy. Both files can be found on the CD in the 'Class Library' directory. Local copies may also be in sample code directories to ease the transferring of the sample source to your working directories, as some Visual Studio version do not support relative paths. This Class Library is supported on Visual Studio 2005 and later.

Note to users of Visual Studio 2010. On some setups of VS2010 and V4 Net some of the programming languages will give a runtime error. The following needs to be added (or file created) to app.config.

```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
<startup useLegacyV2RuntimeActivationPolicy="true">
<supportedRuntime version="v4.0"/>
</startup>
</configuration>
```

Some programming languages like C++ don't follow configuration file management and need the have the file copied to target directory, under the project configuration post build events and the following to the command line to create and move the file to the exe working directory. Then add the System.configuration reference to your code.

```
copy app.config "$(TargetPath).config"
```

Get the number of modules attached

`GetNumberOfModules()`

This function returns the number of modules current attached to the system.

Get the serial number of a module

`GetSerialNumber(module number, pointer to string, size of string buffer)`

This function returns the serial number of for the requested module number (range 1-256). The serial number is used to access multiple modules on the system. When a system is powered up with multiple modules attached the units may come up in a different order, and serial numbers are used to find them.

JSB23x API Overview

Get the Class Library version

GetClassLibraryVersion(pointer to string, size of string buffer)

This function returns the dll version being used for the given serial number. Djsb23GetDllVersion

Get the driver version

GetDriverVersion(serial number, pointer to string, size of string buffer)

This function returns the driver version being used for the given serial number.

Get the module firmware version

GetFirmwareVersion(serial number, pointer to string, size of string buffer)

This function returns the firmware version for the module.

Flash Led on module

FlashLed(serial number, port number)

This function flashes the module led.

Open Relay

OpenRelay(serial number, relay number)

This function opens the relay. Relay number is from 1 to 16.

Close Relay

CloseRelay(serial number, port number)

This function closes the relay. Relay number is from 1 to 16

Close all relays

CloseAllRelays(serial number)

This function closes all the relays on the module.

Open all relays

OpenAllRelays(serial number)

This function opens all the relays on the module.

Set the Relay

SetRelay(serial number, relay number , Boolean for state)

This function set the relay to the value passed, true for close, false for open. Relay number is from 1 to 16

Check if relay is closed

IsRelayClosed(serial number, relay number)

This function returns true if the relay is closed. Relay number is from 1 to 16.

Check if relay is open

IsRelayOpen(serial number, relay number)

This function returns true if the relay is open. Relay number is from 1 to 16.

Get state of all relays

StateOfRelays(serial number)

This function returns a 16 bit value and each bit is the state of a relay. Bit 0 is relay 1, bit 15 is relay 16. An 0 means the relay is open, a 1 means relay is closed.

Number of Relays

NumberOfRelays(serial number, relay number)

This function returns the number of relays on the module. Typical values are 8 or 16.

DLL API

The dll file is jsb210dll and contains a set of callable functions that can be called from any programming language supporting calls to a standard windows dll. It provides a high level interface between a user application and the provided

JSB23x API Overview

module usb drivers. The files are located under the "DLL" directory on the CD and may also appear in sample code directories to ease build. Also included is the file jsb210Dll.h which has function prototypes for languages requiring declarations.

Get the number of modules attached

`jsb210GetNumberOfModules()`

This function returns the number of modules current attached to the system.

Get the serial number of a module

`jsb210GetSerialNumber(module number, pointer to string, size of string buffer)`

This function returns the serial number of for the requested module number (range 1-256). The serial number is used to access multiple modules on the system. When a system is powered up with multiple modules attached the units may come up in a different order, and serial numbers are used to find them.

Get the DLL version

`Jsb210DllVersion(pointer to string, size of string buffer)`

This function returns the dll version being used for the given serial number. `Djsb23GetDllVersion`

Get the driver version

`Jsb210DriverVersion(serial number, pointer to string, size of string buffer)`

This function returns the driver version being used for the given serial number.

Get the module firmware version

`jsb210FirmwareVersion(serial number, pointer to string, size of string buffer)`

This function returns the firmware version for the module.

Open Relay

`Jsb210OpenRelay(serial number, relay number)`

This function opens the relay. Relay number is from 1 to 16.

Close Relay

`Jsb210CloseRelay(serial number, port number)`

This function closes the relay. Relay number is from 1 to 16

Close all relays

`Jsb210CloseAllRelays(serial number)`

This function closes all the relays on the module.

Open all relays

`Jsb210OpenAllRelays(serial number)`

This function opens all the relays on the module.

Check if relay is closed

`Jsb210IsRelayClosed(serial number, relay number)`

This function returns true if the relay is closed. Relay number is from 1 to 16.

Get state of all relays

`Jsb201RelayStates(serial number)`

This function returns a 16 bit value and each bit is the state of a relay. Bit 0 is relay 1, bit 15 is relay 16. An 0 means the relay is open, a 1 means relay is closed.

Number of Relays

`Jsb210GetNumberOfRelays(serial number, relay number)`

This function returns the number of relays on the module. Typical values are 8 or 16.

Flash Led on module

`Jsb210FlashLed(serial number, port number)`

This function flashes the module led.

JSB23x API Overview