µXTx-200 Wideband Transmitter

SPACE MICRO

The µTx-200 Wide Band Transmitter Unit (WBTx) is a state-of-the-art, high-reliability X-Band transmitter developed to meet the demanding radiation requirements of long-term space missions and the high data rates for supporting advanced digital modulation schemes. Based on the uKa-Tx architecture, the WBTx is capable of data rates up to 1.2 Gbps and is available with multiple modulation and encoding options.



FEATURES

- Radiation Tolerant Design for Space Applications
- Ruggedized for Launch and Deployment
- Convolutional Encoding, standard
- Mates to Industry COMSEC
- Various Parts Levels Available
- MIL-STD-461 EMI
- B.I.T. & Key Parameter Monitoring
- Fully Re-Configurable In-Orbit
  - RF Frequency
  - RF Output Power
  - Data Rate/Modulation
  - Forward Error Correction On/Off

SPECIFICATIONS

RF Output Characteristics

Output Frequency Range	X-Band, 8.025-8.5GHz (Frequency Agile) Selectable Pre/Post-Delivery or In-Orbit

Frequency Stability

Short Term (1 second)	($1x10^{-9}$)
Temperature (-24°C to +61°C):	±4 ppm maximum
Aging	
First year	±2 ppm maximum
Following Year	±1 ppm maximum

RF Output Power

1mW - 1.4 W

Modulation Formats

BPSK, QPSK, OQPSK

Modulation Imbalance

Phase	±2°
Amplitude	±0.1dB
I/Q Offset (stagger) Ratio	50±5%

15378 Avenue of Science, Suite 200, San Diego, CA 92128
858.332.0700 | sales@spacemicro.com | www.spacemicro.com

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SPECIFICATIONS

Input Interface

Parallel or Serial Data and Clock	RS-485, RS-422, LVDS 8/16 bit, LVDS Serial
Optional User Specified Commands	SEI (Flexible, Single Ended Interface) TX Power ON/OFF LDPC or Reed-Solomon Encode/Bypass Randomize Encode/Bypass Data Input Select RF Power Adjust Data rate Select NRZ-L to M Conversion Select Playback Enable/Disable

Data Rate (Optional)

100kbps – 3.2Gbps

Telemetry Output Interface

Power	FSEI
Encoding Mode	(Analog)
Converter Secondary Voltage	(Analog)
RF Output Power	(Analog)

Power Requirements

Input Voltage	+28 ±6Vdc
DC Power Consumption	
5W Output Power	60W
8W Output Power	80W
10W Output Power	95W

PHYSICAL CHARACTERISTICS

Dimensions	8.2” x 6.0” x 2.6” (128”^{3})
Mass	5lbs.
Operating Temperature	-24ºC to +65ºC
Random Vibration	> 14.1 Grms, 3-axis
Thermal Cycles	> 23,000
EMI/EMC	Tailored MIL-STD-461

Radiation

Total Dose	100 krad (chassis)
Latch-up	Immune

Part Level Screening

EM – Engineering Model
FMB – Flight Model Class B
FM2 - Flight Model NASA Level II
FM1 - Flight Model NASA Level I

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