DVB-S2 & CCSDS

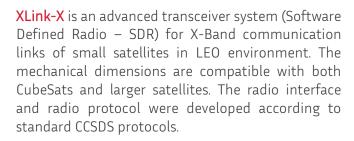


XLINK-X

X-Band Transceiver with SDR for Small Satellites ---> Physical Layer according to CCSDS

HIGHLIGHTS

- SDR high-speed data links
- CubeSat and Small Satellite usage
- Bidirectional communication links
- Downlink: TM or Payload up to 200 Mbps
- Uplink: TC >56 kbps



The device supports very high downlink data rates of up to 200 Mbps. Supported modulation schemes include BPSK, QPSK and higher order modulations with appropriate FEC coding schemes. Adaptive Modulation and Coding (AMC) schemes are applicable to maximize data throughput.

The satellite receiver (uplink) for telecommand purposes is designed for standard CCSDS BPSK with BCH coding and net data rates of 56 kbps minimum. Alternatively, X-Band or S-Band uplink receive frequencies can be used.



A special feature of the XLink-X transceiver is the optional application of two separate Tx channels. They can be used either for an increase of the transmit power or for redundancy purposes.

FEATURES

- Fully featured and transparent bidirectional X-Band transceiver (SDR)
- CCSDS compliant for physical and synchronisation layer
- Flight grade tested design
- Compact case and low power consumption
- Low-cost COTS design
- Short delivery time
- Additionally available: Extra flat patch antennas tuneable to customer specific frequencies

KEY SPECIFICATIONS

X-Band Tx operation 8.025-8.400 GHz

Data rate Sat2Ground 2kbps ... 200 Mbps

Linear RF output power up to +30 dBm (2 x up to +27 dBm)

Operational mode FDD, Full duplex, Half Duplex S-Band Rx operation 2.025-2.110 GHz

X-Band Rx operation 7.145 - 7.250 GHz

Data rate Ground2Sat 56 kbps+

Automatic Doppler shift compensation in Rx up to 200 kHz DC supply voltage 6 – 18 V / 28 V

Low power consumption max. 16 W (Tx + Rx), 4 W (Rx-S), 5.5 W (Rx-X)

> Low mass 200 grams

Ultra-small volume < 0.2U

TRL9





	Default Configuration	Optional Configuration
Tx Frequency Band	8.025-8.400 GHz	7.900-8.500 GHz
Data rate (Tx Payload Data)	500 kbps 100 Mbps	2 kbps 200 Mbps
Tx RF Bandwidth	Depending on the symbol rate	Maximum 56 MSymbols/s
RF Power Output	2 Tx channels up to +27 dBm (combined up to +30 dBm)	Higher output power on request
Tx Modulation Scheme	BPSK, QPSK, OQPSK	GMSK, 8PSK, 16APSK
FEC scheme	Convolutional code k = 7	Reed-Solomon
Rx Frequency Bands	X-Band 7.145-7.250 GHz S-Band 2.025-2.110 GHz	
Data rate (Rx Payload Data)	56 kbps	3.5 kbps 896 kbps
Doppler shift compensation	+/-200 kHz	
Rx Modulation Scheme	BPSK with BCH coding	Convolutional (CCSDS 131.0-B)
RF Connector Type	SMP, 50 Ω	
Data Interfaces	IEEE 802.3 1000BASE-T	SPI via RS422, UART via RS422
Connector Type	3 x Nano-D-Sub (Power, Ethernet, I/0)	
Applicable CCSDS Standards	CCSDS 231.0-B, 132.0-B, 131.0-B, 401.0-B	DVB-S2 via CCSDS 131.3-B
DC supply	6 – 18 V	28 V – other on request
DC Power Consumption	<16 W Tx + Rx, <4 W Rx-S only, <5.5 W Rx-X	
Mechanical Dimensions	90 x 65 x 25.3 mm³	High Radiation Tolerance: 96 x 71 x 32 mm³
Mass	200 grams (incl. housing)	High Radiation Tolerance: 365 grams (incl. housing)
Temperature Range	-20 +60 °C (operating) -40 +80 °C (non-operating)	
Case	Passivated aluminum	

Optional equipment

- Tx/Rx X- and S-Band patch antennas for satellite transceiver applications
- Customer-specific designs and turn-key solutions

Product specification may be subject to change without notification.

