

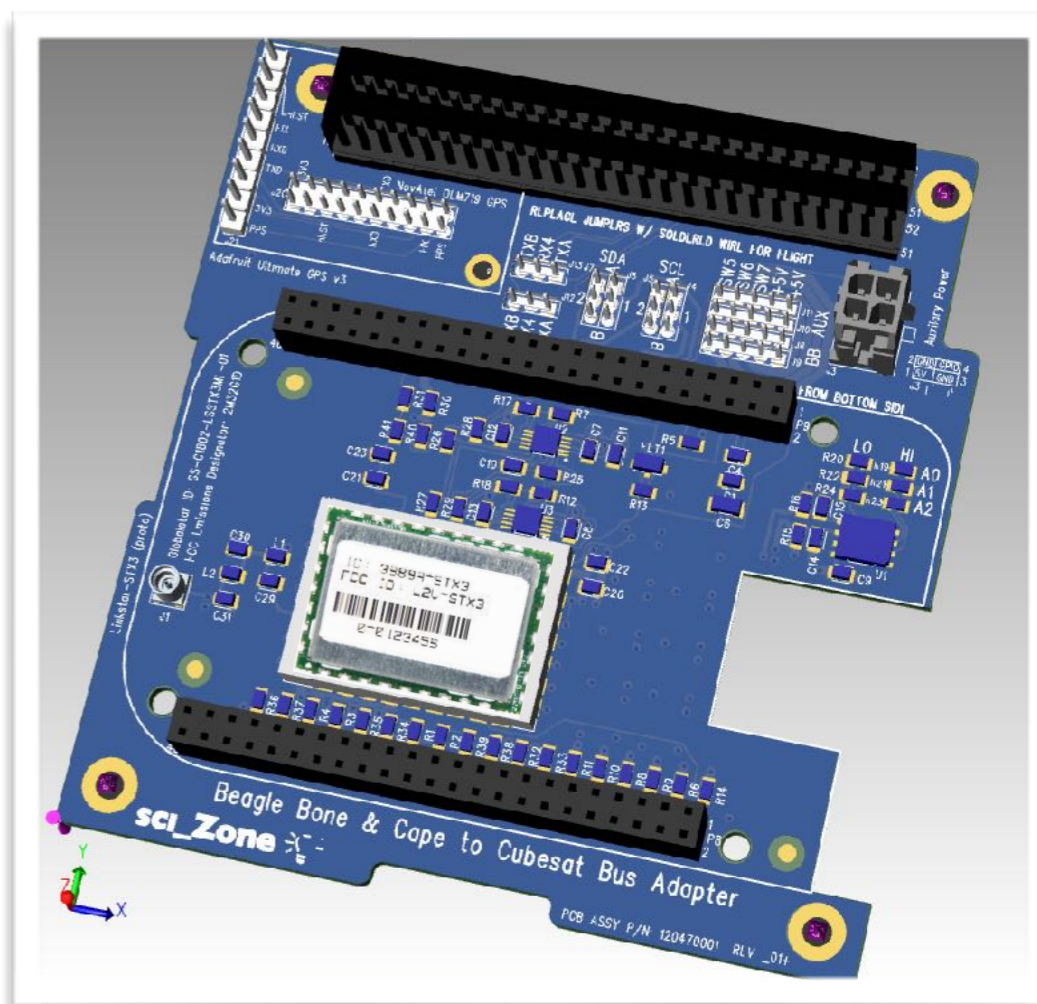
# LinkStar-TRK

## Satellite Transmitter and System For CubeSats

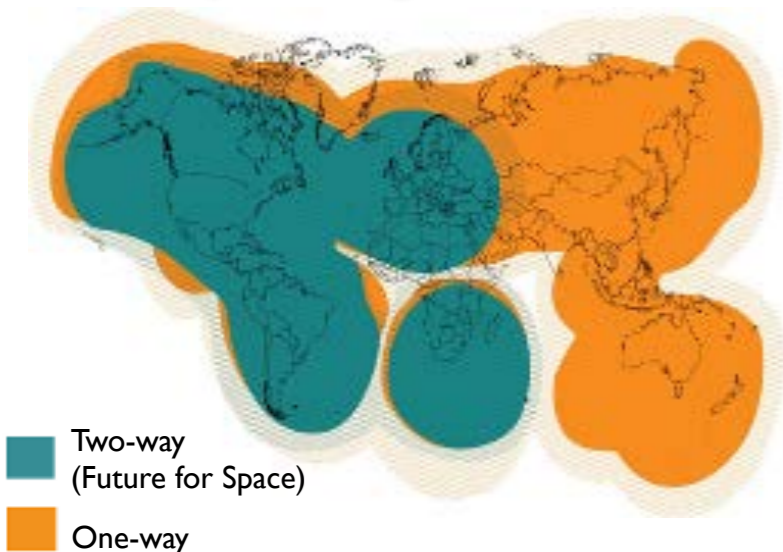
### Near Global Coverage for Critical Information

The **LinkStar-TRK** satellite radio is the next generation in simplex based communications powered by *Globalstar™*, the world's most modern satellite network. The **LinkStar-TRK** is a complete radio system that supports the standard CubeSat bus. Included with the system is a modified *BeagleBone Black™* computer with the QuickSAT/VMS flight management system and either the NovAtel OEM719 for space with COCOM restrictions removed or the AdaFruit Ultimate GPS.

The **LinkStar-TRK** provides opportunities to integrate satellite connectivity into products used for vehicle and asset tracking, remote data reporting and data logger reporting that have limited size requirements. Affordable pricing and low power consumption make the **LinkStar-TRK** satellite transmitter system a highly efficient device ready for integration in a wide variety of applications.



### Coverage Map - Ground. In Space coverage is near Global!



### ADVANTAGES AND FEATURES

- CubeSat bus interface
- Plug and play GPS interface
- Global coverage
- Low power consumption
- Increases reliability through multiple transmissions
