



L3HARRIS™
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CXS-1000 MULTIFUNCTION SOFTWARE DEFINED TRANSPONDER

Telemetry, Tracking and Command (TT&C)

L3Harris' CXS-1000 is a multifunction, software defined transceiver that features multiband and multiwaveform capabilities in a compact footprint. The CXS-1000 is designed for today's low cost and shorter duration small satellite applications.

The multiwaveform receiver provides flexibility in demodulation, decoding and channel selection. Customers can upload different waveforms and program the frequency during production or on orbit.

The CXS-1000 is designed and radiation-tested for geosynchronous orbit and is available in L and S band with the option of X- and Ka-band functionality. The unit is offered as a single integrated unit or as separate transmitters and receivers for full duplex multiband missions.

L3Harris brings more than five decades of experience in TT&C. The engineering analyses, manufacturing and quality processes used for the unit's production are consistent with the industry's high reliability standards.

SPECIFICATIONS

RECEIVER	
Center frequency	1.76 – 1.84 GHz (L Band), 2.025 – 2.120 GHz (S Band)
Data rate	2 Kbps – 128 Kbps available, 3 Mbps capable
Modulation	BPSK, SGLS, USB/STDN, ranging, TDRSS, user defined. Contact factory.
Tracking rate/ range	10 kHz/sec, ±100 kHz; TDRSS 75 Hz/sec, ±160 kHz
Input RF signal	-30 dBm to -120 dBm
Noise figure	2.5 dB
Input VSWR	2.0:1
DC power	6.6 W to 8 W (depending on firmware)
TRANSMITTER	
Center frequency	2.2 GHz - 2.3 GHz
Frequency stability	± 10 ppm over life
Phase noise	≤2.5 deg. RMS, 100 Hz to 10 MHz
EVM	5% RMS
Data rate	1 K – 128 Kbps available, 20 Mbps capable
Modulation	LPM 1.024 MHz s/c, ranging, BPSK, QPSK, OQPSK, UQPSK, user defined
Forward error correction (FEC)	Rate 1/2 convolutional encoding, rate 7/8 reed solomon
RF output power	10 mW to 5 W (commandable)
DC power	17 W (2 W, single frequency), 36 W (5 W, full band). Note: includes RX power.
VSWR	1.5:1
Spectral mask	NTIA compliant



KEY FEATURES

- > Offers flexibility through agile, scalable design
- > Features design for low-cost small satellite applications
- > Provides increased reliability with prequalified design
- > Leverages space-proven processes and is adaptable to new space applications

SPECIFICATIONS - CONTINUED

TRANSPONDER	
Outline dimension	4.0 in x 4.2 in x 4.0 in (core configuration)
Mass	2.5 - 3.5 lbs (depending on configuration and housing)
Mission life	6 months - 5 years
Duty cycle	TX: 15%, RX: 100% (typical)
Radiation	50 krad (chassis), tested to GEO levels for destructive SEE
Bus voltage	28 V $\pm$ 6 V, 9.5 - 12.3 V, isolated power
EMC/EMI	MIL-STD-461F (tailored)
Data clock interface	RS-422, single-ended also supported
Control/status interface	RS-422
OPTIONS	
X-/Ka-band transmit/receive	
20 W S-band PA	
Compatible with commercial and NSA certified Suite A and Suite B encryption, including compatibility with GRYPHON personalities of KIV-7MS compatible hardware (KI-700 and KI-55) and MCU-110C crypto solutions	

CXS-1000 Multifunction Software Defined Transponder

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L3Harris Technologies is an agile global aerospace and defense technology innovator, delivering end-to-end solutions that meet customers' mission-critical needs. The company provides advanced defense and commercial technologies across air, land, sea, space and cyber domains.



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