

High performance and very effective DVB-S/DSNG/S2/S2X modulator for:

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



Key features :

- DVB-S/DSNG/S2/S2X standards
- L-Band and IF Band
- Symbol rate from 0.1 to 68 Mbauds (1 baud step)
- Low roll-off (5 to 35%, 1% step) for DVB-S/S2/S2X
- Carrier ID compliant (ETSI 103 129)
- ASI/IP inputs
- BISS 0/1/E encryption
- Multistream according to EN 302 307 standard
- Up to 64 embedded profiles
- Ultrafast equipment boot
- Low power consumption

Description

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 (Broadcast and DSNG profiles) standards. Vyper modulator covers the full L-Band range (950/2150 MHz) or IF Band range (50/180 MHz) and offers bit rate from 0.25 Mbps up to **200 Mbps**. Vyper has the capability to drive a Block Up Converter (BUC) via High Stability 10MHz reference and/or a DC Voltage power supply available on the L-Band RF output signal. Vyper is compliant with latest **Carrier ID** requirements defined in ETSI 103 129. Vyper offers a Push Data Service (DualCast), free of charge based on MPE. Vyper introduces an ACM Contribution (Contribution) feature that adapts the modulator MODCOD without any video interruption. So ACM will allow the video transmission to continue under deteriorating satellite link conditions. Vyper allows the aggregation of 2 transport streams into one satellite carrier via the Multi-stream feature (as per DVB-S2 standard) whilst maintaining the integrity of the original content. Vyper offers a possible upgrade (via an option) to **DVB-S2X** Broadcast and DSNG profiles. That means Vyper supports all new MODCOD (linear MODCOD), the 64 APSK constellation and already the new roll off (from 5% to 15% by step of 1%).

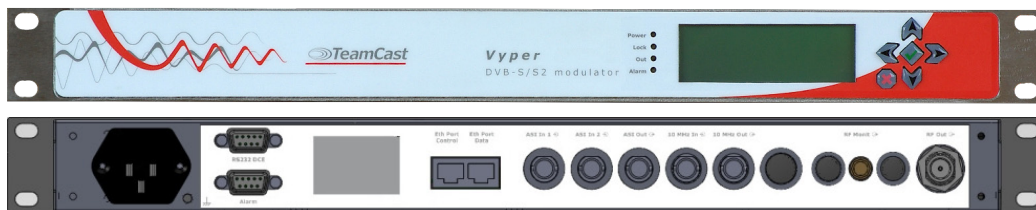
Performance & Reliability

Vyper has been designed to meet all ETSI EN 302 307 requirements. All modes of bit rate adaption are possible: PCR adaptation, Padding insertion and Dummy BBFrame insertion - resulting in Vyper's unique automatic flexible rate adaptation. Vyper offers a flexible baudrate (from 0.1 MBaud to 68 MBaud) to fully feed a 72 MHz transponder. An internal PRBS generator can be used to generate a RF spectrum without any valid signal input. Vyper offers, without option, the possibility to receive the incoming MPEG-TS stream either over ASI or Ethernet inputs.

Vyper integrates the core technology required to perform high quality modulation based on TEAMCAST expertise. It provides customers with a best in class performance, providing a high SNR value, excellent shoulder levels and lowest phase noise. Vyper provides a high performance channel spectrum and in addition to the standard, roll off from **5 to 35% by step of 1% for the all modulation: DVB-S/DVB-DSNG/DVB-S2 and of course for DVB-S2X**. This results gives an efficient transmission in 32APSK (DVB-S2/S2X) and 64APSK (DVB-S2X) with lower power.

The user-friendly Embedded Web Browser ensures ease of use and enables full configuration of the modulator, including signal input management, selection of DVB-S, DVB-DSNG and DVB-S2, modulation type (MODCOD) and control of the mute/unmute conditions for the RF output signal. The GUI also offers monitoring of the input stream (i.e. input format & useful bit rate).

