Capturing data traffic between KMI QuNexus and the QuNexus Editor for Windows

A low-level tool called USBPcap is capable of capturing USB traffic on all current Windows versions. Most probably, this requires administrative privileges at one point or the other.

What can you do with the captured data?

The QuNexus Editor (https://www.keithmcmillen.com/downloads/#qunexus) uses MIDI SysEx messages (over USB) in order to talk to the QuNexus. With the information from the captured traffic it is possible to create alternative editors for the QuNexus. The idea is to create an editor that also runs on Linux.

Here's a (very detailed) step-by-step guide on how to capture some relevant traffic:

1. Please install USBPcap (http://desowin.org/usbpcap/index.html).

2. Connect your QuNexus to the PC

3. Open a windows cmd console (Windows key + R -> type CMD and hit return)

4. Change into the directory of the USBPcap installation - most probably:
   cd "c:\Program Files\USBPcap"

5. Start USBPcap by typing in the CMD console: USBPcapCMD.exe

6. A window should pop up and list the available USB ports and connected devices on your PC. Identify the number of the USB root hub that your QuNexus is connected to. This is one of the plain numbers on the very left of the window.

7. Disconnect your QuNexus device. In order to get a complete capture it is best to connect the device after the capture was started.

8. In the capture window enter the identified port number ("Select filter to monitor...") from above. Finally, specify a file which should receive the recording, for example "c:\Users\<your user name>\Documents\qunexus.pcap"

9. Reconnect the QuNexus to the same USB port you used before.

10. Fire up the QuNexus Editor for Windows. It should inform you that your device is connected.

11. In order to be able to understand the captured data it is essentiell do document what you are capturing. My recommendation for a start would be:
    a. Increase the "Sensitivity" at the top of the Window 1-by-1, and write down the different values that you entered.
    b. Open the key sensitivity editor via menu Hardware -> Per Key Sensitivities... Do the same as in a.) for two different keys.
    c. Repeat the process for menu Hardware -> CV Trims... and Hardware -> Tables...

12. Stop the capture by pressing Ctrl + C in the capture window.

13. You may use wireshark (https://www.wireshark.org/) to inspect the captured data. Wireshark comes with a MIDI sysex filter which should be very useful. This is exactly the way how I will look at the data.

More information regarding the capturing process may be found at http://desowin.org/usbpcap/tour.html.