Space-qualified Telemetry Transmitter
5 Watt, L-Band, QPSK
STTL-3400 Series

- ***5W, High-Reliability***
- ***Radiation Hardened***
- ***Launch-proven, Rugged design***
- ***L-Band Operation (1690.0-1710.0 MHz)***
- ***QPSK Modulation***
- ***Forward Error Correction (FEC)***

Description

Microwave Innovations offers its 5W, L-Band, Space-qualified Telemetry Transmitter for those needing high-reliability and proven performance in a robust, radiation-tolerant package. This transmitter is designed to operate with mission assurance in LEO environments.

The 5W, QPSK Telemetry Transmitter is a Space-COTS product, which leverages from our established designs, while using radiation-tolerant components to meet stringent space requirements at low cost.

Space-Commercial-Off-The-Shelf (S-COTS) product which supports a Fixed Rate Data Input or a Clock & Data Input for dynamic data rate requirements. The design features a high-efficiency DC Regulator, and a high-reliability RF power amplifier with an RF Isolator protected output as standard. An isolated DC Power Regulator is included to support isolated power return interests. Full spectral efficiency is supported even at Low Data Rates with Ultra-Low Phase Noise Performance in high shock and vibration environments. An IRIG compatible Randomizer feature and an Appendix-N compliant user interface are also standard. Data & Clock inputs are 100-ohm balanced RS422.

Other features include;

- Differential Clock and Data
- RF Enable
- Freq Lock Indicator
- Health Status Indicator
- Soft Reset Control
- RF Mute Indicator

The Space-qualified Telemetry Transmitter is leveraging off our well established high-reliability designs that have been flown on the most demanding programs. The S-COTS design can be supplied with a high-reliability Parts Program for established reliability and performance meeting the most extreme mission performance requirements.

Microwave Innovations' high-reliability, high-shock, and extreme environmental performance heritage is broadly recognized for ground, air, sea, and space environments.

3069 Edison Furlong Road
Furlong PA, 18925 USA
Phone: 215-348-9606

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SPECIFICATIONS

RF Output

Frequency:	1690.0-1710.0 MHz (Frequency Step Size 0.5 or 1.0 MHz)
Carrier Stability:	Within ±0.001% over temperature
RF Power:	5 Watts (Minimum)
VSWR:	1.5:1 (Maximum)
Impedance:	50 Ohms (Nominal)
Loading:	Normal operation into any Load VSWR and any Phase Angle
Open/Short Protection:	No damage due to Open or Short of unlimited duration
Harmonic & Spurious Level:	In accordance with IRIG 106-96
Modulation Input	Input Data Rates: 1 Mbps (+/-100ppm expected)
Data & Clock Input	RS-422, 100-ohm Differential Input, passive term.
Encoding:	NRZ-M Differential Encoding of data, expected

Forward Error Correction (FEC): Convolutional Encoding

Power Requirements

Input Voltage:	+22 to +34 VDC
Maximum Input Power:	50 Watts
Isolated Power RTN:	PWR RTN Isolated from Chassis >1 Mega Ohm

Environmental Specification

Temperature:	-20°C to +50°C Acceptance Level -30°C to +70°C (Qualification Level)
Random Vibration:	6.8 Grms (Qualification and Acceptance)
Pyroshock:	Complex Spectrum; 50 G's @ 100 Hz, 800 G's @ 900Hz, 800 G's @ 10 kHz
Acceleration:	100G
Altitude:	Unlimited
EMC:	Per MIL-STD-461-E

Mechanical Specifications

Weight:	2.125 Lbs. (34 oz.) max.
Dimensions:	as per outline drawing

CONNECTORS

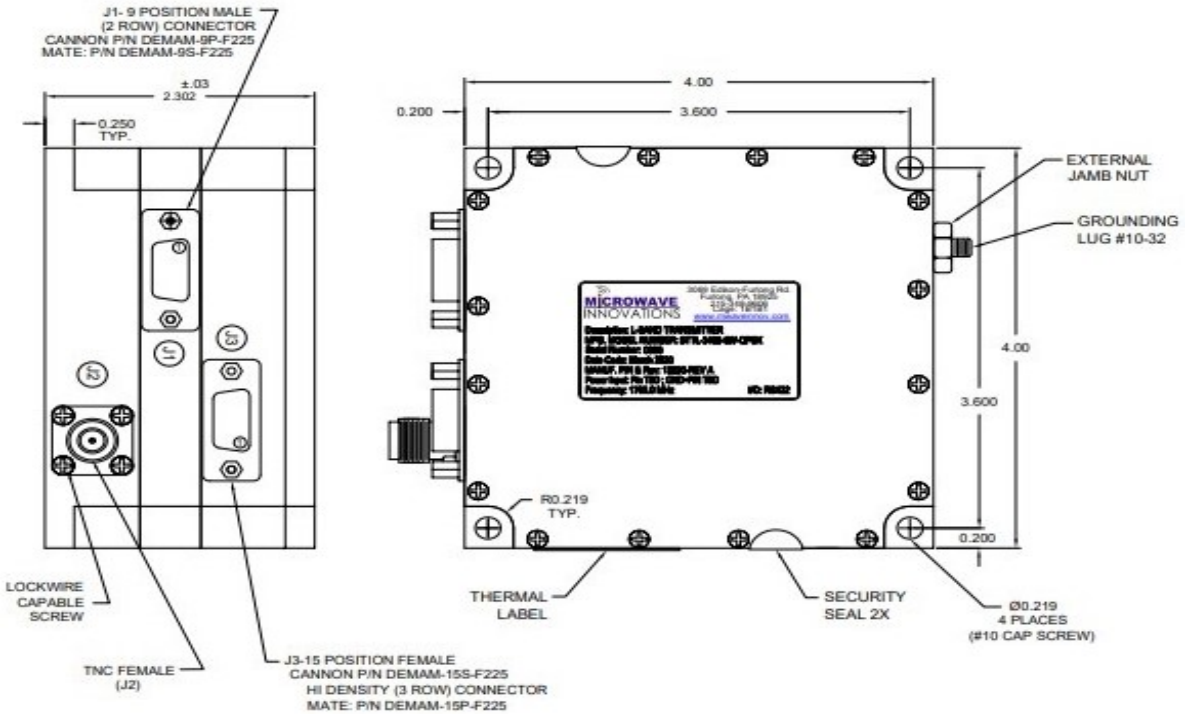
J1 Power Input
(High-Density D Connector)

Pin	Function
1	+28VDC (A) Input
2	ISO (A) RTN
3	+28VDC (B) Input
4	ISO (B) RTN
5	+28VDC Power (C) Input
6	ISO (C) RTN
7	NC
8	RTD
9	RTD

J3 Data/Clock Input
(High-Density D Connector)

Pin	Function
1	Differential Data Input (+)
2	Differential Data Input (-)
3	NC
4	Differential Clock Input (+)
5	Differential Clock Input (-)
6	RF Enable Control (+)
7	RF Enable Control (-)
8	Freq. Lock Indicator (+)
9	Freq. Lock Indicator (-)

Pin	Function
10	Health Status Indicator (+)
11	Health Status Indicator (-)
12	Soft Reset Control (+)
13	Soft Reset Control (-)
14	RF Mute Indicator (+)
15	RF Mute Indicator (-)



Unique Customer Requirements Are Welcome, Including:

Connector Types, PWR Non-Isolated, Isolated, Enclosure Size, Data Rates, RF Center Frequency & Power, etc.

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