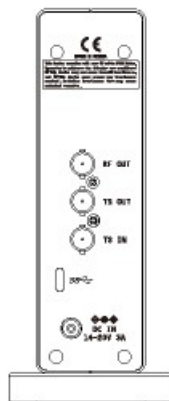


TVB599A

Premium USB DTV Modulator



TVB599A Rear



Overview

The Premium USB digital streaming DTV modulator can play MPEG stream from hard disk and DVB-ASI/SMPTE-310M input into on-air signal. The output can be industry standard 55~2150MHz selectable RF signal. On board synthesizer can generate stable and accurate symbol clock and tuning frequency. The transport stream can be supplied through USB3.0 interface and DVB-ASI/SMPTE-310M input.

Features

- Transport stream from hard drive thru USB3.0 interface and DVB-ASI/SMPTE-310M input
- DVB-ASI, SMPTE-310M output for monitoring
- On board VHF/UHF/L-BAND RF output up-converter
- Programmable RF output level (0.1dB step, 0dBm ~ -60dBm)
- Superposition white noise over modulated signal and control the output C/N ratio
- Software for Windows 7/8/10 32bit/64bit and Linux 32bit/64bit
- QAM, 8VSB, DVB-T/H, DVB-S/S2, DVB-S2X, DVB-C2, ISDB-T, ISDB-S, ISDB-S3, ISDB-Tmm, DAB(T-DMB), DTMB, CMMB, ATSC-M/H, ATSC 3.0, IQ_Play (upto 300Mbps), 2nd-8VSB, 3rd-8VSB, 4th-8VSB, 2nd-QAM, 3rd-QAM, 4th-QAM, 2nd-DVB-T, 3rd-DVB-T, 4th-DVB-T modulation options available

Module Specifications

Transport Stream Input From hard disk thru USB3.0 Bit Rate Up to 160Mbits/s ASI/ SMPTE-310M Input/Output Connector: 75ohm BNC RF Output Connector: 75ohm BNC Freq: VHF/UHF 55~2150MHz in 1 Hz steps	Level: Programmable RF output level (0.1 dB steps from 0 to -60dBm) Freq accuracy: Within 3ppm accuracy Phase noise <-90dBc/Hz @ 10KHz USB Interface USB 3.0 high speed compliant Physical/Environmental HxWxL: 170mm x 70mm x 240mm	Driver Windows 7/8/10 32bit/64bit and Linux 32bit/64bit Application Software Televue made GUI Operating Condition Temperature: 0~45°C Humidity: 10% ~ 90%, Non-condensing
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DVB-T/H Option Specifications

Standard ETSI EN300744 v1-4-1 compliant Non-hierarchical single program mode Punctured Code Rate 1/2, 2/3, 3/4, 5/6, 7/8 selectable Constellation QPSK, 16-QAM, 64-QAM	Transmission Mode 2K/4K/8K mode selectable 4K mode only for DVB-H Guard Interval 1/4, 1/8, 1/16, 1/32 selectable	In-depth Interleaving Only for DVB-H Bandwidth 5/6/7/8 MHz mode selectable 5 MHz only for DVB-H
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8VSB Option Specifications

Standard ATSC A.53 Part 2: 8VSB compatible		
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QAM Option Specifications

Standard ITU-T J.83 Annex A/C and B compliant	Constellation Annex A/C: 16-QAM, 32-QAM, 64-QAM, 128-QAM, 256-QAM	Annex B: 64-QAM, 256-QAM
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QPSK Option Specifications

Standard ETSI EN 300421 (DVB-S) compliant	Code Rate 1/2, 2/3, 3/4, 5/6, 7/8	Symbol Rate 1~45 M symbols/s DC Blocking Voltage 50V max
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DVB-S2 Option Specifications

Standard ETS 302 307 broadcast services compliant LDPC Code 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, and 9/10 supports	Modulation Mode QPSK, 8PSK, 16APSK, 32APSK Baseband Shaping Filter Roll-off 0.20, 0.25, 0.35, none selectable	Symbol Rate 1~45 M symbols/s DC Blocking Voltage 50V max Support MIS (multi input stream) Supports up to four streams
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T-DMB Option Specifications

Standard ETS 300401, ETS300799 compliant Transmission Mode DAB transmission modes I, II, III, IV	- Transmission mode automatically selected from the ETI stream	Supports ETI(NI, G.703), ETI(NA, G.704)5592 and ETI(NA, G.704)5376 file format *T-DMB modulation from TS input is not supported
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ISDB-T Option Specifications

