



DVC240XR and DVR240XR

Digital Video Broadcast Modulator and Demodulator



DVC240XR MODULATOR HIGHLIGHTS

- ▶ Circuit Card Assembly
- ▶ DVB-S2 (EN 302 307) to 45 Msps / 190 Mbps
- ▶ DVB-S (EN 300 421) to 68 Msps / 119 Mbps
- ▶ DVB-DSNG (EN 301 210) to 68 Msps / 238 Mbps
- ▶ CCM, VCM & ACM Support in DVB-S2
- ▶ QPSK, 8-PSK, 16-QAM, 16-APSK, 32-APSK Operation
- ▶ Frequency-Agile 50 to 90, 100 to 180, and 950 to 2050 MHz
- ▶ Monitor Port Available
- ▶ Web Browser, SNMP or terminal management
- ▶ Upgrades: Compact Flash or FTP Ethernet
- ▶ FAST Features upgrades available
- ▶ BUC 10 MHz available

DVB MODULATOR

The DVC240XR is a full featured DVB-S2, DVB-DSNG and DVB-S modulator offered as a circuit card assembly or CCA. It runs at data rates from 1 to 238 Mbps and is capable of CCM, VCM and ACM operation.

Selections are available for both 70/140 MHz and L-Band operation with a separate monitor port. The unit is intended for integration into a customer provided chassis for DSNG, enterprise and interactive services. The 254 W x 305 D x 20 H mm card easily fits into a 1 RU chassis and consumes less than 30 Watts.

Integrators and encoder manufacturers find the DVC240XR ideal for applications where a CCA best suits their needs. It permits simple integration of a modulator into a chassis or combining an encoder and modulator into a single unit.

DVR240XR DEMODULATOR HIGHLIGHTS

- ▶ DVB-S , DVB-DSNG and DVB-S2 Ready
- ▶ DVB-S2 (EN 302 307) to 45 Msps / 160 Mbps
- ▶ DVB-S / DSNG (EN 301 210) to 45 Msps / 145 Mbps
- ▶ CCM, VCM & ACM Support in DVB-S2
- ▶ QPSK, 8-PSK, 16-QAM and Q/8/16-APSK (DVB-S2)
- ▶ Dual L-Band Inputs
- ▶ LNB Voltage
- ▶ Upgrades via Reflash
- ▶ TTL Monitor and control

DVB DEMODULATOR

The DVR240XR DVB Broadcast Demodulator Front-End Card is a 45 Msps universal solution for DVB-S DVB-DSNG and DVB-S2 applications in a compact 160 D x 100 W x 14 H mm circuit card assembly or CCA. The small demodulator single CCA solution provided by the DVR240XR is architected with versatile a Field Programmable Gate Array (FPGA) and ASIC technology.

The frequency range of both dual L-Band inputs, from 950 to 2150 MHz, is compatible with standard commercial low-noise block down converters (LNBs). The unit supports LNB voltage and allows user selection of the L-Band input port with LNB voltage. The DVR240XR demodulates DVB-S, DVB-DSNG or DVB-S2 Constant Code and Modulation (CCM). The DVB-S2 mode supports Variable Coding and Modulation (VCM) or the most advanced technology Adaptive Coding and Modulation (ACM). Demodulation of standard MPEG transport stream, raw baseband frames, or a generic transport stream is available.

DVC240XR DVB Modulator and DVR240XR DVB Demodulator

DVC240XR MODULATOR SPECIFICATIONS

IF Interface

Tx IF:	50 to 90 / 100 to 180 MHz (70/140 MHz) 950 to 2050 MHz L-Band
IF Step Size:	100 Hz
Frequency Stability:	3 ppm
Power Output:	0 to -25 dBm, -20 dB at L-Band Monitor
Power Step Size:	0.1 dB
Power Output Accuracy:	± 1.0 dB over temp / frequency
Power Output Stability:	± 0.5 dB over 24 hours
Carrier Mute:	-55 dB
Spurious:	-55 dBc, In-Band -45 dBc, Out-of-Band
IF Impedance and Connector:	75 Ohm (70/140 MHz), BNC-F 50 Ohm (L-Band), SMA-F Monitor (L-Band), Type F-F
Return Loss:	13 dB (70/140 MHz) 7 dB (L-Band), Monitor not specified
Phase Noise:	1 kHz -73 dBc 10 kHz -83 dBc 100 kHz -100 dBc 1 MHz -120 dBc
External Reference:	1, 2, 5, 10 MHz better than ±1 ppm, 1.5 to 10 V _{p-p} , 50 Ohms
Rolloff	20%, 25% or 35%

