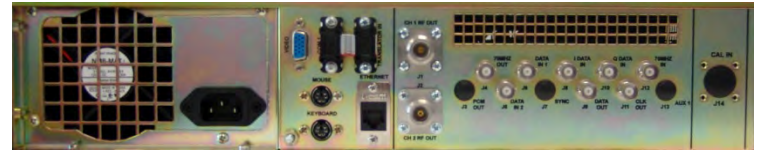




TSS200A Telemetry Signal Simulator



Features

- +5 to -100 dBm RF Output (+20 and +37 dBm options)
- 2185 to 2485 MHz
- 200 to 1150, 1415-1585, 1650-1850, 2185-2485 & 4400 to 5250 MHz options
- Embedded Bit Sync/BERT
- PCM/FM
- PM/PSK, SOQPSK, Multi-h CPM & NTSC/PALS option
- Optional FM + up to 2 FM Subcarriers
- Combiner Dynamic Test option
- External I/Q Modulation Feature
- External Binary File Modulation
- Embedded RF Power Meter Calibration Option



Local/Remote GUI and Touch Screen Controls

DESCRIPTION - SEMCO's TSS200A is the ideal instrument for telemetry receiver bench testing and pre-mission receiving system checkout. The TSS200A's calibrated RF output is modulated with an internal user-selectable modulator in all IRIG-specified modulation formats. In addition, the TSS200A can be externally modulated with I and Q signals, as well as with a binary file.

Two calibrated RF outputs are available with its optional Combiner dynamic test feature, providing the ability to test a combiner's performance under user-selectable fade, fade rate and phase shift scenarios.

Bit Error Rate tests are performed using the embedded Bit Sync/BERT feature, and complete system loop testing is accomplished via an RF bore-sight antenna and the TSS200A high power output options. Automated AGC "Step Cals" and the ability to graph and print Eb/No plots enhance the effectiveness of the TSS200A as a TM ground station test instrument. The TSS200A has proven to be a very cost effective alternative to costly instrumentation suites traditionally used for pre-mission calibration and checkout.

STANDARD CONFIGURATION

- +5 to -100 dBm calibrated RF Output
- 2185 to 2485 MHz Frequency Band
- Embedded PC and Ethernet Control
- PCM/FM Modulation
- External Analog & TTL I/Q and Binary File Modulation
- Embedded Bit Sync/BERT
- Automated AGC "Step Cals" and Eb/No Graphical Display/Printouts

OPTIONS

- 1415-1585 MHz, 1650-1850 MHz and 2185-2485 MHz
- PCM/FM, PM/PSK, SOQPSK, CPM, FM/FM Subcarrier & NTSC/PALS Modulation
- 200-1150 MHz RF Tuning
- 4400-5250 MHz RF Tuning
- Combiner Dynamic Test Feature with Dual RF Outputs
- Embedded RF Power Sensor Calibration Feature

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TSS200A SPECIFICATIONS

PERFORMANCE

Frequency Bands (MHz)	2185 to 2485 MHz Options 200-1150 MHz 1415-1585, 1650-1850 and 2185-2485 MHz 4400-5250 MHz
Frequency Resolution	100 kHz steps
RF Output Level	+5 dBm to -100 dBm in user-selectable 0.1, 1, 5 or 10 dBm steps; +20 & +37 dBm high power options available as additional 2U rack-mount amplifier; Calibrated RF Power Sensor Option
“Step-Cal” Feature	User-selectable Frequency steps and Output Level steps; automated run mode
Modulation Formats	PCM/FM Options PM, BPSK, QPSK, SOQPSK-TG and Multi-h CPM FM+ up to 2 FM Subcarriers NTSC/PALS
Modulation Data Rates	100 bps to 22 Mbps PCM/FM; 100 bps to 20 Mbps PM and BPSK; 100 bps to 40 Mbps QPSK; 100 Kbps to 40 Mbps SOQPSK-TG; 100 Kbps to 37 Mbps Multi-h CPM; FM/FM Subcarrier -100 Hz to 10 MHz FM Main Carrier with up to 2 FM Sub-carriers from 10 kHz to 5 MHz
External I/Q Modulation	Analog; TTL I & Q Inputs; DC-coupled
In-Band Spurious Emissions	> -50 dBm per IRIG 106-15
Out-of-Band Spurious Emissions	> -25 dBm per IRIG 106-15

COMBINER DYNAMIC TEST FEATURE

Calibrated RF Outputs	2
Fade Depth	1 to 30 dB in 1 dB steps
Fade Rate	1 Hz to 100 kHz in 1 Hz steps
Phase Shift	0 to 180 degrees in 1 degree steps
Fade Profile	Sinusoidal

BIT SYNCHRONIZER/BERT

PCM Codes (In/Out)	NRZ-L, M and S; Bi-Phase L, M and S, DM-M and S, MDM-M and S
Data Rates	100 bps to 22 Mbps PCM/FM; 100 bps to 20 Mbps PM and BPSK; 100 bps to 40 Mbps QPSK; 100 Kbps to 40 Mbps SOQPSK-TG; 100 Kbps to 37 Mbps Multi-h CPM; FM/FM Subcarrier -100 Hz to 10 MHz FM Main Carrier with up to 2 FM Sub-carriers from 10 kHz to 5 MHz
Descramble	Disabled, RNRZ15, RNRZ9, RNRZ11, RNRZ17, RNRZ23
Clock phase out	0, 90, 180 or 270°
BERT Transmitter Patterns	PN23 F, PN23 R, PN15 F, PN15 R, PN11 F (2047), PN11 R, PN9 F (511), PN9 R, PN7 F, PN7 R, PN6 F (63) and PN6 R
BERT Sample Period	10 ⁻³ to 10 ⁻⁹ or accumulating

OPERATING ENVIRONMENT

Operating Environment/Controls	SEMCO RCMS Network Software; Windows 7/10; External Display/KB/M; 4.3” Touch Screen
Display & Report Generation	Eb/No graphical displays and print-out capability

PHYSICAL AND ENVIRONMENTAL

Input Power and Frequency	90-264 VAC, 47-63 Hz; Auto-ranging
Dimensions and Weight	17” W x 3.5” H x 20” D (19” Rack Mount); <40 lbs. fully configured
Operating Temperature	0 to 50 degrees C
Storage Temperature	-20 to +70 degrees C storage
Humidity	Up to 95% non-condensing
Altitude	Up to 30,000’
EMI	Designed to meet MIL-STD-461

Specifications are subject to change without notice. Please verify the latest specifications at time of order

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