Standard ARIB STD-B31 v1.6 compliant Mode Mode I, Mode II, Mode III Code Rate 1/2, 2/3, 3/4, 5/6, 7/8 selectable Mapping DQPSK, QPSK, 16QAM, 64 QAM	Guard Interval 1/4, 1/8, 1/16, 1/32 Time Interleaving Length Mode I - 0, 4, 8, 16 Mode II - 0, 2, 4, 8 Mode III - 0, 1, 2, 4	The Number of Segment 1 / 13 Segment Support TMCC Information and Generation (ISDB-T information and IIP) *ISDB-T modulation from DVB-ASI input is supported
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ISDB-Tmm Option Specifications

Standard ARIB STD-B41 v1.1 compliant Super-segment Arrangement Pattern A: 13seg 1 + 1seg 1234567 + 13seg 2 B: 1seg 1234567 + 13seg 1 + 13seg 2 C: 13seg 1 + 13seg 2 + 1seg 1234567 Code Rate 1/2, 2/3, 3/4, 5/6, 7/8 selectable Mapping DQPSK, QPSK, 16QAM, 64 QAM	Guard Interval 1/4, 1/8, 1/16, 1/32 Time Interleaving Length Mode I - 0, 4, 8, 16 Mode II - 0, 2, 4, 8 Mode III - 0, 1, 2, 4	Support TMCC Information and Generation (ISDB-Tmm information and IIP) *ISDB-Tmm modulation from DVB-ASI input is not supported.
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ISDB-S Option Specifications

Standard ARIB STD-B20 v3 compliant FEC inner:Trellis, convolutional coders outer:RS(204,188)	Modulation TC8PSK, QPSK, BPSK (hierarchical) Code Rate 1/2, 2/3, 3/4, 5/6, 7/8 selectable	*ISDB-S modulation from DVB-ASI input is not supported *Supports framed TS with TMCC (1~8 TS have totally 48 slots can be selected)
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ISDB-S3 Option Specifications

Standard ARIB STD-B44 v2.1 compliant FEC BCH+LDPC	Modulation 1/2 pi shift BPSK, QPSK, 8PSK, 16APSK, 32APSK Symbol Rate 33.7561 Mbaud	Support MPEG-TS and pcap file format TLV packet *ISDB-S3 modulation from DVB-ASI input is not supported
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DTMB Option Specifications

Standard GB20600-2006 compliant Number of Carrier 1 or 3780 sub-carriers selectable Frame Length 4200, 4335, 4725 symbols	Constellation 4QAM-NR, 4QAM, 16QAM, 32QAM, 64QAM Code Rate 0.4, 0.6, 0.8	Time Interleaving Length 240, 720 symbols Bandwidth 8MHz
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CMMB Option Specifications

Standard GY/T 220.1-2006 compliant Constellation BPSK, QPSK, 16QAM	Subcarrier 4096/8MHz	*CMMB modulation from DVB-ASI input is not supported *CMMB stream should have control information table (CMCT)
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ATSC-M/H Option Specifications

Standard ATSC A/153 Part2 compliant	*Supports captured file play, live from external ATSC-M/H MUX through ASI-SMPTE-310M input	
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DVB-T2 Option Specifications

Standard ETSI EN302 755 compliant MISO/SISO SISO/MISO Tx1, Tx2 FFT Size 1K, 2K, 4K, 8K, 16K, 32K (normal and extended) Guard Interval 1/4, 1/8, 1/16, 1/32, 1/128, 19/128, 19/256 PAPR None L1 Modulation BPSK, QPSK, 16QAM, 64QAM Pilot Pattern	The Number of RF (TFS) Single FEF FEF-Null PLP Type Common, Type1, Type2 PLP The Number of PLP Single PLP, Multi PLP(8 PLPs) PLP Code Rate 1/2, 3/5, 2/3, 3/4, 4/5, 5/6 PLP Modulation QPSK, 16QAM, 64QAM, 256QAM Constellation Rotation Supports at QPSK, 16QAM, 64QAM, 256QAM	PLP FEC Type 16K, 64K Frame Interval '1' Time Interleaving Length '0'~'255' Time Interleaving Type '0', Frame Interval(I_Jump)=1 Bandwidth 1.7/5/6/7/8 MHz mode selectable *L1 post scrambling is supported *T2-Lite is supported *DVB-T2 modulation from DVB-ASI input is supported
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PP1 ~ PP8		*Supports T2MI multiplexed stream
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DVB-C2 Option Specifications

Standard ETSI EN302 769 compliant L1 TI Mode NONE, BEST FIT, 4 Symbols, 8 Symbols Guard Interval 1/64, 1/128 Data Slice Type TYPE1, TYPE2 Time Interleaving Depth `00'	FEC Header Type ROBUST, HEM BBHeader Format NORMAL, HEM The Number of PLP Single PLP, Multi PLP (10PLPs) PLP Code Rate 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 PLP Modulation* 16QAM, 64QAM, 256QAM, 1024QAM,4096QAM	PLP FEC Type 16K, 64K Bandwidth 6/7/8 MHz mode selectable *256QAM,1024QAM,4096QAM configurations could have some post LDPC errors *DVB-C2 modulation from DVB-ASI input is supported
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DVB-S2X Option Specifications

