Vaunix Technology Corporation

Lab Brick® Family of RF Switches

Ethernet Based API User Manual

Revision A1

NOTICE

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1.0 OVERVIEW

The LabBrick RF Switch Win32 SDK supports developers who want to control LabBrick RF Switch from Windows programs, or who want to control the RF Switch from LabVIEW[1] or other National Instruments programming environments. The SDK includes a dll which provides a Win32 API to find, initialize, and control the RF Switch, along with header files and an example Win32 C program which demonstrates the use of the API.

2.0 USING THE SDK

The SDK consists of a dll, named VNX_Eth_Lsw64.dll, along with this documentation, a C style header file, a library file for linking to the dll, and a VC 6 example program. Unzip the SDK into a convenient place on your hard disk, and then copy the dll and library file into the directory of the executable program you are creating. Add the header file (lswdrvr.h) to your project and include it with the other header files in your program. Make sure that the linker directives include the path of the library file.

3.0 PROGRAMMING

3.1 Overall Strategy and API Architecture

The API provides functions for identifying how many and what type of LabBrick RF Switch are connected to the system, initializing RF Switch so that you can send them commands and read their state, functions to control the operation of the RF Switch, and finally a function to close the software connection to the RF Switch when you no longer need to communicate with it.

The API can be operated in a test mode, where the functions will simulate normal operation but will not actually communicate with the hardware devices. This feature is provided as a convenience to software developers who may not have a LabBrick RF Switch with them, but still want to be able to work on an applications program that uses the LabBrick. Of course it is important to make sure that the API is in its normal mode in order to access the actual hardware!

Be sure to call fnLSW_SetTestMode(FALSE), unless of course you want the API to operate in its test mode.

3.2 Status Codes

All of the set functions return a status code indicating whether an error occurred.
The values of the status error are defined in the LSWdrvr.h header file.

3.3 Functions – Selecting the Device

VNX_LSW_API void fnLSW_SetTestMode(bool testmode)

Set testmode to FALSE for normal operation. If testmode is TRUE the dll does not communicate with the actual hardware, but simulates the basic operation of the dll functions. It does not simulate the operation of attenuation ramps generated by the actual hardware, but it does simulate the behavior of the functions used to set the parameters for the ramps.

VNX_LSW_API void fnLSW_Init(void)

This function will be used to initialize LSW device data structures.

VNX_ATTEN_ LSWSTATUS fnLSW_InitDevice(char* deviceip)

This function is used to open the device interface socket connection over ethernet to the RF Switch and initialize the dll's copy of the device's settings. If the fnLSW_InitDevice function succeeds, then you can use the various fnLSW_Get* functions to read the RF Switch's settings. This function will fail, and return an error status if the RF Switch has already been opened by another program.

VNX_LSW_API LSWSTATUS fnLSW_CloseDevice(char* deviceip)

This function closes the device socket interface to the RF Switch. It should be called when your program is done using the RF Switch.

VNX_LSW_API LSWSTATUS fnLSW_CheckDeviceReady(char* deviceip)

This function will be used to check whether device is ready to get/set the parameters of the LSW RF Switch device.

3.4 Functions – Setting parameters on the RF Switch

VNX_LSW_API LSWSTATUS fnLSW_SetSwitchRFoutput(char* deviceip, int swindex, LSW_SWPORT_T swport)

This function is used to set RF switch output port selection based on the input RF switch index.

VNX_LSW_API LSWSTATUS fnLDA_SaveSettings(char* deviceip)

The LabBrick RF switch can save their settings, and then resume operating with the saved settings when they are powered up. Set the desired parameters, then use this function to save the settings.

3.5 Functions – Reading parameters from the RF Switch

All Get function calls takes two arguments one pointer pointing to the device ip string and other is the response data pointer.

VNX_LSW_API LSWSTATUS fnLSW_GetModelName(char* deviceip, char *respdata)

This function is used to get the model name of the RF Switch.

VNX_LSW_API LSWSTATUS fnLSW_GetSerialNumber(char* deviceip, int* respdata)

This function is used to get the serial number of the RF Switch.

VNX_LSW_API LSWSTATUS fnLSW_GetSoftwareVersion(char* deviceip, char* respdata)

This function is used to read the software version of the device.

VNX_LSW_API LSWSTATUS fnLSW_GetIPMode(char* deviceip, int* respdata)

This function is used to read the IP mode configuration of the device. Response data "0" represents the "Static" mode, "1" represents the "DHCP" mode.

VNX_LSW_API LSWSTATUS fnLSW_GetIPAddress(char* deviceip, char* respdata)

This function is used to read the IP address of the device.

VNX_LSW_API LSWSTATUS fnLSW_GetNetmask(char* deviceip, char* respdata)

This function is used to read the netmask of the device.

VNX_LSW_API LSWSTATUS fnLSW_GetGateway (char* deviceip, char* respdata)

This function is used to read the gateway address of the device.

VNX_LSW_API LSWSTATUS fnLSW_GetMaxSwitchDevices(char* deviceip, int* respdata)

This function is used to read the max RF switches device.

VNX_LSW_API LSWSTATUS fnLSW_GetSwitchRFoutput(char* deviceip, int swindex, int* respdata)

This function is used to read the RF switch output device port status based on the input RF switch index.

4.0 PROGRAMMING SUPPORT

Lab Brick programming support is available from Vaunix Technology Corporation. Please contact our technical support group by email - LabBrickSupport@Vaunix.com.
Vaunix Technology also offers custom programming solutions. Send us your requirements to receive a fixed rate project quotation.
Thank you for using our Lab Brick products.