

## Hypermod™ TTSG1 Telemetry Test Signal Generator

The Hypermod Telemetry Test Signal Generator (TTSG) is capable of generating all three ARTM waveforms including the spectrally-efficient Tier II and Tier I modulation schemes. The TTSG is the latest edition to the Hypermod advanced flight telemetry system from Nova Engineering.

### Verify performance of legacy and advanced waveform systems

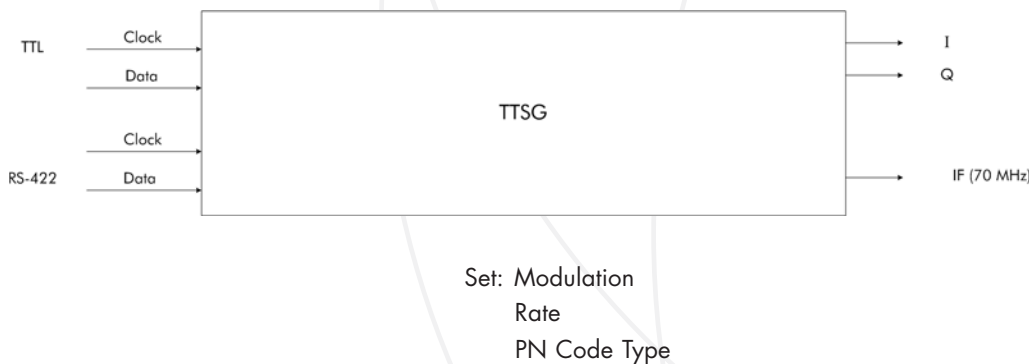
- ▼ Capable of generating all tiers of ARTM waveforms  
ARTM Tier II (Multi-h CPM), Tier I (SOQPSK), & Tier 0 (PCM/FM)
- ▼ Additional waveforms available: OQPSK, BPSK and QPSK
- ▼ Control and monitor via front panel or remote PC
- ▼ Data rates up to 24 Mbps
- ▼ Compact 1U chassis



The Hypermod Telemetry Test Signal Generator is distinctive in its ability to generate the spectrally efficient ARTM Tier I (SOQPSK) and ARTM Tier II (Multi-h CPM) waveforms, as well as the widely used ARTM Tier 0 (PCM/FM or CPFSK) waveform. With an internal pseudorandom number generator, data rate is user-selectable. Either a 70 MHz IF or I/Q output may be used with an external signal generator to derive transmit frequency.

### Applications

- ▼ Flight Test Telemetry Instrumentation Receiver Systems



## Features

Mode	Telemetry test signal generator
Waveforms	IRIG 106 waveforms: Multi-h CPM SOQPSK and PCM/FM (CPFSK), (OQPSK, QPSK and BPSK: optional)
Data sources	External user-supplied synchronous or asynchronous, or internally generated
Data rates	PCM/FM: 0.20 - 12 Mbps, SOQPSK: 1.0 - 24 Mbps (internal or external)
Internal data patterns	PN sequences, 1:1 to 2 <sup>23</sup> -1, user defined, selectable
Modulation selection	All off, carrier only, modulated carrier
Error correction encoding	Turbo Product Code - Forward Error Correction (FEC), user enabled, standard Block sizes [32/26]; [64/57]; and [128/120]
Memory	Nonvolatile memory retains last configuration and stored configurations
Programmable control	Remote via networked PC (web browser or Telnet) or front panel interface
Display	Backlit LCD for control and status
Modulation characteristics	Per IRIG 106, premodulation filtering, automatically scales
Modulation methods	I/Q outputs to compatible RF signal generator, IF output to upconverter
Randomizer	15-bit RCC IRIG standard, selectable
Baseband Interface	Differential, NRZ-L

## Signal/Connector

I/Q output	50 ohms, BNC, +/-1.0 v full scale output
IF output	70 MHz IF, 50 ohms, BNC, nominal -10 dBm , +3 dB, ±5 ppm
Clock data input	5V CMOS RS-422 differential, BNC (x2)
Ethernet	Configuration and signal monitoring, IEEE 802.3, 10/100 BaseT, RJ45
Serial port	RS-232

## Physical

Physical dimensions	1U high 19" rack mount
Mounting	Rack slides and brackets, 26" slides standard, 20" optional
Weight	12.2 lbs without slides
Temperature	Operating: 0° C to 50° C; Storage: -20° C to +85° C
Power	100-240 VAC, 50-60 Hz universal input (autoranging)

More information available.  
[www.nova-eng.com](http://www.nova-eng.com)  
[info.nova@L-3Com.com](mailto:info.nova@L-3Com.com)  
 1-513-642-3000



Copyright ©2007 L-3 Nova Engineering, Inc. Specifications subject to change.

*This material is in the public domain and may be reprinted without permission; citation of this source is appreciated. This brochure has been released into the public domain in accordance with International Traffic in Arms Regulations (ITAR) 22 CFR 120.11(a)(6).*

NL-HM036-070501