YARD Stick One

Great Scott Gadgets

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USER DOCUMENTATION

YARD STICK ONE

YARD Stick One is a sub-1 GHz wireless transceiver IC on a USB dongle. It is based on the Texas Instruments CC1111.

1.1 Features

- half-duplex transmit and receive

- official operating frequencies: 300-348 MHz, 391-464 MHz, and 782-928 MHz

- unofficial operating frequencies: 281-361 MHz, 378-481 MHz, and 749-962 MHz

- modulations: ASK, OOK, GFSK, 2-FSK, 4-FSK, MSK

- data rates up to 500 kbps

- Full-Speed USB 2.0

- SMA female antenna connector (50 ohms)

- software-controlled antenna port power (max 50 mA at 3.3 V)

- low pass filter for elimination of harmonics when operating in the 800 and 900 MHz bands

- GoodFET-compatible expansion and programming header

- GIMME-compatible programming test points

- open source

The official operating frequencies are those supported by Texas Instruments. Our testing has found the unofficial range to be reliable.

1.2 SMA, not RP-SMA

Some connectors that appear to be SMA are actually RP-SMA. If you connect an RP-SMA antenna to YARD Stick One, it will seem to connect snugly but won't function at all because neither the male nor female side has a center pin. RP-SMA connectors are most common on 2.4 GHz antennas and are popular on Wi-Fi equipment. Adapters are available.

1.3 Expansion Interface

Header P1 is available as an expansion interface. See the schematic for the pinout. It can also be used for firmware programming if the USB bootloader is insufficient for some reason. You can connect a GoodFET to P1 (with a ribbon cable, for example) for programming.

1.4 Project Home

The project home page, including purchasing information can be found here.

TWO

FREQUENTLY ASKED QUESTIONS

Question: What is the latest release?

The latest rfcat release may be found here.

Question: Why doesn't the LED turn on when I plug in my YARD Stick One?

Yes. This is the expected behavior of RfCat firmware. The LED only illuminates while data is being transferred in transmit or receive mode.

Question: My firmware isn't running, how do I enter bootloader mode?

Bootloader mode can be triggered by connecting pins 7 and 9 on the P1 expansion header.

YARD STICK ONE COMMUNITY PROJECTS AND MENTIONS

Have you done something cool with YARD Stick One or mentioned YARD Stick One in one of your presentations?
Let us know and we might post a link here!

- LRS Restauraunt Pagers (Jimi Sanchez)

FOUR

FIRMWARE

YARD Stick One is supported by rfcat and ships with rfcat firmware and CC-Bootloader. The firmware and hardware are open source, and you can write your own firmware if you wish.

FIVE

ENCLOSURE OPTIONS

YARD Stick One ships without an enclosure. It is designed to fit 3A-260906U from New Age Enclosures, but you will need to drill a hole for the SMA connector. Another good option to protect YARD Stick One is 5/8" clear heat shrink tubing.