

Airborne Telemetry

FEATURES

- **Integral and Proprietary Switching Power Supply Design resulting in Ultra High Efficiency**
- **Programmable 2, 5 and 10 Watts**
- **Lower Heat Dissipation**
 - Significantly reduces Heat Sink requirements
- **Full S Band Coverage**
 - 2200-2400 MHz
- **Tier 0, 1 and 2 (selectable)**
- **Programmable Center Frequency via serial communications port RS232 with USB optional** (Non-volatile memory retains settings when power is off).
- **RS422 Data and Clock Interface (TTL Optional)**
- **Meets latest IRIG-106 requirements**
- **Remote power on/off control**
- **Built In Status Capability, including:**
 - Temperature
 - Forward Power Monitor
 - Internal Power Supply Voltages
 - Internal Fault Signals



communications
Telemetry & RF Products

Excellence You Can Measure

ST-5000S S Band Multi-Mode Transmitter L-3 Telemetry Products



DESCRIPTION

The ST-5000S Telemetry Transmitter is designed for S band operation in Aerospace environments where size, weight and power efficiencies are critical. This evolutionary Transmitter extends battery life while incorporating Ultra High Power Efficiency, Serial Loaded Programmability and ARTM Tier 0, 1 & 2 modulation schemes. This all comes with the performance, quality, heritage and reliability you've come to expect of L-3's Telemetry Transmitter products. The ST-5000S continues the legacy of the successful ST-800, 2000, 3000 and 4000 (SOQPSK) series of L-3 Telemetry Transmitters while utilizing advanced waveform technology from L-3's Nova Engineering Hypermod team.

The ST-5000S is available in a 2, 5, and 10W model; and can also offer a model where power flexibility/programmability can be provided. Center Frequency, Deviation Sensitivity, and other features can be programmed through a serial communications port using a basic PC (personal computer.)

The ST-5000's internal modules (modulator, regulator, and power amplifier) are housed in separate machined enclosures to maximize RF isolation, while providing a rigid and robust mechanical design able to withstand the harshest of missile, weapons and aircraft mission environments. All units are subjected to these rigorous environmental testing requirements in the factory in order to ensure reliable operation under extreme mission conditions every time.

ELECTRICAL SPECIFICATIONS

Frequency Range S Band 2200-2400 MHz
0.5 MHz steps

Date Rate Range 300 Kbps to 40 Mbps (50 Mbps
Optional)

Frequency Selection

Serial Loaded version: Via serial communications port
RS232 standard
Compliant to IRIG 106-07
(USB optional)

Frequency Stability: $\pm 0.001\%$
Power Output: 2, 5 and 10 Watts minimum (1.5:1
VSWR)

Antenna Compatibility

Output Impedance: 50 ohms nominal
VSWR (load): up to infinite to one
Open/Short
Protection: Yes, Internal Isolation

Modulation

Type: ARTM Tier 0, 1 and 2 (selectable)
Sense: Positive
Input Impedance: 100 Ohms for RS422 and 50 Ohms
for TTL
Frequency Response: Digital pre-mod filter supports 300
Kbps to 40 Mbps
Deviation Sensitivity: automatically tracks data rate
Deviation
Non-Linearity: 2.0% at ± 6 MHz deviation

Input Power

Voltage: 22 to 40 Vdc
Current: 10 watt 1.7 A, typical
5 watt 0.8 A, typical
2 watt 0.6 A, typical
(constant power)

Reverse Polarity
Protection: Yes, 40V
Power Return: Power return common to case
Over Voltage
Protection: Yes, 40V, 180 seconds

ENVIRONMENTAL SPECIFICATIONS

All performance specifications will be met under the
following conditions.

Temperature: -20°C to $+70^{\circ}\text{C}$
(-40°C to $+85^{\circ}\text{C}$ available)
Vibration: Sine 20g from 20 to 2000 Hz, 3 axis
Random 14g from 20 to 2000 Hz, 3 axis
Shock: 100g, 1/2 sine, 11 msec
Acceleration: 100g
Altitude: Unlimited

MECHANICAL SPECIFICATIONS

Dimensions: 2" x 3" x 0.8"
Excluding connectors*
Weight: 8 ounces max
Volume: 6.0 cu. inches
Mounting: 6-32 screws, 4 corners
Connectors & Pin Functions
(Standard – Other types available, please consult factory.)

