DualVyper

DVB-S/S2/S2X Modulator

High performance and cost-effective DVB-S/DSNG/S2/S2X modulator.

DualVyper is a state-of-the-art satellite modulator designed for applications over satellite in full compliance with the DVB-S, DVB-DSNG, DVB-S2 and DVB-S2X standards. One single hardware platform covers the full L-Band range (950/2150 MHz) and IF Band range (50/180 MHz) with a Symbol Rate from 0.05 to 80 MBaud. It is also able to drive a Block Up Converter (BUC) thanks to its high stability10Mhz reference available on the L-Band RF output signal.

Dense All-In-One platform

DualVyper in one single 1U chassis integrates two independent modulators with both the full L-Band range (950/2150 MHz) and IF Band range (50/180 MHz) and flexible inputs with 2 Ethernets ports and 2 ASI inputs. It is also able to drive a Block Up Converter (BUC) thanks to its high stability 10Mhz reference available on the L-Band RF output.

DVB-S, DVB-S2 & S2X modulation

DualVyper integrates the lastest FPGA technology required to perform high quality modulation based on the DVB-S, DVB-S2 and DVB-S2X standards with a roll off from 5% to 35% whatever the standards.

Crystal Spectrum

Each modulator covers the full L-Band spectrum range (950/2150 MHz) with a Symbol Rate from 0.05 to 80 MBaud and roll off factor from 5 to 35% (1% steps). Each RF output constitutes a best in class performance, providing a high SNR value, excellent shoulder levels and lowest phase noise. Performances usefull for a best QoS.

Broadcast flexibility

DualVyper can be either as DTH and DSNG and Radio and as well as any kind of satellite bradcast transmission. DualVyper is compliant for 99.9% of the broadcast use cases.

Applications

- Satellite contribution
- DSNG applications
- Satellite distribution
- Direct To Home (DTH) applications

Benefits

- 2 independent modulators
- Top class of RF signal performances for a better QoS
- Inputs redundancy between ASI & TSoIP
- 1+1 management

DualVyper

SATELLITE MARKET

INPUT

Per modulator:

1x Gigabit Ethernet control ports

1x Gigabit Ethernet data ports
• MPEG-TS (RTP/UDP - SMPTE-2022) over 2 dedicated RJ45 ports

2 x ASI MPEG-2 TS inputs
• MPEG-TS (188/204 bytes) over ASI (x4) - BNC connectors, 75 Ω

OUTPUT

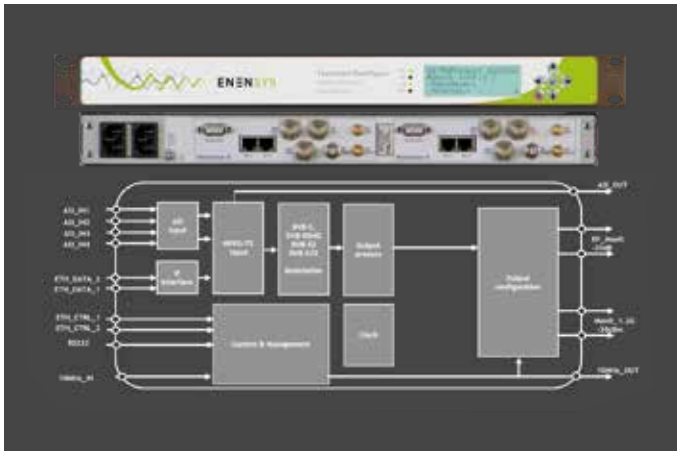
Per modulator:

RF output (Main/Monitoring):
• L-Band output, connector N 50 Ω :
  - 950 MHz to 2150 MHz, 1 Hz steps
  - Power level: -35dBm to +7dBm, 0.1 dB steps
• IF-Band, connector BNC 75 Ω :
  - 50 MHz to 180 MHz, 1 Hz steps
  - Power level: -35dBm to +5dBm, 0.1 dB steps

