L3 communications
Nova Engineering

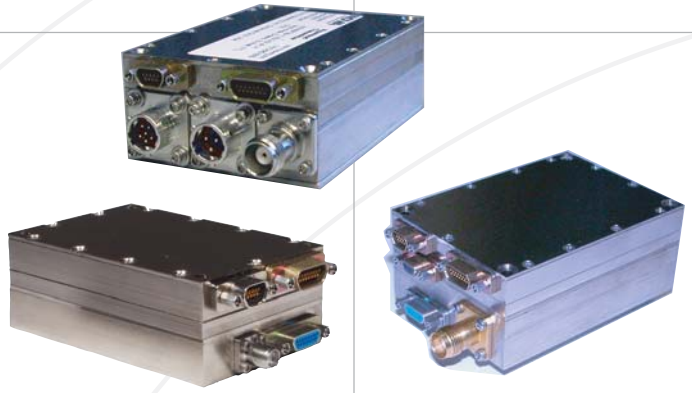
HYPERMOD
ADVANCED TELEMETRY SYSTEMS
Telemetry Systems

Hypermod™ MMT28 Transmitter Products

The Hypermod MMT28 multi-mode flight test telemetry transmitter product line takes full advantage of the latest IRIG 106 Tier I (SOQPSK) and ARTM Tier II (Multi-h CPM) waveforms, while providing compatibility with the widely used PCM/FM waveform and extending the range with Turbo Product Coding (TPC) Forward Error Correction (FEC). The ruggedized, compact design is ideal for missile, UAV or aircraft downlink telemetry.

More data - less bandwidth - longer range

- All Advanced Range Telemetry (ARTM) waveform tiers: Multi-h CPM, SOQPSK, & PCM/FM
- 3x data capacity versus legacy transmitters - up to 27.8 Mbps
- Digital architecture is inherently tolerant of vibration
- FEC encoder is standard for dramatically increased link margin
- No premodulation filter required



The Hypermod MMT28 multi-mode telemetry transmitter employs an original architecture based on high-speed Direct Digital Synthesis (DDS). This unique design provides superior resistance to vibration and is ideal for harsh flight test environments.

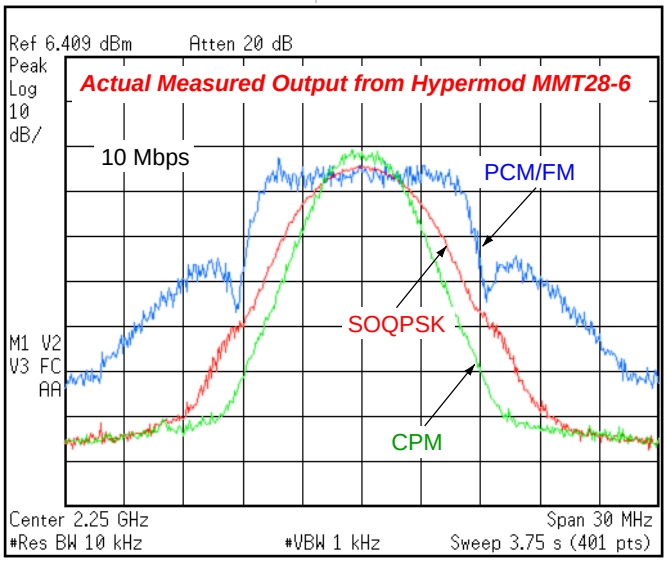
Hypermod transmitters utilize the latest Advanced Range Telemetry (ARTM) digital modulations to enhance bandwidth efficiency. These non-proprietary constant envelope waveforms, Shaped Offset Quadrature Phase-Shift Keying (SOQPSK) and multi-h Continuous Phase Modulation (CPM), provide 2 to 3 times the spectral efficiency of PCM/FM. Hypermod MMT28 is frequency agile and transmits up to 27.8 Mbps.

To greatly extend communications range, the Hypermod Transmitters employ Turbo Product Coding (TPC) Forward Error Correction (FEC) encoding which adds 4-8 dB of link margin. FEC decoding is available in the Hypermod demodulators.

Hypermod transmitters and demodulators make the future of airborne telemetry systems available today.

Applications

- Missile, UAV and Aircraft Flight Test Instrumentation



Multimode Transmitter Waveforms

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Model	Configurations
HM-MMT28-6	6 cu. in. (2.0″ x 3.0″ x 0.98″) Height and volume is maximum 10 watt S-band 5 watt S-band Low power S-band Low current versions available
HM-MMT28-13	13 cu. in. (2.5″ x 3.5″ x 1.45″) Height and volume is maximum 20 watt/1 watt switchable Upper S-band 20 watt Lower S-band Low power Upper L-band Lower L-band
HM-MMT28-14	14 cu. in. (2.5″ x 3.5″ x 1.62″) Height and volume is maximum 10 watt S-band 10 watt Upper L-band 10 watt Lower L-band Low power

All models include:

Waveforms	PCM/FM: per IRIG 106 spectral mask SOQPSK-TG: per IRIG 106spectral mask (Tier 1) - (twice the spectral efficiency of PCM/FM) Multi-h CPM: per ARTM spectral mask (Tier 2) - (three times the spectral efficiency of PCM/FM)
FEC Encoder	Adds 4-8 dB of link margin with Hypermod demodulator. Turbo Product Coding block size [32, 26]; and [64, 57]
Baseband input	Single-ended TTL or Differential RS-422
Control input	Serial port (RS-232 compatible)

More information available.
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