Vyper 7
DVB Satellite Modulator

DVB SATELLITE MODULATOR

The **Vyper 7** is a state-of-the-art standards based satellite modulator producing a modulated carrier in full compliance with the DVB-S, DVB-DSNG, DVB-S2 and, when appropriately licensed, DVB-S2x (broadcast and DSNG profiles) standards. The **Vyper 7** will support data rates from 100 kbps to 200 Mbps using the ASI inputs and from 200 kbps to 200 Mbps using the TSoIP inputs with symbol rates of 0.05 to 72 Mbaud (i.e. 72 MHz with a roll off of 5%).

With its available bit rates, MODCODs, flexible inputs and outputs, you'll never find yourself wanting with the **Vyper 7** DVB modulator. Provided that the rest of your outside broadcast van or satellite uplink truck is up to it, you'll be able to support a premier sporting event, requiring the transmission of a high data rate multiplex and advanced modulation, just as easily as a local television news broadcast using 8PSK modulation and a fraction of a satellite transponder.

Although ASI has long been the standard output for most broadcast video encoders, the industry is slowly standardizing on IP for many reasons. The **Vyper 7** supports both ASI and TSoIP on Ethernet inputs to ensure that your investment will continue to provide a return no mater which encoders you decide to purchase in the future.

The **Vyper 7** is ideal for **Satellite Sports Contribution**, **Satellite News Contribution**, and **Multiplexed Video Contribution** including applications requiring the use of a full satellite transponder.

The **Vyper 7** provides a user-friendly embedded web browser enabling full configuration of the modulator without the need to be physically located with the unit. Input signal management, selection of DVB-S, DVB-S2, and DVB-S2X, MODCOD and control of the RF output mute/unmute function can all be controlled via a web browser. The GUI also offers monitoring of the input stream format and bit rate.

FEATURES LIST

- ✓ DVB-S / DSNG / S2 modes standard
- ✓ S2X mode (available option)
- ✓ MPEG TSoIP and ASI inputs
- ✓ Ethernet input can protect ASI input
- ✓ L-band & IF band outputs standard
- ✓ 10 MHz reference to drive BUC
- ✓ Symbol rate from 0.05 to 72 Mbaud
- ✓ DVB-CID (ETSI 103 129) compliant
- ✓ Multistream (EN 302 307) compliant
- ✓ Flexible roll-off (5% to 35%)
- ✓ BISS encryption (available option)
- ✓ Input stream monitoring
- ✓ User-friendly embedded browser
- ✓ Field upgradeable via SW licenses
- ✓ Ultrafast boot time
- ✓ Low power consumption

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Specifications

Standards
- o Carrier ID: ETSI 103 129
- 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 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 – 2 x RJ45 (connectors shared between control & data)
- o Multistream up to 4 streams selected between:
  - – 2 MPTS over ASI
  - – 4 MPTS over Ethernet
- o Flexible bit rate adaption
  - – PCR adaptation/Padding/Dummy Frame
- o Encryption 0.2 to 200 Mbps available in Single Stream
  - – BISS (single/multiple programs)
  - – Mode 0, 1, E

RF Outputs
- o L-Band: 950 to 2,150 MHz, 1 Hz steps
  N 50 Ω +7 dBm to -35 dBm, 0.1 dB steps
- o IF-Band: 50 MHz to 180 MHz, 1 Hz steps
  BNC 75 Ω +5 dBm to -35 dBm, 0.1 steps
- o SNR > 40 dB @ 0 dBm – 16 APSK – 30 Mbaud
- o Shoulders rejection < -50 dB @ 0 dBm & f/fn=1.5 for roll off of 20%
- o Spurious: < -65 dBc @ 0 dBm for 50 to 180 or 950 to 2,150 MHz   -60 dBc outside the useful band
- o Switchable 10 MHz insertion on L-Band RF output:
  - o @1 Hz   < -85 dBc/Hz
  - o @10 Hz < -115 dBc/Hz
  - o @100 Hz   < -140 dBc/Hz
  - o @1 kHz < -145 dBc/Hz
  - o @10 kHz   < -150 dBc/Hz
  - o @1 MHz< -150 dBc/Hz

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

Clock & Synchronization
- o Internal 10 MHz reference frequency
  - o High Stability: ±5 ppb over 0° to 70° C
  - o Ageing: ±0.05 ppb/day, ±7.5 ppb/year
- o External 10 MHz input for RF synchronization

DualCast
- o Opportunistic Push Data Service Insertion:
  - o Upgrade of the PSI/SI tables
  - o Browse file via GUI with size up to 100 Mbytes

Modulation
- o DVB-S / DSNG:
  - o Outer/Inner FEC: Reed Solomon/Viterbi
  - o QPSK: ½, 2/3, ¾, 5/6, 7/8
  - o 8PSK: 2/3, 5/6, 8/9
  - o 16QAM: ¾, 7/8
- o DVB-S2:
  - o Outer/Inner FEC: BCH/LDPC
  - o QPSK: ¼, 1/3, 2/5, ½, 3/5, 2/3, ¾, 4/5, 5/6, 8/9, 9/10
  - o 8PSK: 3/5, 2/3, ¾, 5/6, 8/9, 9/10
  - o 16APSK
  - o 32APSK: ¾, 4/5, 5/6, 8/9, 9/10
  - o PL Scrambling codes [0, 264143]
  - o Supported DVB modes:
    - ▪ CCM: Constant Coding & Modulation
    - ▪ VCM: Variable Coding & Modulation
    - ▪ *SeamlessACM*: Adaptive Coding & Modulation
  - o DVB-S2 Short (16 200) Normal (64 800) frames
  - o Pilots ON or OFF
  - o Variable symbol from 0.05 to 72 Mbaud, 1 Baud steps
- o DVB-S2x Broadcast & DSNG profiles:
  - o Same specifications as defined for DVB-S2
  - o New constellation for DSNG profile: 64APSK
  - o All new linear MODCOD for QPSK/8PSK/16APSK/32APSK/64APSK

Control & Monitoring
- o RS232 control port with SCPI control
- o SNMP (V2C) and Web Interface Control & Monitoring
- o Keyboard & display on front panel
- o Alarm Relays – 9 pin sub-D (F) connector
- o Dry contact management for 1+1 redundancy
- o 2 x 10/100/1000 base-T Ethernet ports:
  - o Shared among MPEG-TS over IP (TSoIP) and control (GUI/SNMP)

Physical
- o Power Supply: 90 to 240VAC – 30W
- o Dimensions: 450mm x 350mm x 44mm (WxDxH)
- o Weight 4 kg
- o Temperature: 0° to 50° C

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