• Phase noise	@10Hz	@100Hz	@1kHz	@10kHz	@100kHz
L-Band	-80 dBc/Hz	-91 dBc/Hz	-106 dBc/Hz	-108 dBc/Hz	-106 dBc/Hz
IF Band	-90 dBc/Hz	-113 dBc/Hz	-127 dBc/Hz	-129 dBc/Hz	-126 dBc/Hz

• SNR > 40 dB @ 0 dBm -16 APSK - 30 Mbaud
• Shoulders rejection < -50dB @ 0dBm & f/fN=1.5 for roll off 20%
• Spurious: (-60 dBc outside the useful band)
  < -65 dBc @ 0 dBm for 50 to 180 & 950 to 2150 MHz
• Noise Power Spectral Density: <-120 dBm/Hz
• **Switchable 10MHz insertion** on L-Band RF output:
  • @1Hz < -85 dBc/Hz
  • @10Hz < -105 dBc/Hz
  • @10kHz < -150 dBc/Hz

RS232 control



PHYSICAL

Dimensions	(D x W x H) 350 x 483 x 44 mm
Weight	6 Kg
Operating temperature range	0°C to 50°C
Power supply	90 to 240 VAC - 50 Hz

FEATURING

Standards

DVB-S: EN 300 421

DVB-S2/S2X: EN 302 307 part I & II / **DVB-S2**: EN 302 307 part I

Carrier ID: ETSI 103 129

MPEG-TS: ISO/IEC 13818-1

DVB MPEG-TS over ASI: EN50083-9, ETSI TR 101 891

DVB MPEG-TS over IP: ETSI TR 102 034

MPEG-2 PSI Tables (PAT and PMT): EN 300 468

Clock & Synchronization

Internal 10 MHz Reference Frequency
• High stability: ±5.10-9 over 0 to 70° C
• Ageing: ±0.5.10-9/day and ±7.5.10-8/year

External 10 MHz input for external clock synchronization

Modulation

Symbol rate: 0.05 to 80 Mbaud (1 Baud steps)

Standard roll-off and custom roll-off from 5 to 35 % (1% steps)

DVB-S / DSNG	• Outer/Inner FEC: Reed Solomon/Viterbi • QPSK: 1/2, 2/3, 3/4, 5/6, 7/8 • 8PSK: 2/3, 5/6, 8/9 • 16QAM: 3/4, 7/8
DVB-S2	• Outer/Inner FEC: BCH/LDPC • QPSK: 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 • 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 • 16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 • 32APSK: 3/4, 4/5, 5/6, 8/9, 9/10 • PL Scrambling codes [0, 264143] • Operating modes: CCM, VCM, ACM • Frame length: Short & Normal frames • Pilots insertion
DVB-S2X Broadcast & DSNG profiles	• Same features as defined for DVB-S2 • All new MODCODs for QPSK/8PSK/16APSK/32APSK • 5 MODCODs for new 256APSK constellation

Enhanced Satellite Precorrection (E.S.P)

Static Non Linear precorrection

Static Linear precorrection

Note: Automated E.S.P possible with RX characterisation transponder

Control & Monitoring

Per modulator:

RS232 control port with SCPI protocol

1 dedicated Ethernet port for
• SNMP (V2C) over Ethernet
• HTTP over Ethernet (Embedded web client)

Front panel keyboard & display

Redundancy

1+1 redundancy RF signal with sensing method

ORDERING CODES

DualVyper — **DVB-S/S2/S2X Modulator**

Hardware	XSSR-VYP0-2522	DVB-S/DSNG/S2 DUAL Satellite Modulator - 50/180 & 950/2150 MHz Out, +7/-35 dBm - 1U Rack
Software Options	XSSO-VYP2-S2XR	DVB-S2X standard - Broadcast & DSNG profiles
	XSSO-VYP2-BISE	BISS-0/1/E Encryption license
	XSSO-VYP2-ESP0	Enhanced Satellite Precorrection Linear & Non-linear

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RoHS