

TeamCast Vyper

DVB-S/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 Ethernet 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 latest 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 useful 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 broadcast transmissions. TeamCast Vyper is compliant for 99.9% of the broadcast use cases.

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

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 flexible integrations
- BISS1 & BISS2 Scrambling
- Inputs redundancy between ASI & TSolP
- 1+1 & N+1 management

INPUT

- 2x Gigabit Ethernet data ports
- MPEG-TS (RTP/UDP - SMPTE-2022)
- 4 x ASI inputs - BNC connectors, 75 Ω
- MPEG-TS (188/204 bytes)

OUTPUT

- 1 x ASI output - BNC connector, 75 Ω
- MPEG-TS (188/204 bytes)

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

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



ORDERING CODES

TeamCast Vyper		DVB-S/S2/S2X Modulator
Hardware	XSSR-VYPO-3001	S/S2/S2X Satellite modulator - 2 PSU - IF and RF output +-7/-35dBm - 4 Eth ports - QPSK/64APSK - 80 MBauds - 1U Rack
	XSSR-VYPO-3010	S/S2/S2X Satellite modulator - BUC 24VDC - IF and RF output +-7/-35dBm - 4 Eth ports - QPSK/64APSK - 80 MBauds - 1U Rack
	XSSR-VYPO-3020	S/S2/S2X Satellite modulator - BUC 48VDC - IF and RF output +-7/-35dBm - 4 Eth ports - QPSK/64APSK - 80 MBauds - 1U Rack
Software Options	XSSO-VYPO-S2XH	DVB-S2X standard - High efficiency constellations - Up to 256 APSK
	XSSO-VYPO-LSNR	DVB-S2X - Very Low SNR Modes - BPSK/QPSK, Short/Normal/Medium
	XSSO-VYPO-BISE	BISS1-0/1/E Scrambling license
	XSSO-VYPO-BISA	BISS2-0/1/E/CA Scrambling license
	XSSO-VYPO-ESPO	Enhanced Satellite Precorrection Linear & Non-linear

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 ±7.5.10⁻⁹/year
- External 10 MHz input for external clock synchronization
- Internal 10MHz output

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 / DSNB
 - 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
 - Same features as defined for DVB-S2
 - All new MODCODs for QPSK/8PSK/16APSK/32APSK
 - 5 MODCODs for new 256APSK constellation

Scrambling

- BISS1 Scrambling: mode 0, mode 1, mode E
- BISS2 Scrambling: mode 0, mode 1, mode E, mode CA

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