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MOD1250 Wideband Modulator

The MOD1250 is 500Msps DVB-S2X high performance Modulator designed for High Throughput Satellites (HTS) VSAT networks and Broadcast applications

Overview

Based on a "Software Defined Radio" architecture, the MOD1250 is SpaceBridge's DVB-S2X Wideband Modulator, designed to support high symbol data transmissions over High Throughput Satellites from a central Hub towards a group of remote terminals.

MOD1250 Modulator is a very powerful system that allows the most efficient use of the satellite segment by combining the full implementation of the MODCODs stated as part of the DVB-S2X standards and the use of a roll-of factor as small as 5% .

It also supports Time Slice Numbering (TSN) what reduces considerably the data processing time at the user terminal by exposing the decoder only to data that is destined to it.

Furthermore, MOD1250 also supports Direct Sequence Spread Spectrum (DSSS) on the Forward Link and NCR/PCR time stamping for synchronous VSAT Network operation

Features

- Symbol rate from 500 Ksps to 500 Msps
- Software Defined Radio architecture
- All MODCOD as per EN 302307-02
- GSE or MPE Encapsulation (188, 189 or 204 bytes)
- Pay-As-You-Grow (PAYG) licensing
- BB Frames: Normal and Short
- Built-in 1:1 Redundancy
- NCR/PCR time stamping
- High Output Power up to +5 dBm

Optional Features

- Time-Slicing: Abides to Annex M, support 32 simultaneous PLS's per discrete modulated carrier
- Carrier ID (CID) support
- Very Low SNR (VLSNR) MODCODs
- Direct Sequence Spread Spectrum (DSSS) Multiple inputs for redundancy
- Support BISS2 (mode 0, 1 and E)
- 128 and 256AES Encryption

spacebridge.com | info@spacebridge.com | +1.514.420.0045

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Specifications

Unit Characteristics

Form Factor	19" Rack mountable
Application	High-Speed Satellite Modulator

Forward Link (Transmission)

Technology	DVB-S2X TDM Forward Link
Modulation	DVB-S2X ACM, QPSK up to 256APSK
FEC	Inner LDPC, outer BCH
Coding Rates	per EN 302307-02
Frame Length	Normal 64800 bits and short 16200 bits
ACM	Up to 32 simultaneous MODCODs
Symbol Rate	500 ksps to 500 Msps
Encapsulation (188, 189 or 204 bytes)	GSE or MPE (188, 189 or 204 bytes)
Time Slicing	Up to 32 TSNs, Annex M
Channel Spacing	5%, 10%, 20%, 25%, 30% or 35% channel spacing (roll-off factor)
Carrier ID	Per DVB-CID specifications

RF Performance

Frequency Range	950 –2150 MHz, 1 Hz step
Output Level	-40 dBm to +5 dBm
Phase Noise, dBc/Hz	10 Hz -82 100 Hz -97 1 kHz -102 10 kHz -105 100 kHz -115
Return Loss	> 15dB
Output Connector	N-type(F)
Output Impedance	50 Ohms
In-band Signal Related Spurious	<-65 dBc,
Non-Signal Related	<-80 dBc
Harmonics	<-40 dBc
L-band Monitor	SMA (F), 50 Ohm, same spectrum as at Output, -20dB down

Networking

Data throughput	3 Gbps
Data Input Ports	2 x 10 GbE Ethernet Port
Management Interface	2 x 1 GbE Ethernet Port
Timing and Frequency	1 PPS and 10 MHz reference
Connectors	BNC inputs

Synchronization Reference

10 MHz Ref Clock	BNC: -5 to +15 dBm (50 Ohm) sinus reference input
1 PPS Input	BNC: 1PPS input TTL/50 Ohm
GPS-NTP/PTP-Sync	Provides NTP server function, or IEEE1588-2019 and SyncE
Operating Temp.	0°C – 55°C

Environmental and Mechanical

Dimensions	435 x 44 (1RU) x 458 mm (W x H x D)
Weight	~ 4Kg
Power Consumption	60W
Operating Temp.	0°C – 55°C