Windfreak Technologies, LLC.
SynthHD and SynthHD PRO   Quick Start Instructions
Please read all the way through once before beginning

Important Info on Drivers: If you are using the software installer, the installer will install the drivers with the SynthHD control GUI. Drivers won't install with Windows 10 since it comes with proper CDC/ACM drivers built in. If there is an issue with Windows 7, 8 or 8.1 please see the help file in the Extras/drivers folder. Windows XP became unsupported with V3 software.

If you are going to use the source code, you can install drivers for the hardware separately. Install with driver_install.exe located in the Extras/driver folder with anything other than Windows 10.

Note: Attach proper 50 ohm loads on the outputs RFoutA and RFoutB when RF is enabled. Observe proper ESD precautions as the SynthHD is susceptible, especially in dry climates.

Plug in the SynthHD to USB and to 5V using the included 5V power adapter (6V for HWv1). You may need to attach a different high voltage snap on adapter depending on your country. The power adapter is CE certified.

From the factory the SynthHD should be generating 1GHz at ~0dBm on RFoutA and RFoutB is disabled.

Windows should recognize a new device and finish installing the drivers once you plug in the hardware for the first time.

There are three options to get the SynthHD software going:
1) Install setup.exe from the GUI installer directory if not done already. This installs the drivers and the Labview runtime engine. It also installs the SynthHD GUI which you should be able to find under Start/All Programs or your Desktop.
2) Double click on SynthHD_xx.vi in the source code directory if you have 32 bit Labview 2017 or later installed. Please contact dgoins@windfreaktech.com for older versions of Labview or if you have 64 bit Labview.
3) If you already have the 2017 32 bit Labview Runtime Engine installed, double click on SynthHD_xx.exe in the Extras folder to run as a portable executable.

Once you see a Device Under Control and no Com Error on the right you should be linked. You can unplug the SynthHD as long as you don't click anything on the control GUI. If you unplug and re-plug, click Scan Devices to resync the software with the hardware. The hardware always comes up with its internally programmed settings of frequencies, amplitudes and Modulation. Refer to the Software Operating Manual for more detailed information on the software.

Troubleshooting:
Software doesn't recognize the SynthHD: Make sure you have 5V (6V for HWv1) supplied to the SynthHD. Double check the drivers installed properly by going into Control Panel – Device Manager – Ports (COM & LPT) and check that a driver is there. Try unplugging the SynthHD and make sure it goes away and comes back when you plug it back in. The name might be Teensy USB Serial (COM x) on v1.4 hardware. Note your COM port assigned. The drivers are Arduino based so other Arduino serial drivers (not for FTDI) might work. If you don't have a COM port assigned try re-installing the drivers, a different USB cable or a different USB port. As of version 3.1, the GUI no longer uses National Instruments VISA. This was done to remove incompatibility with other vendors VISA software. In its place, it is important that lvserial.dll sit in the same folder as SynthHD3_1x.exe (or *.vi). When working with the source code, lvserial.dll currently only works with 32 bit Labview installations.

Signal isn't there: If you have programmed the nonvolatile memory on the device previously, the device will power up with those settings. Click Scan Devices and look through the software to make sure the device has RF enabled on the port you are connected to and the level is something you can see. Verify no sweeps, triggers or modulations are enabled. If the Reference was programmed to be external, re-set it to internal and 27MHz. Check both channels, also check cables and your test equipment.

If you cant get it to work contact David Goins at dgoins@windfreaktech.com.