



DVE5100

H.264 / MPEG-2 HD & SD Exciter



Digital Video Encoder with Integral Modulator compact, lightweight 1/2 width rack unit

5000 Series Overview

Advent's established lightweight, compact, 1U half rack electronics packages are ideally suited for flyaway or vehicle mounted solutions, where weight and space are at a premium. The 5000 series of electronics can be packaged in different lightweight, ruggedised canvas flight cases, depending on units selected and system configuration.

- Compact 1/2 width 1U rack mountable units
- 1/4 of the size and 1/6th of the weight of competitors equivalent products
- Designed for contribution flyaway and DSNG vehicle applications where space and weight are critical
- Full range of units available;
 - ◇ SD and HD Digital Video Exciter
 - ◇ IP Modem
 - ◇ Multiplexer Router
 - ◇ BUCS
 - ◇ Antenna and Drive Control units
 - ◇ System IRD / Redundancy controllers
 - ◇ Protection Switches
 - ◇ L Band over fibre modems
- All units field upgradeable
- All units have integral web browser facility (where applicable) for RC&M applications
- A comprehensive range of flight case solutions for 1/2 rack and 19" rack units to suit system configuration, i.e. 3U, 4U, 5U
- All units can also be fixed together and mounted in a standard 19" flight case or rack within a vehicle

Features

- DVE5100 is a Standard Definition & High Definition video encoder with integrated L Band modulator
- Separate encoding engines are used for MPEG-2 & H.264 so as not to compromise either performance
- Integrated HPA controller supporting a wide range of TWTA / SSPA's
- HPA control via L Band cable or direct connection
- HD & SD MPEG-2 & H.264 4:2:0/4:2:2 encoding
- L Band monitor
- Integral L Band combiner for external L Band carrier addition
- DVB-S QPSK
- DVB-S2, QPSK, 8PSK, 16 & 32 APSK
- 70MHz output
- DVB-T/LMS-T COFDM option for IF output
- 4 pairs of audio channels (2 pairs via separate analogue/AES inputs)
- Dolby E auto aligner and pass through
- BISS1 / E conditional access
- Low delay MPEG-2 Encoding (40 mS) an H.264 Encoding (33mS)
- 19" 1U HD SHF solution available with AUC5000 series BUCs
- Remote control via web browser
- SNMP control
- IP Streaming output allowing encapsulation of up to 2 ASI signals
- IP input with de-capsulation of one of four IP video signals, for multiplexing and/or modulation
- Field upgrade by USB memory stick

Hardware Options

- DC Power option
- Hi stability IESS 308/9 10MHz reference via TX L-Band output

Specifications

RF PARAMETERS

Output Frequency Range

- L Band 950 to 1750 MHz stepsize 1KHz
- 52 - 88 MHz

Frequency Stability

- +/- 2 x 10 e - 8
- (10 MHz reference option)

Output Power Level

- L Band -5 /+5 dBm

Gain Adjustment

- 40 dB min

Gain Variation

- +/- 2 dB full band +/- 0.25 dB 24hr @ constant temperature

Spurious

- -70 dBc / 4 KHz

L Band Monitor

- Monitor Level -20 dBc

L Band Combiner

- Combining ratio 5 dB +/-2

Modulation

- DVB-S QPSK, 1 - 36 Msymb/s
- DVB-S2 QPSK / 8PSK / 16APSK / 32 APSK, 1 - 45 Msymb/s

FEC

DVBS QPSK

- FEC rates 1/2, 2/3, 3/4, 5/6, 7/8

DVB-T QPSK, 16QAM, 64QAM

- FEC rates 1/2, 2/3, 3/4, 5/6, 7/8

DVBS-2 QPSK

- FEC rates 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10

DVBS-2 8PSK

- FEC rates 3/5, 2/3, 3/4, 5/6, 8/9, 9/10

DVBS-2 8PSK 16/32 APSK

- FEC rates 3/5, 2/3, 3/4, 5/6, 8/9, 9/10

VIDEO PARAMETERS

Inputs

- HD-SDI / SDI: SMPTE 292M SMPTE 259M / ITU-R BT.656 with embedded audio
- SD version, composite PAL/NTSC

Video Encoding (MPEG-2)

SD

- 420MP@ML 1.5 - 15Mbits
- 422MP@ML 2 - 50Mbits

HD

- 420MP@HL 8 - 80Mbits
- 422MP@HL 8 - 80Mbits

Video Encoding (H.264)

