

S-Band Transceiver

Comtech AeroAstro's compact, lightweight S-Band transceivers can be ordered for STDN, SGLS, or USB protocols and are designed to provide affordable and reliable telemetry and command uplink for nanosatellites and microsatellites. The unit includes latch-up detection and mitigation circuitry for applications with higher radiation exposure.

The transceiver is designed to be compatible with a wide variety of satellite bus systems. The transmitter, receiver and High-Power Amplifier (HPA) (optional) are in separate modules each measuring 3" x 2" x 1", providing a variety of placement configurations for tight spaces. Each of the three modules weighs less than 200g.

The receiver runs at bit rates from 1-8 kbps and consumes less than 800 mW. Higher data rates using QPSK are an available option. The transmitter provides downlink rates from 1 kbps up to 10 Mbps with the optional HPA. The transmitter output power is 500 mW while the HPA is rated at 5W output power. There is a tone ranging channel output to implement either a non-coherent or coherent transponder function. A DC / DC converter module is also available to provide an interface to a +28 Vdc power bus.



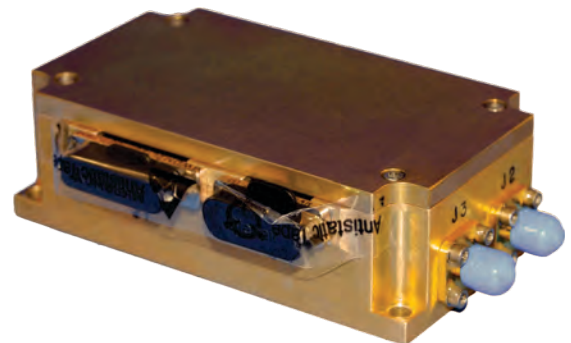
Comtech AeroAstro is also developing a CubeSat-compatible version of this transceiver operating on a bus voltage of 6 to 8V and fitting the mass and volume constraints of the CubeSat bus.

Comtech AeroAstro built three SGLS S-Band transmitters in support of the NeosSat mission for the Canadian Space Agency and Microsat Systems Canada, Inc. We have previously delivered a STDN S-Band transmitter to Sierra Nevada Corporation, formerly MSI.

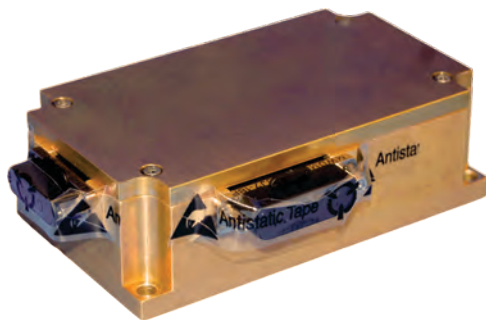
Flight Heritage:	MOST, NASA NM / ST-5
Input Voltage:	22 to 39 Vdc with under / over voltage protection
Reverse Voltage:	3A maximum for 10 seconds, 2A continuous
Output Protection:	No damage; open or short circuit
Thermal Monitoring:	Individual sensors and reporting from each of the three modules
RF Input Dynamic Range:	-130 to -40 dBm
RX Carrier	
Tracking Range:	±105 kHz
RX Carrier	
Acquisition Threshold:	-119 dBm
RX Noise Figure:	8 dB
RX Carrier	
Acquisition Time:	<0.5 seconds
TX Frequency Stability:	±20 ppm over temperature
Output Power:	Adjustable in 0.5W steps from 0.5W to 5W RF under software control
Ranging:	B / W: 100 Hz to 1 MHz (-3 dB) / turnaround UMI: 1:1 (±10%)
Uplink Modulation Index:	0.3 Rad peak (nominal)
Interface:	RS-422 / EIA-485 software command interface
Operating Temperature:	-20 to +60°C
Radiation Tolerance:	10 krads (si) box level (higher with increased shielding)
Latch-Up:	Detection and mitigation (60µ second response, 400m second reset)
Dimensions:	Three modules, each 3" × 2" × 1" (7.6 × 5.1 × 2.5 cm)
Mass:	660g design (total for three modules)
Power Capability:	34W (OAP), 42W (peak)



Receiver



Transmitter



Optional HPA Module



20145 Ashbrook Place
 Ashburn, VA 20147
 703.554.6361

email: Info@AeroAstro.com
 website: www.AeroAstro.com