

Cubesat X-band Transmitter



The Cubesat X-band Transmitter brings flight-proven transmitter technology by SAIT to the cubesats.

Applications

- Cubesats
- Small satellites

Features

- High throughput in the cubesat formfactor
- Flexible state-of-the-art modulation and error correction coding
- Adaptive coding and modulation to maximize throughput for various Es/No
- Customizable data and control interfaces



Specifications

Carrier frequency	8220 MHz (factory settable 8.1-8.5 GHz)		
Throughput	1+ Gbps		
Output power (max T, EOL)	2.5 W		
Modulation	QPSK, 8PSK, 16APSK, 32APSK		
Symbol rate	250 Msymb/s (customizable)		
Error correction coding and framing	DVB-S2		
Spectral mask	SFCG-21-2R4; baseband SRRC 0.35		
Frequency stability, including temperature and aging	±10 ppm		
Power consumption	22 W		
Power supply	12 V (11 - 16 V) non-isolated		
Weight	360g	Size	87x93x30 mm
Operating temperature	-20 °C to +50 °C		
Survival temperature	-50 °C to +65 °C		
MTTF	250k hours	Design life	3 years
Radiation at the component level	>6 krad (average enclosure shielding 1.5 g/cm ²)		
SEL tolerance	most parts >40 MeV·cm ² /mg, overcurrent protection		
Data interface	Customizable LVDS or CMOS. 5 pairs for serial data (clock input/output, data, optional enable)		
Control and telemetry interface	RS-485 or I2C or CAN-2B		
Discrete telemetry	1 temperature sensor DS18S20		
Connectors	Micro-D (MIL-DTL-83513) female (9-pin power, 21-pin data/control) SMA female 50 Ω RF output		

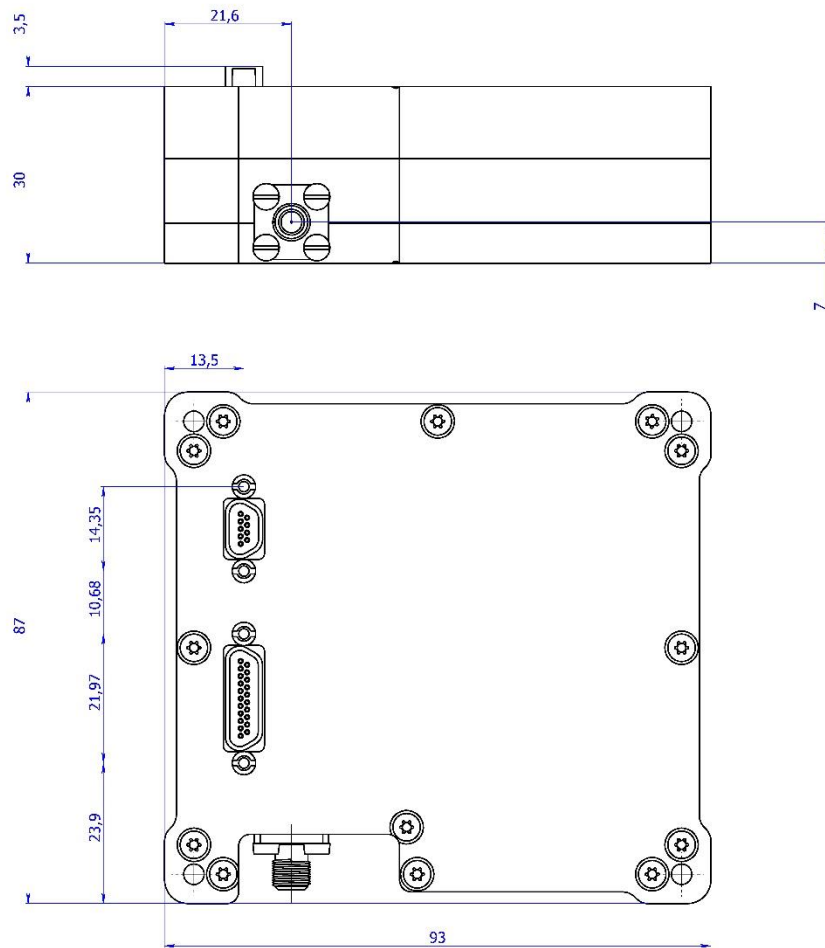
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Mechanical Outline Drawing



Heritage

High-speed X-band transmitters successfully work on the following spacecraft: ISS (previous generation transmitter) – 8.5 years, AIST-2D – 3 years and on the other satellites.