

v.12.5

## Overview

The ISIS TRXUV VHF/UHF Transceiver enables your CubeSat to have a full duplex system with telemetry, telecommand & beacon capabilities on a single board. Its efficient BPSK downlink modulation scheme and flexible UHF receiver make it easy to communicate with your CubeSat.



## Features

- Design based on heritage from the Delfi-C<sup>3</sup> satellite (2008)
- Full duplex operation ( sending and receiving simultaneous)
- Additional CW (Morse code) beacon mode
- Receiver loopback mode  
(usable as transponder, for ranging or uplink checking)
- On-board AX.25 command decoding
- Single board Telemetry, Telecommand and Beacon capability



## Compatibility

- Compliant to CubeSat standard
- Compatible with ISIS, GomSpace, Pumpkin and Clyde Space products
- Compatible with ISIS deployable VHF/UHF antenna system
- Compatible with ISIS Ground Station

## Applications

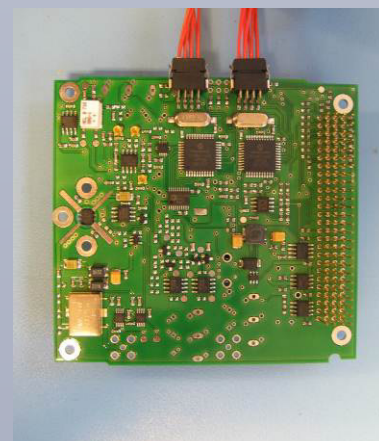
- Cubesat TT&C
- Nanosat TT&C
- Microsat TT&C

## Included in shipment

- VHF / UHF transceiver
- User Manual
- JAVA BPSK demodulator library and documentation
- 2 CubeSat Kit stackthrough extender connectors  
(type number SAMTEC SSQ-126-22-G-D)
- 3 Test jumpers

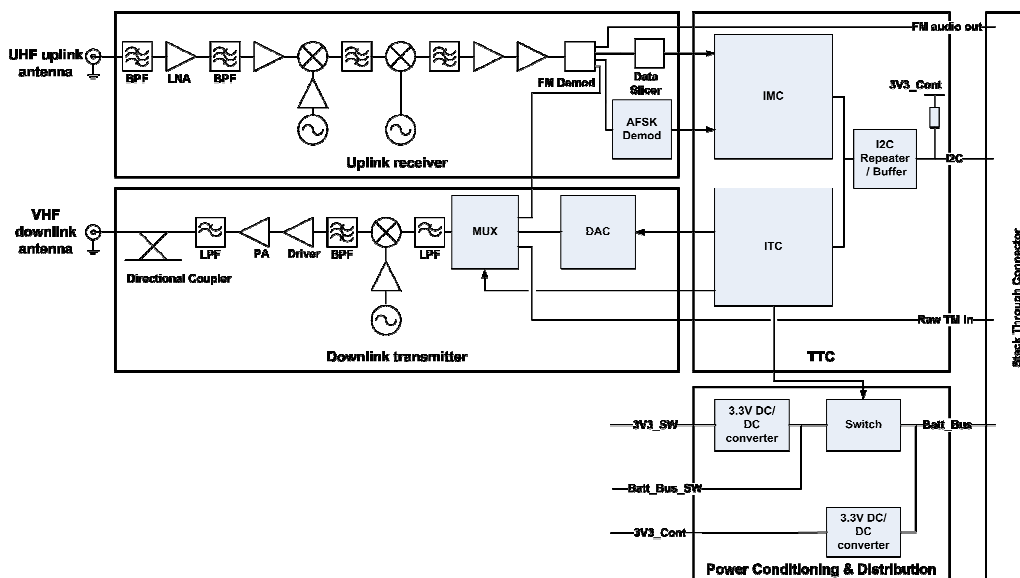
## Available Configurations

- Custom RF connectors
- Other frequencies available as different products  
(see RXU, RXV, TXU, TXV and TRXUV)





# TRXUV VHF/UHF Transceiver



Specifications	
Power supply	6.5-12.5V DC
Power consumption (DC)	<1.55W (transmitter on), <0.2W (receiver only)
Mass	± 85g depending on configuration
Dimensions	96x90x15 mm
Transmitter Frequency range	Single frequency in 130 – 160MHz range (crystal controlled)
Transmit power	22 dBm average
Transmitter modulation scheme	Raised-Cosine Binary Phase Shift Keying (BPSK)
Receiver frequency range	Single frequency in 400-450MHz range (crystal controlled)
Receiver sensitivity	-104dBm for $10^{-5}$ Bit Error Rate
Receiver modulation scheme	AFSK or Manchester FSK (Raw FSK output available)
Downlink data rate	1200 / 2400 / 4800 / 9600 bps
Protocol	AX.25
Operating temperature range	-10 to +45°C

## Interfaces

- 104 pin CubeSat Kit stackthrough connector carrying:
  - 6-30V DC power supply or 5V/3V3
  - I<sup>2</sup>C bus interface
- RF input / output: SMA, female, 50 ohm
- Other connectors on request

## Telemetry Outputs (over I<sup>2</sup>C)

- Power amplifier temperature
- Received signal strength indicator
- FM Discriminator DC voltage
- Forward RF power indicator
- Reflected RF power indicator
- Current consumption & bus voltage

## Qualification and Acceptance Testing

Test	QT	AT
Functional	✓	✓
Vibration	✓	-
Mechanical Shock	✓	-
Thermal Test	✓	✓
Thermal Vacuum	✓	-
Total Ionizing Dose	-	-

QT is performed on the design/qualification model  
AT is performed on the unit to be shipped

This document is subject to change without notice. The latest technical information and price information is available on [www.cubesatshop.com](http://www.cubesatshop.com)

# ISIS - Innovative Solutions In Space

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