DVC240XR and DVR240XR Digital Video Broadcast Modulator & Demodulator

Modems

DVC240XR Modulator

DVB Modulator

The DVC240XR is a full featured DVB-S2, DVB-DSNG and DVB-S modulator offered as a circuit card assembly (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 .08" x 10" x 12" (254 x 305 x 20 mm) card easily fits into a 1RU 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.

Features

- 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, 8PSK,16-QAM, 16APSK, 32APSK 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

Typical Users

- Broadcasters
- Internet Service Providers
- Enterprise

Common Applications

- Broadband Interactive Services
- Broadcast Content Distribution
- Digital Cinema
- Digital Signage
- Direct To Home
- Disaster Recovery & Emergency Communications
- Enterprise
- High Speed Content Delivery

DVR240XR Demodulator

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 0.6" x 4" x 6" (160 x 100 x 14 mm) circuit card assembly. 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 Coding 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.

Features

- 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
- DVB-S QPSK, 8PSK, 16-QAM and DVB-S2 QPSK, 8PSK, 16APSK, 32APSK
- Dual L-Band inputs
- LNB voltage
- Upgrades via reflash
- TTL Monitor and control

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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 Vp-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 8PSK 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 8PSK: 2/3, 3/4, 3/5, 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

Interface, Physical & Power

Unit Management	Serial RS-485 / RS-232 (terminal), Ethernet 10/100 Base-T, Web browser, SNMP v1 and v2
Data Interface	Parallel TTL, HE 10 50 connector
Weight	1.5 lbs (0.68 kg)
Dimensions (height x width x depth)	.08" x 10" x 12" (20 x 254 x 305 mm)
Power	+5, +12, -12 VDC <30 W

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 16-QAM 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 8PSK: 2/3, 3/4, 3/5, 5/6, 8/9, 9/10 16APSK: 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 lbs (0.68 kg)
Dimensions (height x width x depth)	0.6" x 4" x 6" (14 x 100 x 160 mm)
Power	5 VDC <12 W
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