QUICK START GUIDE

SN132 SNAPstick

v1.0

Wireless Technology to Control and Monitor Anything from Anywhere™

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This Quick Start guide outlines the basic features of the Synapse SN132 SNAPstick USB module.

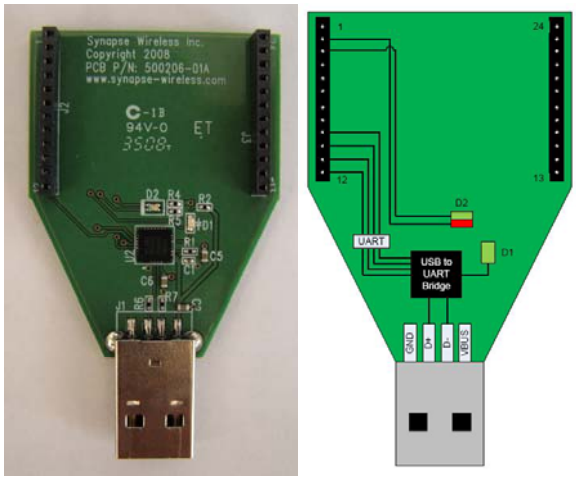

Figure 1 - Overhead view of SN132 SNAPstick (no RF Engine installed) and block-diagram

Introduction:

The Synapse SNAPstick is designed to be a compact and easy way to connect a PC to a SNAP wireless network.

The module supports all existing forms of the Synapse RF engine and is fully compatible with Synapse's Portal management software.

Supported Synapse RF Engine types:

- RF Engine with built-in F antenna (RFE)
- RF Engine with built-in F antenna and transmit power amplifier (RFET)
- RF Engine with external antenna and transmit power amplifier (RFET)

Figure 2 - The Synapse RFE, RFET, and RFET with external antenna engines

On-Board Indicators:

A Tri-color LED is available as an output indicator. This component has the ability to emit a red, green, or amber light. It can be controlled by SNAPpy scripts (running on the SNAPstick) that manipulate GPIO pins 0 and 1.

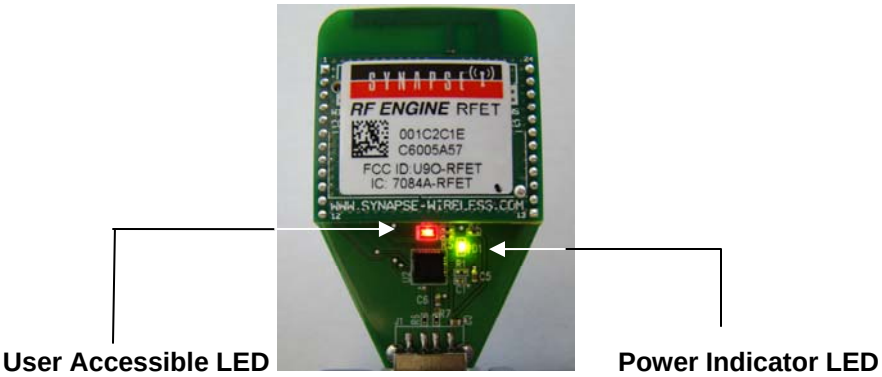

Figure 3 - On board LEDs

The following table describes the how to control the output pins to obtain desired colors. Notice that the LED lines are active LOW.

Desired LED Color	*Value of GPIO Pin 0*	*Value of GPIO Pin 1*
Red	Low	High
Green	High	Low
Amber	Low	Low
OFF	High	High

A second green LED is used to indicate that power is being supplied to the module. It cannot be controlled by the user.

The SNAPstick does not provide access to any other of the 17 General Purpose Input/Output (GPIO) pins available on the RF engines. These are accessible with other forms of Synapse evaluation hardware.

Synapse offers 3 other types of SNAP nodes:

- SN163 Bridge Demonstration Board
- SN111 End Device Demonstration Board
- SN171 Proto Board

USB Interface:

The USB interface on the SNAPstick communicates with the connected RF Engine via internal UART 1. This UART is connected to GPIO pins 7-10. The following table describes their use.

Pin Name	*Direction of Pin*	*Description*
GPIO 7	Input	UART1 Rx Data
GPIO 8	Output	UART1 Tx Data
GPIO 9	Bidirectional	UART1 CTS
GPIO 10	Bidirectional	UART1 RTS

Powering Options:

The SNAPstick can be powered using any form of standard USB connection.

Note: It must be a powered-USB connection.
(Examples include: a PC/laptop port, a powered-USB hub, or a stand-alone USB AC adapter)

The module does *not* require Synapse's Portal software or other software drivers to be installed in order to draw power from the PC's USB port.

Figure 4 – A SNAPstick drawing power from a laptop PC and USB AC Adapter

Taking Things Further:

Synapse offers a wide variety of alternate demonstration boards. These provide more control over the input and output functionality of the SNAP RF engine. For example, the SN171 Proto Board provides full access to all 19 GPIO pins and is available standalone or as a part of Synapse's *EK2500 evaluation kit*.

The SNAPstick is featured in the Synapse *EK2100 Evaluation Kit*. This kit is designed to guide the user through a basic SNAP network setup and a series of application demonstrations. It includes all the hardware and software needed to gain a basic understanding of SNAP mesh networking and the capabilities of SNAP nodes. More information is available online in the form of the *EK2100 Users Guide.*

More information about all of Synapse's expanded evaluation kits, the Portal software and SNAP networking can be found at our dedicated online support forum at:

http://forums.synapse-wireless.com

or our company web-page:

www.synapse-wireless.com