Vyper DVB-S, DVB-DSNG, DVB-S2 & DVB-S2X



Specifications¹

■ Standards

- o Carrier ID: ETSI 103 129
- o DVB-S2: EN 302 307
- o DVB-S: EN 300 421
- o DVB-DSNG: EN 301 210
- o MPEG-TS: ISO/IEC 13818-1
- o DVB MPEG-TS over ASI: EN50083-9, ETSI TR 101 891
- o DVB MPEG-TS over IP: ETSI TR 102 034
- o MPEG-2 PSI Tables (PAT and PMT): EN 300 468

■ Inputs

- o MPEG-TS (188/204 bytes) over ASI (x2) - BNC connectors, 75 Ω
- o MPEG-TS (RTP/UDP - SMPTE-2022) over IP (x1) - RJ45
- o Flexible bit rate adaptation
 - PCR adaptation/Padding/Dummy frame
- o Encryption 0.25 to 200 Mbps
 - BISS (single/multiple programs): mode 0,1, E

■ RF Outputs

- o L-Band: 950 MHz to 2150 MHz, step 1 Hz
- o IF-Band: 50 MHz to 180 MHz, step 1 Hz
- o SNR > 40 dB @ 0 dBm -16 APSK - 30 Mbaud
- o Shoulders rejection < -50dB @ 0dBm & f/fN=1.5 for roll off 20%
- o Spurious: < -65 dBc @ 0 dBm for 50 to 180 or 950 to 2150 MHz
 - 60 dBc outside the useful band
- o Main RF output, type N, (L-Band: 50 Ω , IF-Band: 75 Ω)
 - XSSR-DTM2-15x1: +5 dBm to -30 dBm, step 0.1 dB
 - XSSR-DTM2-1502: +10 dBm to -40 dBm, step 0.1 dB
- o Monitoring RF output, type SMA, 50 Ω ,
 - XSSR-DTM2-15x1: -15 dBm to -50 dBm, step 0.1 dB
 - XSSR-DTM2-1502: -10 dBm to -60 dBm, step 0.1 dB

■ Distortion Correction

- o Cable Tilt Correction: ± 0.04 dB/MHz maximum

■ BUC Driver: DC & 10MHz in L-Band signal

- o DC power max. 50VA - 12/18/24VDC (software selection) - 48VDC
- o 10MHz: Very High Stability frequency
 - High Stability: ± 0.01 ppm over 0 to 70°C
 - Ageing: ± 15 ppb/day - ± 300 ppb/year

■ Clock & Synchronization

- o Standard Stability (XSSR-DTM2-15x1)
 - Stability: ± 2.5 ppm over 0 to 70°C
 - Ageing: ± 0.8 ppm/day - ± 10 ppm/year
- o External 10 MHz input for RF synchronization

■ DualCast

- o Opportunistic Push Data Service Insertion:
 - Upgrade of the PSI/SI tables
 - Browse file via GUI with size up to 100Mbytes (60s off line video file SD 4:2:0 around 5 Mbytes)

■ Modulation

- o 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
- o 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]
 - Supported DVB modes:
 - CCM: Constant Coding and Modulation,
 - VCM: Variable Coding and Modulation,
 - SeamlessACM: Adaptive Coding and Modulation
 - DVB-S2 Short (16 200) Normal (64 800) frames:
 - Pilots ON or OFF
 - Variable symbol from 0.1 to 68 Mbaud, step 1 Baud
- o DVB-S2X Broadcast & DSNG profiles
 - Same features as defined for DVB-S2
 - +
 - New constellation for DSNG profile: 64APSK
 - All new linear MODCOD for QPSK/8PSK/16A/32/64APSK

■ Control & Monitoring

- o RS232 control port with ASCII protocol (DTM2-15x1)
- o SNMP and Web Browser Control & Monitoring
- o Keyboard and display on the front panel
- o Alarm relays - connector 9-pin sub-D (F)
- o Dry contact management for 1+1 redundancy
- o 2 x 10/100/1000 base-T Ethernet ports:
 - 1 port for MPEG-TS over IP
 - 1 port for MPEG-TS over IP and Control

■ Physical

- o Power supply: 90 to 240 VAC - 50 Hz - 30W (with no BUC power)
- o Dimensions: 450 x 350 x 44 (LxHxH)
- o Weight: 4 kg
- o Temperature: 0°C to 50°C

Order Information

XSSR-DTM2-1502	DVB-S/DSNG/S2/S2X Modulator - L-band with BUC Driver - 1U Rack
XSSR-DTM2-1501	DVB-S/DSNG/S2/S2X Modulator - 950 MHz to 2150 MHz RF output - 1U Rack
XSSR-DTM2-1571	DVB-S/DSNG/S2/S2X Modulator - 50 MHz to 180 MHz RF output - 1U Rack
XSSO-DTM2-S2XD	DVB-S2X standard - Broadcast & DSNG profiles - Software upgrade



¹Specifications are not contractual and are subject to revision without notice.