- *BeagleBone PC104* cape designed to work with the *BeagleBone Black*, allowing for immediate development, testing, and use!
- Development APIs for the *STX3* module, GPS, I2C interface and other components and network interfaces!
- Surface mount design - custom boards can easily developed to meet a range of demanding applications.
- Versatile use: **LinkStar-TRK** can be integrated for use in a wide range of applications including CubeSats, near space payloads, cars, trucks, boats and sea or land containers

The **LinkStar-TRK** uses the *Globalstar STX3* module, a low cost, simplex module which sends one-way data messages via the *Globalstar Simplex Network* when integrated into a tracking or monitoring device. The **LinkStar-TRK** is ideal for delivering remote sensing, tracking and monitoring applications on the ground, in aviation, near space and in low Earth Orbit. With the optional *Spot-X Module* you will be able to send commands from the ground to your vehicle or asset.



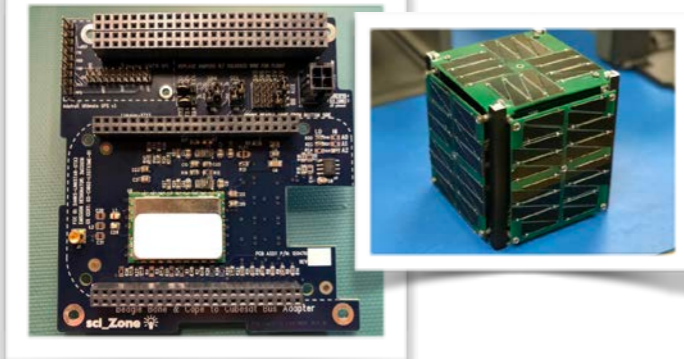
# LinkStar-TRK

## Satellite Transmitter



### LinkStar-TRK DEVELOPER BUNDLE INCLUDES

- LinkStar-STX3-PC104 radio
- Communicator software
- QuickSAT/VMS Management System
- Antenna
- Industrial BeagleBone Black Computer
- GPS



### TECHNICAL SPECIFICATIONS

#### SIZE

LinkStar-TRK with BeagleBone Black (BBB):

