MSX-765

L-/S-BAND T&C TRANSCEIVER

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L-3 Telemetry & RF Product (L-3 T&RF) has a rich heritage of flight-proven satellite products. High-reliability space communications equipment has been one of our primary business thrusts since 1968, beginning with the transmitters supplied for the Apollo program.

The MSX-765 is designed to meet the next-generation needs for command reception and telemetry transmission for U.S. Department of Defense (U.S. DoD), NASA and commercial high-reliability satellite applications where mass is critical and higher uplink command rates are required.

The MSX-765 is a DSP-based design using technologies developed for the CXS-2000 multi-mode, multi-band transponder. The unit consists of a BPSK receiver and a BPSK transmitter, operating independently, but physically connected for low mass.

The transmitter and receiver are also available as standalone units. Our transmitter model is MST-765 and receiver is MSR-765.

The MSX-765 is easily integrated with L-3 T&RF's MCU-110 (standalone integrated encryptor/decryptor) and has flight heritage on the COSMIC-1and GeoEYE-1 programs.

FEATURES

- L-/S-Band transceiver
- Compact, lightweight
- BPSK command receiver uplink data rate 64 kbps, capable to 2 Mbps
- BPSK telemetry transmitter downlink data rate 2 Mbps, capable to 10 Mbps
- Flight-proven
- High-reliability, radiation-hardened
- Standalone transmitter or receiver configurations
- Diplexer (optional)

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SPECIFICATIONS

L-/S-BAND TRANSCEIVER

Receive frequency	Fixed, 2000 to 2110 MHz range

CARRIER ACQUISITION

Threshold (with modulation)	-125 dBm

ACQUISITION

Time	0.5 second maximum
Noise figure	3.5 dB typical, 4 dB maximum
Input VSWR	1.5:1, 50 Ω
Acquisition and tracking range	±100 kHz

MODULATION

Type	BPSK
Data rate	4 or 64 kbps commandable rates standard, capable to 2 Mbps
Threshold (10-5 BER)	-108 dBm at 64 kbps, -120 dBm at 4 kbps

OUTPUT INTERFACE

	RS-422
Outputs	Carrier lock Rx loop stress Bit-lock signal strength (AGC) Converter voltages Temperature

TRANSMITTER/BASEBAND

Output frequency	Fixed, 1690 MHz, Alternate L-Band frequencies available
Frequency stability	External 10 MHz reference required Internal transmitter reference source optional

RF OUTPUT POWER

Output power	5 W minimum
Output VSWR	1.5:1, 50 Ω
Phase noise	2° RMS maximum

TELEMETRY CHANNEL

Commands (optional)	Primary power ON/OFF
Telemetry	Power ON/OFF command Converter voltages Temperature
Command type	+28 V latching relay

INPUT INTERFACE

	RS-422
Modulation rates	1.024 MHz: 128 kbps maximum, 1.7 MHz: 256 kbps maximum
Convolutional encoding	R = 1/2, K = 7 (CCSDS or JPL type)

INPUT INTERFACE

	RS-422

POWER REQUIREMENTS

Input voltage	+68 VDC to +72 VDC
Power consumption	Transmitter: 35 W maximum Receiver: 8 W maximum

GENERAL

Dimensions	7.22 in. L x 3.55 in. W x 3.65 in. H
Weight	6 lb. maximum

ENVIRONMENTAL

Temperature	-19 °C to +51 °C (acceptance) -24 °C to +56 °C (protoflight)
Vibration	19.0 Grms
Radiation	100 krad (chassis)

OPTIONS

Transceiver integrated with diplexer

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ML505 Rev F