SD

- 420HP@L3 0.5 - 25Mbits
- 422HP@L3 2 - 25Mbits

HD

- 420HP@L4 1 - 62.5Mbits
- 422HP@L4 1 - 62.5Mbits

HD Resolutions

- HD 1080psf30
- HD 1080psf29
- HD 1080psf25
- HD 1080psf24
- HD 1080psf23
- HD 1080p/30
- HD 1080p/29
- HD 1080p/25
- HD 1080p/23
- HD 1080i/60
- HD 1080i/59
- HD 1080i/50
- HD 1080i/60
- HD 720p/60
- HD 720p/50

SD Resolutions

- 480 x 720 NTSC
- 480 x 704 NTSC
- 576 x 720 PAL
- 576 x 704 PAL

Latency (encoding)

- MPEG-2 40mS in low delay mode
- H.264 33mS in low delay mode

Scrambling

- BISS 1 & E Encryption

Data Channel

- RS232 @ 9600 / 19200 / 38400 baud

IP VIDEO TRAFFIC INTERFACE

- Type: 10 / 100 / 1000 Base-T Ethernet

Protocol

- IEEE802.3 Ethernet
- Encapsulation for ASI - RTP (RFC 2250), ARP, IPv4, IGMPv2/3, TCP/UDP

FEC

- Pro-MPEG Forum Code of Practice #3 release 2 (CoP3) / SMPTE 2022-2007 (Columns and Rows)
- 1-7 TS packets per IP packet (configurable) with L&D following the range:
 - ◊ L*D < 100
 - ◊ 1 < L < 20
 - ◊ 4 < D < 20

Total Bitrate

- Max 700 Mbit/s (this is for a mux of 4 ASI's)
- 1000 Base-T Ethernet
- Ethernet MTU Length: Max 1500 bytes (IPv4)

User Configurable Network & Multicast Parameters

Source IP address:

- IP, Subnet mask, Gateway

Destination IP address:

- Unicast & Multicast

UDP Ports:

- User definable

Local MAC address:

- User definable

AUDIO PARAMETERS

Inputs

- 2 analogue stereo pairs / 4 mono
- 600 Ω impedance plus 6 channels embedded in SDI / Linear
- PCM, Dolby E pass through with Dolby E auto align

Performance

THD

- <0.1% +18 dBm max input level

S/N

- >66 dB RMS

Frequency response

- =20 Hz-20 KHz +/- 0.5dB
- Crosstalk better than 60 dB

Encoding

- MPEG1 Layer 2 128 kbs - 384 kbs / channel (Audio A & B & C)
- SMPTE 302 2.4MB/s linear PCM /

Dolby pass through (Audios A, B, C & D)

- HPA Control Option
- Integrated HPA controller for RS485 serial controlled TWTA / SSPA - Xicom, CPI, e2V, Paradise supported, others to order
- Control via L Band using AUC5000 series converter or via direct cable connection

Remote Control

- RS 485 2400 - 9600 band
- Ethernet / Web browsers / SNMP

Web Browser

- Supporting Internet Explorer 7 & 8, Firefox, Safari and Opera

Connectors

CVBS

- 75Ω BNC female

(HD) SDI

- 75Ω BNC female

ASI IN

- 75Ω BNC female

ASI / 70MHz out

- 75Ω BNC female

RF Output & Monitor

- 50Ω N-female

Combiner in

- 50Ω TNC female

Audio Input

- 15W D type male breakout to 4 x XLR provided

Data / Remote / Status / HPA Control

- 15W D type female
- 2 x USB for field upgrades

Ethernet / Web Interface

- RJ45 10 / 100 / 1000 Base-T

ENVIRONMENT & PHYSICAL

Temperature

- Operational: 0°C to +50°C(32°F to 122°F)
- Storage: -20°C to +70°C (-4°F to 158°F)

Size

- 210mm wide by 350mm deep (8.27" wide by 13.78" deep)
- 1U half rack width

Weight

- 1.9kg approx (4 lbs)

Power

Frequency

- 47 to 63 Hz @ <60W

Operating voltage

- 100 to 240 Vac +/- 10%

Licenses:

061-2887

057-3716

057-3727

057-3749

MPEG-2 SD 4:2:0

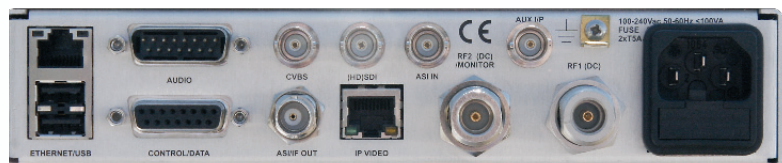
DVE BIS-E/ E encryption

ASI RE-MUX

DVB-S2 QPSK & 8PSK



DVE5100 Front Panel



DVE5100 Rear Panel