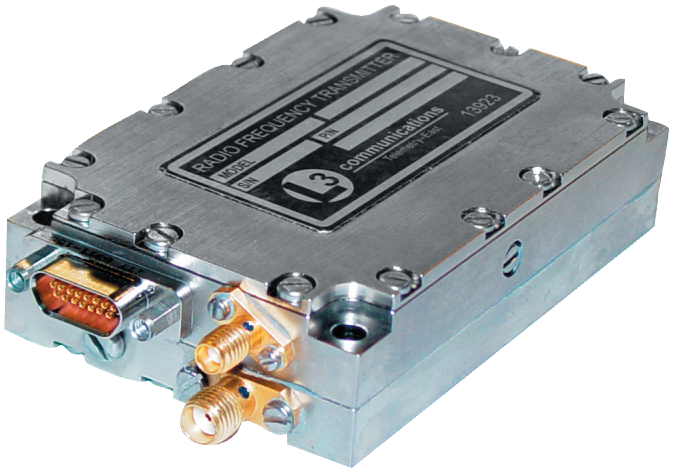
Product Bulletin

ST-2005S

Telemetry Transmitter

Airborne Telemetry Products



FEATURES

- High Efficiency
- Full S Band coverage (2200 to 2400 MHz) available
- Three versions available
  1. Programmable center frequency and deviation sensitivity via serial communications port (RS232 or RS422). Non-volatile memory retains settings when power is off
  2. Programmable center frequency via parallel programming plug, adjustable deviation sensitivity via potentiometer
  3. Factory set center frequency, adjustable deviation sensitivity via potentiometer
- Wide modulation bandwidth capabilities
- Meets latest IRIG-106 requirements
- Remote power on/off control
- Built-In-Test capability (serial loaded version)
  - *Temperature*
  - *Forward power monitor*
  - *Power control*
    - Normal (full power) [5 watts minimum]
    - Reduced (low power) [–3 db]
    - RF (off) [PLL locked, no RF]
    - Asleep (microcontroller only is on)

DESCRIPTION

The ST-2005S Telemetry Transmitter is designed for operation in aerospace environments where size, weight and power efficiencies are critical. The ST-2005S is built upon the legacy of the extremely successful ST-800 series of telemetry transmitters. This evolutionary version incorporating high efficiency and serial loaded programmability along with the heritage transmitter performance signifies the next generation in telemetry transmitters.

Three versions of the ST-2005S are available to suit every need. Center frequency and deviation sensitivity can be programmed in the serial loaded version via a serial communications port on a computer. The traditional version of programming the center frequency with a parallel programming plug is also available. For those applications where a single frequency is desired, the ST-2005S can be factory set for that single frequency. Both the traditional programming and single frequency versions feature field adjustable deviation sensitivity via a potentiometer.

The ST-2005S internal modules (modulator, series regulator, power amplifier, and filters) are housed in separate machined enclosures to maximize RF isolation and provide a rigid structure. All units are subjected to rigorous environmental testing to ensure reliable operation under worst case conditions.

L3 communications

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

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: ±0.002%

Power Output: 5 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: 10 Hz to 6 MHz ±1.5 dB

Deviation: 6 MHz peak

Deviation Sensitivity: Programmable for the serial loaded version.
For other versions: Can be factory preset at 500KHz/VRMS for telemetry; 6 MHz/VRMS for video; or specified by customer. *(Adjustable via potentiometer for the other versions).*

Deviation Linearity: 2.0% at ±6 MHz deviation

Input Power

Voltage: 28 ±6 Vdc

Current: 1.0 A max (Standard)

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 0.80"
excluding connectors*