Height: 90.17 mm

Length: 95.89 mm

Depth: 29.11 mm BBB/LinkStar-STX3

Mass: 48.19 g BBB/LinkStar-STX3

#### OPERATING TEMPERATURE RANGE

-40 to +80 °C

#### DIGITAL POWER SUPPLY OPERATIONAL VOLTAGE

5.0 Volts

#### RF POWER SUPPLY VOLTAGE

3.0 to 5.0 Volts

#### CERTIFICATION

FCC CFR Part 25 Modular, FCC Part 15A, Globalstar

#### TECHNOLOGY

Operates over the Globalstar™ Simplex Data Network

### OPERATIONAL MODES

#### SLEEP MODE

Vcc is applied to the unit, no transmissions are pending, no serial activity

#### ACTIVE MODE

The STX3 is active and responding to the serial port, but is not transmitting

#### STANDBY MODE

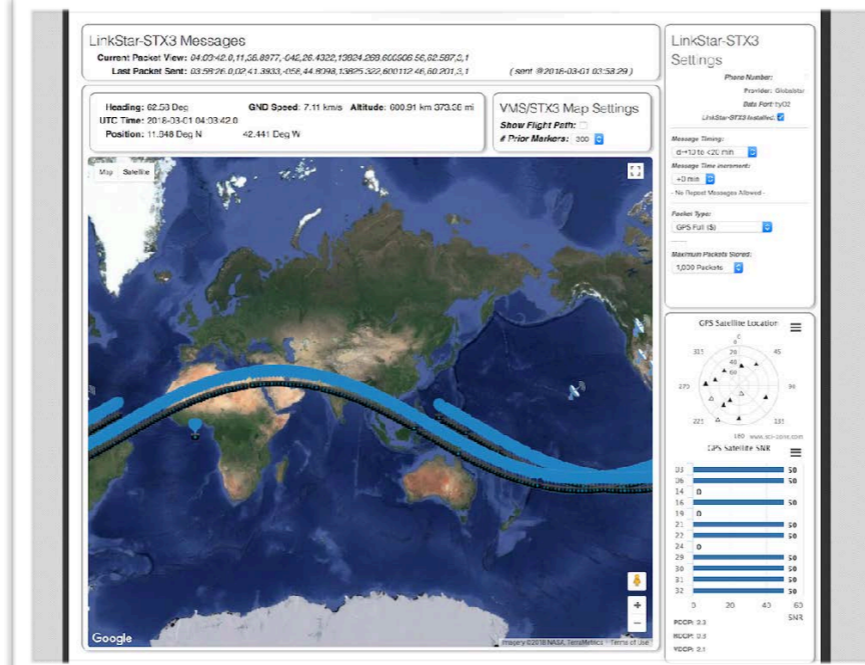
The STX3 is inactive between transmission burst, but is not transmitting

#### TRANSMIT MODE

The unit is transmitting an RF packet

### QuickSAT/VMS

### Web Interface for the LinkStar-TRK



### ANTENNA

#### STX3

TW2500: 4.25 dBic dual-feed patch, 1610 - 1620 MHz

#### GPS

NovAtel OEM719™ GPS with COCOM restrictions removed for Space model, AdaFruit Ultimate GPS™ for the non-space model

### DEVELOPMENT ENVIRONMENT

#### COMPUTER

Modified Industrial BeagleBone Black

#### DATA PLOTTING

Plot up to 4 numerical valued measurements including GPS data on one graph. Export graphs to PNG, JPG, PDF, SVG



#### ENVIRONMENT

Debian Linux, QuickSAT/VMS, MySQL, Apache, PHPMYADMIN, Python, PHP, Javascript, HTML5, C, C++, Bash

#### MEMORY

4 GB plus microSD port

#### BUS

Cubesat Bus interface. Support for serial connections, I2C, switched and un-switched power

#### PORTS

I2C (2), USB, UARTS (3), GPIO (32), GND, Analog In (7), 3.3V

#### APIs

STX3, GPS (NMEA) AdaFruit and NovAtel 6XX and 7XX series, Serial Communications, I2C, BMP Sensor

#### DATA TABLES

View data stored in the on board database through the QuickSAT/VMS interface

#### DATA EXPORT

CSV, Excel, SQL, PDF