Standard ETS 302 307-2 broadcast services-compliant (excluding VCM, Channel Bonding, GSE-High Efficiency Mode) LDPC Code 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10, 13/45, 9/20, 11/20, 23/36, 25/36, 13/18, 5/9, 26/45, 28/45, 7/9, 77/90, 8/15, 32/45, and 11/15 supports	Modulation Mode QPSK, 8PSK, 8APSK-L, 16APSK, 16APSK-L, 32APSK, 32APSK-L Baseband Shaping Filter Roll-off 0.05, 0.10, 0.15, 0.20, 0.25, 0.35, none selectable	Symbol Rate 1~45 M-symbols/s DC Blocking Voltage 50V-max Support MIS (multi input stream) Supports up to four streams
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DVB-S2XE Option Specifications

Standard ETS 302 307-2 broadcast services-compliant (including VCM, ACM) FEC Frame Normal, Short LDPC Code 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10, 13/45, 9/20, 11/20, 23/36, 25/36, 13/18, 5/9, 26/45, 28/45, 7/9, 77/90, 8/15, 32/45, and 11/15 supports	Modulation Mode QPSK, 8PSK, 8APSK-L, 16APSK, 16APSK-L, 32APSK, 32APSK-L Baseband Shaping Filter Roll-off 0.05, 0.10, 0.15, 0.20, 0.25, 0.35, none selectable	Symbol Rate 1~45 M-symbols/s DC Blocking Voltage 50V-max Support MIS (multi input stream) Supports up to four streams
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Multi VSB Option Specifications

Standard ATSC A.53 part 2: 8VSB compatible Channel Supports up to Quad VSB	* Multiple VSB have consecutive channels only operating simultaneously * VSB modulation from DVB-ASI input is supported with 1st channel only	
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Multi QAM Option Specifications

Standard ITU-T J.83 Annex A/C and B compliant Constellation Annex A/C: 16-QAM, 32-QAM, 64-QAM, 128-QAM,256-QAM Annex B: 64-QAM, 256-QAM Channel Supports up to Quad QAM	* Multiple QAM have consecutive channels only operating simultaneously * All channels should have same constellation mapping (16QAM, 32QAM, 64QAM, 128QAM, 256QAM)	* Multiple QAM-A/C modulation symbolrate is 6875 or 6900ksym/s * QAM modulation from DVB-ASI input is supported with 1st channel only
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Multi DVB-T Option Specifications

Standard ETSI EN300744 v1-4-1 compliant Non-hierarchical single program mode Punctured Code Rate 1/2, 2/3, 3/4, 5/6, 7/8 selectable Constellation QPSK, 16-QAM, 64-QAM	Transmission Mode 2K/4K/8K mode selectable Guard Interval 1/4, 1/8, 1/16, 1/32 selectable Bandwidth 6/7/8 MHz mode selectable Channel Supports up to Quad DVB-T	* Multiple DVB-T have consecutive channels only operating simultaneously * All channels should have same bandwidth (6, 7 or 8 MHz) * DVB-T modulation from DVB-ASI input is supported with 1st channel only
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ATSC3.0 Option Specifications

Standard ATSC 3.0 A/322 compliant Bandwidth 6 MHz Constellation QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM Subframe Single PLP, Multi PLP	FFT 8K, 16K, 32K Code rate 2/15, 3/15, 4/15, 5/15, 6/15, 7/15, 8/15, 9/15, 10/15, 11/15, 12/15, 13/15, 14/15 FEC BCH, CRC, LDPC	Guard Interval 192, 384, 512, 768, 1024, 1536, 2048, 2432, 3072, 3648, 4096 Time Interleave CTI Source PRBS, ALP/ROUTE/MMT, STL pcap file, ALP/ROUTE/MMT, STL IP input * Not supported features - Multi PLP in case of ALP source
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ATSC3.0 LITE Option Specifications

Standard ATSC 3.0 A/322 compliant Bandwidth 6 MHz Constellation QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM Subframe Single Subframe, Single PLP	FFT 8K, 16K, 32K Code rate 2/15, 3/15, 4/15, 5/15, 6/15, 7/15, 8/15, 9/15, 10/15, 11/15, 12/15, 13/15, 14/15 FEC BCH, CRC, LDPC	Guard Interval 192, 384, 512, 768, 1024, 1536, 2048, 2432, 3072, 3648, 4096 Time Interleave NO_TI Source ALP/ROUTE/MMT pcap file, ALP/ROUTE/MMT IP input
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2nd Attenuator Option Specification

* Minimum RF amplitude is extended down to -80dBm according to RF frequency	[36,900MHz] -80dBm (900,1600MHz) -70dBm (1600,2150MHz) -60dBm	
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