

## OEM Satellite Modulator

### Description

VYP is a state-of-the-art satellite modulator OEM module 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) from 0.05 to 72 MBaud. 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 signal.

VYP offers a data rate from 0.25 Mbps up to **200 Mbps** and content aggregation of up to 4 MPEG-TS multiplex in one satellite carrier via the Multistream feature as defined in the DVB-S2/S2X standard. Our product is totally compliant with latest **Carrier ID** requirements defined in ETSI 103 129.

VYP offers some free of charge services as a Push Data Service (DualCast) based on MPE, an ACM Contribution (ContribACM) feature that adapts the modulator MODCOD without any video interruption to allow the video transmission to continue under deteriorating satellite link conditions.

VYP proposes a very flexible input redundancy between 4 TSoIP and/or 2 TSoASI. VYP includes the **DVB-S2X** Broadcast and DSNG profiles. It means that VYP supports all new MODCOD & the 64APSK constellation. The new roll off (from 5% to 15% by step of 1%) are available with any satellite standards.

### Performance & Reliability

VYP has been designed to meet all ETSI EN 302 307 requirements: part I for DVB-S2 and part II for DVB-S2X. All modes of bit rate adaption are possible: PCR adaptation, Padding Insertion and Dummy PL Frame insertion resulting in VYP's unique automatic flexible rate adaptation. VYP offers a flexible baudrate (from 0.05 to 72 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. VYP offers, without option, the possibility to receive the incoming MPEG-TS stream either over ASI or Ethernet inputs.

VYP 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. VYP 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.

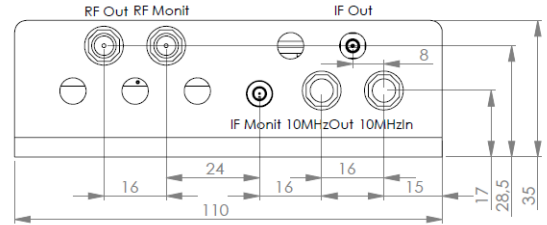
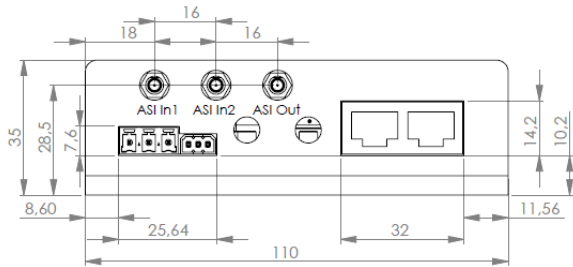
The user-friendly Embedded Web Browser ensures ease of use and enables full configuration of the modulator, including signal input management, selection of DVB-S, DVB-DSNG, DVB-S2 and DVB-S2X, modulation type (MODCOD) and control of the mute/unmute conditions for the RF output signal. The GUI also offers monitoring of the input stream (i.e. input format & useful bit rate).

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

### Key features :

- DVB-S/DSNG/S2/S2X standards
- L-Band and IF Band outputs
- Symbol rate from 0.05 to 72 Mbauds (1 baud steps)
- Data rate from 0.25 Mbps to 200 Mbps
- Roll-off from 5 to 35% (1% steps)
- Carrier ID compliant (ETSI 103 129)
- ASI/IP inputs
- Multistream according to EN 302 307 standard
- Up to 64 embedded profiles
- Remote control through Web Browser, SNMP and RS232
- Fast equipment boot
- Low power consumption

# VYP DVB-S, DVB-DSNG, DVB-S2 & DVB-S2X



## Specifications<sup>1</sup>

### ■ Standards

- o DVB-S: EN 300 421
- o DVB-DSNG: EN 301 210
- o DVB-S2: EN 302 307 part I
- o DVB-S2X: EN 302 307 part II
- o Carrier ID: ETSI 103 129
- 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 2 Ethernet ports RJ45
- o Multistream up to 4 ISI selected between:
  - 2 MPTS over ASI,
  - 4 MPTS over Ethernet.
- o Flexible bit rate adaptation:
  - PCR adaptation,
  - Padding insertion,
  - Dummy PL Frame.
- o BISS Encryption (single/multiple programs) mode 0,1, E

### ■ RF Outputs

- o L-Band output:
  - Connector SMA 50 Ω
  - 950 MHz to 2150 MHz, 1 Hz steps
  - Power level: -35dBm to +7dBm, 0.1 dB steps
- o IF-Band:
  - Connector SMB 75 Ω
  - 50 MHz to 180 MHz, 1 Hz steps
  - Power level: -35dBm to +5dBm, 0.1 dB steps
- 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 @ 0 dBm:
  - < -65 dBc from 50 to 180MHz or from 950 to 2150 MHz
  - -60 dBc outside the useful band
- o Noise Power Spectral Density: <-120 dBm/Hz
- o switchable 10MHz insertion on L-Band RF output:
  - power from -3 to +3 dBm (1dB steps)

### ■ Distortion Correction

- o Cable Tilt Correction: ±0.1 dB/MHz maximum

### ■ Clock & Synchronization

- o Internal 10 MHz Reference Frequency
  - High stability:  $\pm 5 \cdot 10^{-9}$  over 0 to 70° C
  - Ageing:  $\pm 5 \cdot 10^{-10}$ /day and  $\pm 7.5 \cdot 10^{-8}$ /year
- o External 10 MHz input for external clock synchronization

### ■ DualCast

- o Opportunistic Push Data Service Insertion

### ■ Modulation

- o Symbol rate: 0.05 to 72 Mbaud, 1 baud steps
- o Standard roll-off and custom roll-off from 5 to 35 % (1% steps)
- 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]
  - Operating modes:
    - » CCM: Constant Coding and Modulation,
    - » VCM: Variable Coding and Modulation,
    - » ACM: Adaptive Coding and Modulation (seamless)
  - Frame length: Short (16 200) & Normal (64 800)
  - Pilot insertion
- o DVB-S2X Broadcast & DSNG profiles
  - Same features as defined for DVB-S2
  - All new MODCODs for QPSK/8PSK/16APSK/32APSK
  - 5 MODCODs for new 64APSK constellation

### ■ Control & Monitoring

- o RS232 control port with SCPI protocol
- o SNMP over Ethernet
- o HTTP over Ethernet (web browser)

### ■ Physical

- o Power supply: 12VDC - 25W
- o Dimensions (connectors included): 220 x 110 x 44 (LxH)
- o Weight: 0.9 kg

## Ordering Information

XSSM-VYP0-2502	OEM Module - IF and RF output - DVB-S/DSNG/S2/S2X standard - QPSK & 8PSK -
XSSO-VYP0-16AM	16APSK constellations - Software option
XSSO-VYP0-32AM	16APSK & 32APSK constellations - Software option
XSSO-VYP0-64AM	16APSK, 32APSK & 64APSK constellations - Software option
XSSO-VYP0-36MB	Up to 36 Mbaud - Software option
XSSO-VYP0-72MB	Up to 72 Mbaud - Software option
XSSO-VYP0-BISE	BISS 0/1/E scrambling - Software option

<sup>1</sup>Specifications are not contractual and are subject to revision without notice.