

## S Band Transmitter for Small Satellites

- highly integrated S band transmitter
- ultra-small form factor < 0.1 U

### Highlights

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



**HiSPiCO** is a radio communication solution for a broad band downlink transmission from satellites to ground stations. Due to its miniaturized dimensions and power consumptions, 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 TRL 9 achieved.

The transmitter operates in S band and allows a 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 is prototypically qualified for a life expectancy of 2 years in LEO.

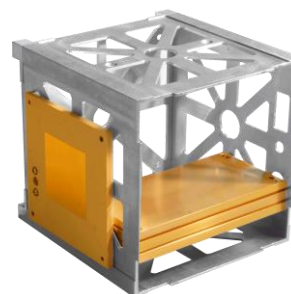
A specific cost-effective receiver for ground stations is available to go with the transmitter. It contains a down converter, demodulator and decoder and outputs the usage data on an Ethernet interface.

### Features

- Fully featured and transparent S band transmitter
- TRL 9 achieved
- Ultra-compact case
- Low power consumption
- Cost-effective 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. up to +30 dBm)
- Low power consumption max 5 W @ 27 dBm
- DC supply voltage: 3.3 ... 5 V
- Ultra-small volume: < 0.1 U
- Low mass: 100 grams
- TRL: 9



	Default Configuration	Optional Configuration
<b>Tx Frequency Band</b>	2.200-2.290 GHz	2.100-2.500 GHz
<b>Data rate (Net Payload Data)</b>	1 Mbps	0.4 ... 1.6 Mbps
<b>Tx RF Bandwidth</b>	1.3 MHz	
<b>RF Power Output (w/o aerial)</b>	+27 dBm	Up to +30 dBm (adjustable)
<b>Tx Modulation Scheme</b>	DQPSK	
<b>FEC scheme</b>	TURBO code, r = 0.489	Settable rate r = 0.22 ... 0.79
<b>RF Connector Type</b>	SMA male 50 Ω, cable	Customer specific
<b>Data Interfaces</b>	3-wire (SPI, data) UART (telemetry)	UART (telecommand) UART (data)
<b>Connector Type</b>	SMC 1.27mm female 12-pins, cable (data, signaling) 2x 0.5mm <sup>2</sup> wires (power)	Customer specific
<b>DC supply</b>	+3.3 ... 5.0 V	
<b>DC Power Consumption</b>	<5 W	Depends upon RF power
<b>Mechanical Dimensions</b>	95 x 46 x 15 mm <sup>3</sup>	
<b>Mass</b>	100 grams (incl. housing & cables)	
<b>Temperature Range</b>	-20°C ... +50°C (operational)	
<b>Technology Readiness Level (TRL)</b>	9	
<b>Case</b>	Passivated aluminum	

### 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.