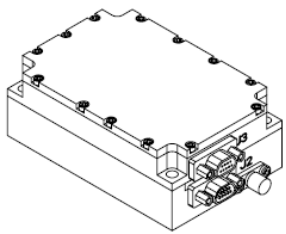
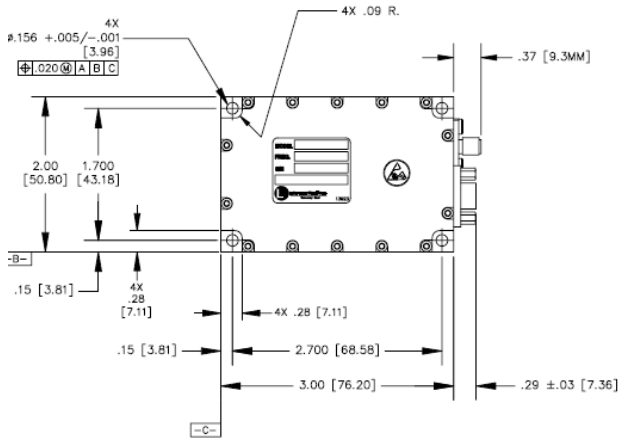
PROGRAMMING FEATURES

- Center Frequency
- Forward Error Correction (FEC), Turbo Product Codes
- Normal, reduced, or off RF power modes

Built-In-Status Features Include

- Temperature ($\pm 3^{\circ}\text{C}$)
- Forward Power Monitor (± 0.5 db)
- Power control
 - Reduced (-3 db)
 - RF Off (PLL locked, no RF)
 - Asleep (microcontroller only)

OUTLINE DRAWING



J1
POWER
(MDM-9S)

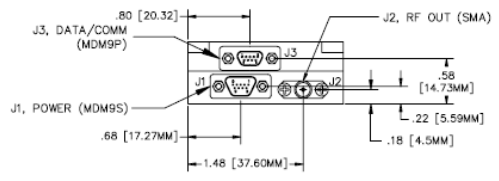
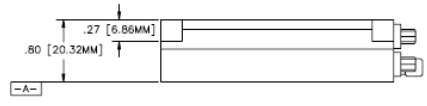
POS	FUNCTION
1	+28VDC
2	+28VDC
3	+28VDC
4	N/C
5	N/C
6	+28VDC_RTN
7	+28VDC_RTN
8	+28VDC_RTN
9	N/C

J2
RF
(SMA)

POS	FUNCTION
CEN	RF_OUT 28V RTN

J3
DATA/COMM
(MDM-9P)

POS	FUNCTION
1	CLK (+)
2	CLK (-)
3	DATA (-)
4	GND
5	RX COMM (RS232)
6	TX COMM (RS232)
7	DATA (+)
8	HOLD OFF
9	RF OFF



OPTIONS

- Input Impedance
- Extended Operating Range; -40° C to +85° C
- Product/Performance customization available to support program specific requirements
- Other DC and RF Connectors are available
- Pure Tin Mitigation Screening and Processing

QUALITY CONTROL and PRODUCT ASSURANCE

The ST-5000S Transmitters are manufactured in accordance with the requirements of IPC-A-610C Class 3 and ANSI-J-STD-001. Every manufactured unit is fully tested to a comprehensive ATP (Acceptance Test Procedure), which includes full performance testing at thermal extremes. The L-3 Communications Telemetry-East Quality System is certified to meet the requirements of AS9100 through KEMA-Registered Quality Inc. L-3 also offers advanced component screening processes aimed at reducing and eliminating sources of counterfeit components. Additionally, L-3 can also provide special screening and testing processes to ensure Pure Tin mitigation. This is an extremely important feature to consider given the continued RoHS material transitions in play.

ORDERING INFORMATION

When ordering, please specify the input impedance required and any other options desired. For additional information or special applications, please contact the L-3 Communications Telemetry-East Business Development Team or the L-3 Telemetry and RF Products Sales Representative in your area.

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