TeamCast **Vyper**

DVB-S/S2/S2X Modulator

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

TeamCast Vyper 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 stability 10 Mhz reference available on the L-Band RF output signal and a DC (24VDC or 48VDC) component (see ordering information).

All-In-One platform

One single hardware platform integrates both the full L-Band range (950/2150 MHz) and IF Band range (50/180 MHz) and flexible inputs with 4 Ethernets ports and 4 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

TeamCast Vyper 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

TeamCast Vyper 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). This 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

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

Applications

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

Benefits

- Top class of RF signal performances for a better QoS
- 2 IP ports & 4 ASI for data for flexile integrations
- Inputs redundancy between ASI & TSoIP
- 1+1 & N+1 management

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SATELLITE MARKET

INPUT

2x Gigabit Ethernet control ports

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

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

10 MHz input

OUTPUT

1 MPEG-TS (188/204 bytes) over ASI (x1) - BNC connectors, 75 Ω

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

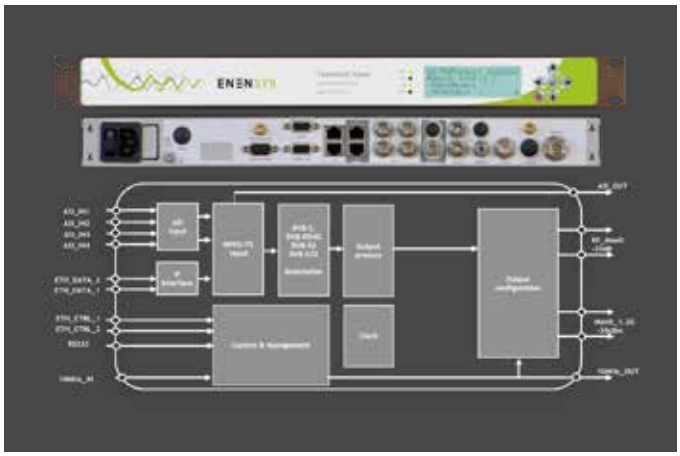
• Phase noise	@10Hz	@100Hz	@1kHz	@10kHz	@100kHz
L-Band	-80 dBc/Hz	-91 dBc/Hz	-106 dBc/Hz	-108 dBc/Hz	-106 dBc/Hz
IF Band	-90 dBc/Hz	-113 dBc/Hz	-127 dBc/Hz	-129 dBc/Hz	-126 dBc/Hz

• 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

10 MHz output

RS232 control

Dry contact I/O (GPIO) for
  1) 1+1 redundancy
  2) N+1 redundancy



PHYSICAL

Dimensions	(D x W x H) 350 x 483 x 44 mm
Weight	4.9 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

RS232 control port with SCPI protocol

2 dedicated Ethernet ports for
• SNMP (V2C) over Ethernet
• HTTP over Ethernet (Embedded web client)

Front panel keyboard & display

Redundancy

1+1/N+1 redundancy Ethernet ports (x2) for Control

1+1/N+1 redundancy Ethernet ports (x2) for Data

1+1 redundancy RF signal with Alarm relays
• connector 9-pin sub-D (F)
• Dry contact management

ORDERING CODES

TeamCast Vyper — DVB-S/S2/S2X Modulator

Hardware	XSSR-VYP0-3000	S/S2/S2X Satellite modulator - IF and RF output -+7/-35dBm - 4 Eth ports - 1U Rack
	XSSR-VYP0-3001	S/S2/S2X Satellite modulator - 2 PSU - IF and RF output -+7/-35dBm - 4 Eth ports - 1U Rack
	XSSR-VYP0-3010	S/S2/S2X Satellite modulator - BUC 24VDC - IF and RF output -+7/-35dBm - 4 Eth ports - 1U Rack
	XSSR-VYP0-3020	S/S2/S2X Satellite modulator - BUC 48VDC - IF and RF output -+7/-35dBm - 4 Eth ports - 1U Rack
Software Options	XSSO-VYP0-S2XR	DVB-S2X standard - Broadcast & DSNG profiles
	XSSO-VYP0-BISE	BISS-0/1/E Encryption license
	XSSO-VYP0-ESP0	Enhanced Satellite Precorrection Linear & Non-linear

ENENSYS Technologies

ENENSYS Technologies | 4A rue des Buttes
CS 37734 | 35577 CESSON-SÉVIGNÉ | FRANCE
Tel: +33 (0)1 70 61 76 30 | Fax: +33 (0)2 99 36 03 84

RoHS