Weight: 6.5 ounces maximum

Volume: 4.8 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

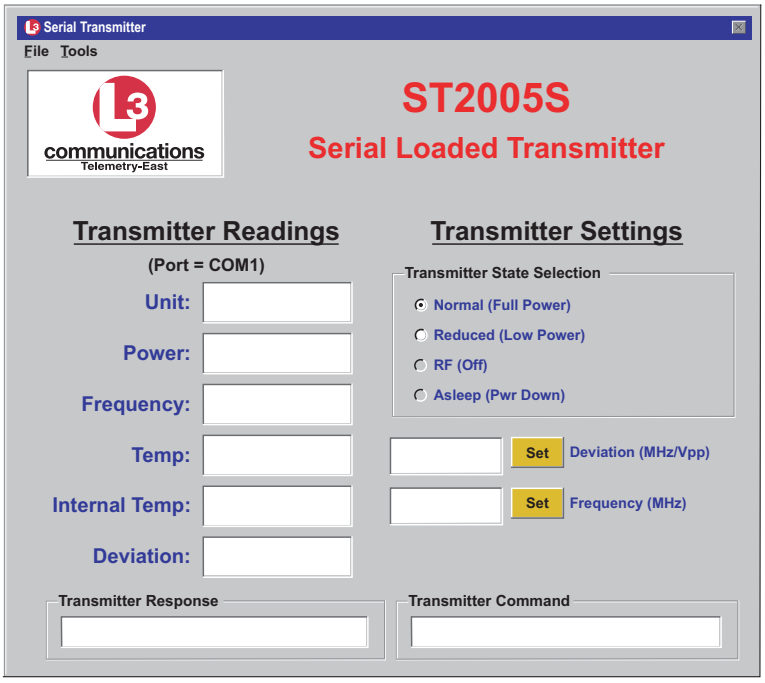
- Center Frequency
- Deviation Sensitivity
- Normal, reduced, or off RF power modes

Built-in-test features

- Temperature (±3° C)
- Forward power monitor (±0.5 db)
- Power control
  - *Normal (5 watts minimum)*
  - *Reduced (-3 db)*
  - *RF Off (PLL locked, no RF)*
  - *Asleep (microcontroller only)*

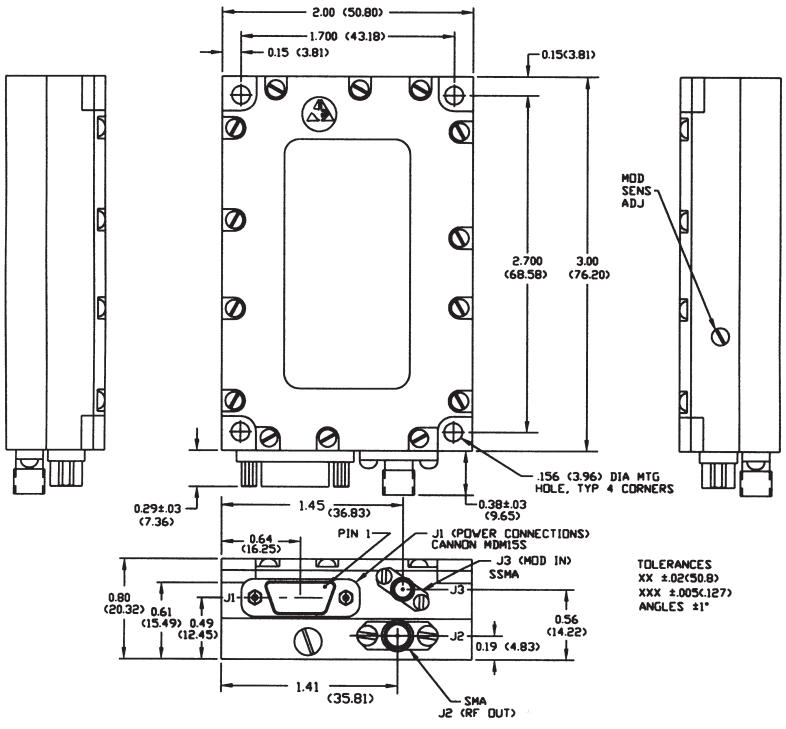
ST-2005S Serial Loaded Version – Software and Built-in-Test

The ST-2005S serial loaded version is supplied with the software to enable the unit to be programmed via a serial communications port on a computer. In addition to programming the transmitter, the software provides a display of the built-in-test features of the transmitter. Below is the computer screen displaying the programming and testing parameters:



Note: The transmitter can also be programmed using Microsoft Hyperterminal.

ST-2005S Outline Drawing



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-2005S 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 acceptance test procedure which includes full performance testing at thermal extremes. L-3 Communications Telemetry-East quality system is ISO 9001:2000 approved by KEMA-Registered Quality Inc.

ORDERING INFORMATION

When ordering, please specify the ST-2005S with the desired center frequency programming version, i.e., serial loaded, parallel via programming plug, or single fixed frequency. Also specify the input impedance and any other options. For additional information or special applications, please contact the L-3 Communications Telemetry-East Business Development department or the Telemetry-East sales representative in your area.

L3 communications

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Printed in USA
QN-0202.indd/June 2003