

S Band Transmitter SDR for Small Satellites

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- Highly Integrated S Band Transmitter
- Ultra small form factor <0.1U

Highlights

- High-speed data links from LEO
- Micro, nano or pico satellite usage
- Miniaturized, low power transmitter
- Downlink/TM & Payload up to 1.6Mbps
- Turbo-Code FEC



HiSPiCO is a radio communication solution for a broadband downlink transmission from satellites to ground stations. Due to its miniaturized dimensions and power consumption, the transmitter is suitable for nano satellites as well as for pico satellites with an edge length of 10 cm. It is a cost-effective solution for Cubesats with TRL9 achieved.

The transmitter operates in S-band and allows for a user data rate of up to 1.6 Mbps by occupying an RF bandwidth of 1.3 MHz. A suitable planar antenna with circular polarization is available in addition to the transmitter.

This transmission technology was prototypically qualified for a life expectancy of 2 years in LEO (low earth orbit).

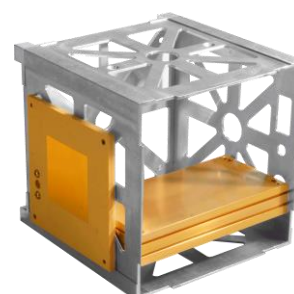
A specific cost-effective receiver for ground stations is available to go with the transmitter. It contains a down converter, demodulator and decoder and outputs the usage data on an Ethernet interface.

Features

- Fully featured and transparent S band transmitter (SDR)
- TRL 9 achieved
- Ultra-compact case
- Low power consumption
- Low cost COTS design
- Short delivery time

Key Specifications

- S band Tx operation: 2.100-2.500 GHz
- Operational mode: DQPSK
- Payload data rate: up to 1.6 Mbps
- Linear RF output power: +27 dBm (opt. +30 dBm)
- Low power consumption: up to 5W @ 27dBm
- DC supply voltage: 3.3 – 5.0 V
- Ultra small volume: Fits into 1U
- Low mass: 100 grams
- TRL: 9



	Default Settings/ Configuration	Optional Configuration
Tx Frequency Band	2.200 – 2.290 GHz	2.100 – 2.500 GHz
Data Rate (Net Payload Data)	1 Mbps	0.4 - 1.6 Mbps
Tx RF Bandwidth	1.3 MHz	
RF Power Output (w/o aerial)	+27 dBm (Adjustable)	Up to +30dBm
Tx Modulation Scheme	DQPSK	
Forward error correction	TURBO code, r=0.489	Settable rate r=0.22...0.79
Connector Type	UMP, 50 Ω	Pigtail cable with SMA
Data Interfaces	3 wire (SPI)	V.24 (Telemetry)
Connector Type	SMC 12p (data, power supply, I/O)	User specific AWG26
Power Supply	+3.3 ... +5.0V	+3.0 ...+5.0V
DC Power Consumption	<5 W	Depends upon RF Power
Mechanical Dimensions	Fits into 1U CubeSat 95 x 46 x 15 mm ³	
Mass	100 gram (incl. housing)	
Temperature Range Operation	-20°C ... +50°C	
Technology Readiness Level (TRL)	9	
Case	passivated aluminum	

HiSPiCO Product Specification

Optional equipment

- Engineering and flight models available
- S band patch antennas for satellite transmitter applications (RHCP, LHCP)
- **HiSPiCO** ground station receiver equipment (19" rack, 2HU receiver with data interface)
- Customer-specific designs and turn-key solutions

Product specification may be subject to change without notification.