Baseband (DVB-S, DVB-DSNG) Per ETSI EN 301-210

Data Rate In 1 bps Steps:	1 to 238, within symbol rate limit
Symbol Rate:	1 to 68 Msps
Code Rates:	QPSK 1/2, 2/3, 3/4, 5/6, 7/8 8-PSK 2/3, 5/6, 8/9 16-QAM 3/4, 7/8

Baseband (DVB-S2) Per ETSI EN 302 307

Data Rate:	1 to 190 Mbps, 1 bps steps within symbol rate limits
Symbol Rate:	1 to 45 Msps
DVB Modes:	CCM, ACM, VCM
Terrestrial Framing:	188 (1 Sync Byte, 187 Payload Bytes)
Frame Type:	64800 bits normal, 16200 bits short
Code Rates:	QPSK: 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 8-PSK: 2/3, 3/4, 3/5, 5/6, 8/9, 9/10 16-APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 32-APSK: 3/4, 4/5, 5/6, 8/9, 9/10

Interface, Physical & Power

Unit Management:	Serial RS-485 / RS-232 (Terminal), Ethernet 10/100 BaseT Web Browser SNMP v1 and v2
Data Interface	Parallel TTL, HE 10 50 connector
Weight:	1.5 pounds (0.68 kg)
Size:	10 W x 12 D x 0.8 H inches 254 W x 305 D x 20 H mm
Power	+5, +12, -12 VDC <30W

Options (Contact Sales)

Mod. & Symbol Rate:	Various S, DSNG, S2 and Symbol Rates
IF Combinations	70/140 MHz, L-Band, L-Band Monitor
BUC Reference	10 MHz 1.5x10 ⁻⁸ stability
Special Modes	ACM / VCM

DVR240XR MODULATOR SPECIFICATIONS

IF Interface

Rx IF:	950 to 2150 MHz
IF Step / Acq Range:	100 Hz / Symbol rate dependent
Input Level:	C0+10 log (Symbol Rate), C0: -130 dBm/Hz to 105 dBm/Hz -70 to -45 dBm @ 1 Msps -60 to -35 dBm @ 10 Msps -53 to -28 dBm @ 45 Msps
Composite Power:	< -20 dBm total input power
LNB Power:	18, 24 VDC or OFF, 350 mA max
Rx Input:	75 Ohm, 7 dB Return Loss, Type F-F
Rolloff	20%, 25% or 35%
Dual Rx IF Input:	Selectable one at a time

Baseband (DVB-S, DVB-DSNG) Per ETSI EN 301-210

Data Rate In 1 bps Steps:	1 to 145 Mbps, within symbol rate limit
Symbol Rate:	2 to 45 Msps
Code Rates:	QPSK 1/2, 2/3, 3/4, 5/6, 7/8 8PSK 2/3, 5/6, 8/9 16QAM 3/4, 7/8

Baseband (DVB-S2) EN 302 307

Data Rate In 1 bps Steps:	2 to 160 Mbps within symbol rate limit
Symbol Rate:	2 to 45 Msps
DVB Modes:	CCM, ACM, VCM
Code Rates (LDPC):	QPSK: 1/2, 2/3, 3/4, 3/5, 4/5, 5/6, 8/9, 9/10 8-PSK: 2/3, 3/4, 3/5, 5/6, 8/9, 9/10 16-APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
Terrestrial Framing:	204, 188, 187
Internal Clock Stability:	±10 ppm per EN50083
Spectral Inversion:	Auto, normal or inverted

Interface, Physical & Power

Unit Management:	Async serial TTL link
Data Interface	Parallel TTL, HE 10 50 connector
Weight:	0.5 pounds (0.68 kg)
Size:	4 W x 6 D x 0.6 H inches 160 D x 100 W x 14 H
Power	5 VDC <12W
Upgrade	Flash

Options (Contact Sales)

Mod. & Symbol Rate:	Various S, DSNG, S2 and Symbol Rates
Special Modes	ACM / VCM

Environmental For Modulator Or Demodulator

Operating Temperature:	0 to 50°C
Operating Humidity:	Up to 95%, Non-Condensing
Storage Temperature:	-20 to 70°C
Storage Humidity:	Up to 99%, Non-Condensing

