

Airborne Telemetry

FEATURES

- **Integral and Proprietary Isolated Switching Power Supply Design resulting in Ultra High Efficiency**
 - 10 watt – 1.3 A, typical
 - 5 watt – 0.9 A, typical
 - 2 watt – 0.7A, typical
- **Lower Heat Dissipation**
 - Significantly reduces Heat Sink requirements
- **Full S Band coverage (2200 to 2400 MHz)**
 - L Band available
- **Programmable Center Frequency and Deviation Sensitivity via serial communications port (RS232 or RS422). Non-volatile memory retains settings when power is off**
- **Fully Configurable Isolated Ground**
 - DC Input Power Isolated From Chassis
 - Fully Isolated Control Interface
 - Modulation Input Isolated from Chassis/DC Return
 - All without the use of an Isolation Plate
- **Meets latest IRIG-106 requirements**
- **Remote power on/off control**
- **Built In Status Capability, including –**
 - Temperature
 - Forward Power Monitor
 - DC Current Monitor
 - Internal Power Supply Voltages
 - Internal Fault Signals



communications
Telemetry & RF Products

Excellence You Can Measure

ST-3000 Telemetry Transmitter Telemetry Products



DESCRIPTION

The ST-3000 Telemetry Transmitter is designed for operation in Aerospace environments where size, weight and power efficiencies are critical. This evolutionary Transmitter extends battery life while incorporating Ultra High Power Efficiency, Full Isolation, and Serial Loaded Programmability. All this with the performance, quality and reliability you've come to expect of L-3 Telemetry East Transmitter products. The ST-3000 continues the legacy of the extremely successful ST-800 series of Telemetry Transmitters.

The ST-3000 is available in 2, 5, and 10-Watt models and offers two versions in order to suit every Frequency and Deviation Sensitivity requirement needed. Center Frequency and Deviation Sensitivity can be programmed in the serial loaded version via a serial communications port using a basic PC (personal computer.) Or, for those applications where a single frequency is desired, the ST-3000 can be factory set for the specific frequency required for your mission/application. Both versions feature field adjustable Deviation Sensitivity.

The ST-3000'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 to ensure reliable operation under extreme mission conditions every time.

ELECTRICAL SPECIFICATIONS

Frequency Range E/S-Band 2200 to 2300 MHz
 E/S-Band 2300 to 2400 MHz
 Option 2200-2400 MHz
 Note: 0.5 MHz Step Size
 Standard; Others Optional

Date Rate Range 100 bps to 12 Mbps
***Higher data rates are available upon request**

Frequency Selection

Serial Loaded version: Via serial communications port
 RS232 standard,
 RS422 optional
 9600 Baud
 10 bits, no parity, 1 start, 1 stop
 "F" XXXX.XX

Parallel version: Via J1 programming pins connect
 to ground

Frequency Stability: $\pm 0.002\%$

Power Output: 10, 5, and 2 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: True FM
 Sense: Positive
 Input Impedance: 75 ohm nominal, with 30 pF shunt
 capacitance max. (10K ohm min,
 with 30 pF shunt capacitance
 available)

Frequency Response: 100 Hz to 6 MHz ± 1.5 dB

Deviation: 6 MHz peak

Deviation Sensitivity: Programmable for Serial Loaded
 version – or it can be factory preset
 at 500KHz/VRMS for Telemetry; 6
 MHz/VRMS for Video; or other
 settings as specified by the
 Customer

Deviation Linearity: 2.0% at ± 6 MHz deviation

Input Power

Voltage: 28 \pm 6 Vdc
 Current: 10 watt 1.8 A max at 28V
 5 watt 1.3 A max at 28V
 2 watt 0.8 A max at 28V

Reverse Polarity
 Protection: Yes, 40V, 180 seconds
 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°C
 (-40°C to +85°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 1.13"
 Excluding connectors*

Weight: 8 ounces max

Volume: 6.78 cu. inches

Mounting: 6-32 screws, 4 corners

Connectors & Pin Functions

(Standard; other types are available, consult factory.)

PIN CONNECTIONS		
PIN	Serial Loaded Version	Other Versions
1	NC	Freq. Selection
2	NC	Freq. Selection
3	NC	Freq. Selection
4	NC	Freq. Selection
5	NC	Freq. Selection
6	NC	Freq. Selection
7	NC	Freq. Selection
8	NC	Freq. Selection
9	RX	PWR RTN
10	TX	SPARE
11	+28V	SPARE
12	On/Off Control	On/Off Control (TTL)
13	+28V	+28V
14	PWR RTN	PWR RTN
15	PWR RTN	PWR RTN

Connectors	Serial Loaded Version	Other Versions
J1 – PWR	MDM15	MDM15
J2 – RF Out	SMA	SMA
J3 – MOD In	SSMA	SMA

PROGRAMMING FEATURES

- Center Frequency
- Deviation Sensitivity
- Normal, reduced, or off RF power modes

Built-In-Status Features Include -

- Temperature ($\pm 3^\circ$ C)
- Forward Power Monitor (± 0.5 db)
- Power control
 - Normal (10, 5, or 2 watts minimum)
 - Reduced (-3 db)
 - RF Off (PLL locked, no RF)
 - Asleep (microcontroller only)

OPTIONS

- Input Impedance
- Extended Operating Range (-40° C to +85° C)
- Modulation Input on Power Connector
- Other DC and RF Connectors are available
- Extended Frequency Response
- Pre-emphasis for Video Transmission
- Full 200 MHz Bandwidth at S Band
- Incremental Frequency step sizes down to 50 KHz per step
- RS422 Input with Pre-Modulation Filter

QUALITY CONTROL and PRODUCT ASSURANCE

The ST-3000 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 ISO 9001: 2000 through KEMA-Registered Quality Inc.

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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