CELLMetric

Intelligent infrastructure

Modus 4 - DVB-S DVB-S2 Satellite RF Network Emulator

Play ► Modulate ► Up-Convert

Easy to use

Portable

ONLY
2.5kgs

Light weight

£ € $ ¥

Cost effective

CellMetric designs and manufactures innovative digital broadcast equipment.

Its products focus on reliability, ruggedness, modularity, intelligence and flexibility using leading edge digital technology.

CellMetric is based close to the centre of the historic university city of Cambridge, UK.

www.cellmetric.co.uk

CellMetric's Modus 4 RF network emulator is designed to provide cost effective, simple to use digital modulation and RF channel simulation for satellite broadcasters, silicon and software developers, sales demonstration and production test systems.

DVB-S/S2
Modus 4 can modulate live DVB TS feeds to the DVB-S and DVB-S2 standard using the Synchronous Parallel Interfaces or the inbuilt ASI interface. Modus 4 can also play transport streams from Compact Flash or internal Flash disk and modulate and up-convert them.
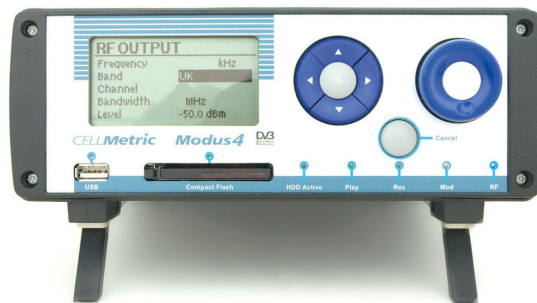
Modus 4 is a RF I/Q vector signal generator which is customized by the addition of DVB-S EN302307 and DVB-S2 EN300 421 modulation channel coders.

In the DVB-S2 mode Modus 4 supports QPSK, 8PSK, 16APSK and 32APSK modulation with Constant Channel Coding (CCM), Variable Channel Coding (VCM) and Adaptive Channel Coding (ACM).

Modus 4 supports generation of signals at RF in the L Band, with signals generated from the units channel coders (DVB-S/S2) or from pre stored I/Q data patterns. I/Q data can be down loaded from a control PC and stored in non volatile removable compact Flash memory cards or internal Flash hard disk.

Modus 4 generates its output signal in the RF domain with a low phase noise master oscillator from which I/Q modulated pairs are up converted to the L band. Output level can be controlled in the range 0dBm to –110 dBm using the inbuilt attenuator option in steps of 0.5 dB.

DVB– Composer
DVB - Composer is a PC application which creates DVB transport streams for the Modus 4. Emulating a transmission headend, composer takes pre encoded audio/video content and generates test transport streams.

Features & Benefits

❑ Software Defined Radio (SDR) architecture allows multi standard operation and simple upgrade

❑ Compact, light and portable for field trials and demonstrations

❑ Highly intuitive user Interface

❑ Cost effective for multiple unit deployment

❑ Application Specific I/Q™ channel coder options for DVB-S & DVB-S2

❑ QPSK, 8PSK, 16APSK & 32APSK modulation

❑ Supports CCM, VCM & ACM modes

❑ Integrated LDPC channel coder

❑ I/Q & RF Outputs UHF & L Band to 100 MHz to 2.2GHz

❑ Looks like a USB mass storage peripheral to control PC

❑ Play out from Compact Flash or internal Flash Disk Drive

❑ Includes customisable RF channel plans for most common scenarios

❑ I/Q streaming allows known stress test patterns to be replayed

❑ Internal PRBS generator for BER measurement

❑ CW mode for interference generation

❑ Options for:

❑ DVB-Composer –Test Stream Generation

Modus 4 Digital Modulator

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CCM, VCM & ACM Modulation support
Modus 4 supports Constant Coding & Modulation, Variable Coding & Modulation and Adaptive Coding & Modulation modes.

Intuitive user Interface
Modus 4 has a highly intuitive user interface making selection of play-out and modulation parameters simple.

Smart Start
Modus 4 supports non volatile configuration files associated with each transport stream it stores. This XML file configures the Modus 4 with the correct bitrate and modulation parameters for file play-out allowing auto playout on power up and greatly simplifying setup.

Remote Control
All Modus 4 functions are accessible via its RS232 remote control port.

Remote Upgrade
Modus 4 can be completely upgraded in the field using its file upload facility to Flash Memory.

Rugged and Portable
Modus 4 is both rugged and highly portable and comes with a custom flight case for transportation and field use.
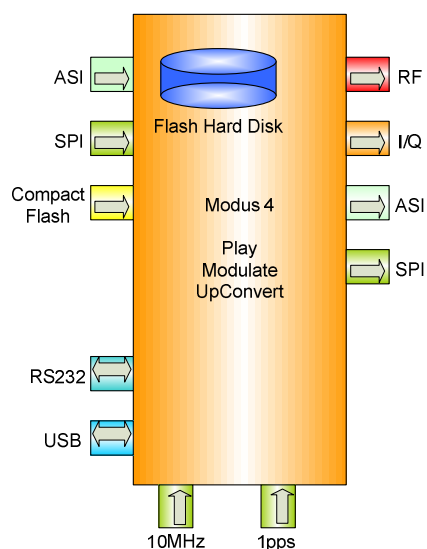
Ordering Information

I/Q Modulator	DVB-S DVB-S2	Modus 4
Options		
	DVB Composer	COMP

Technical Specification

Operating Conditions:

Power Supply voltage	100 to 260V 47-400 Hz AC
Operating Temperature range	0 to +40°C

Outputs:

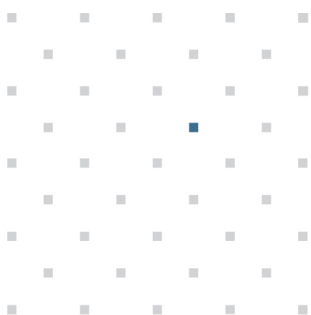|	
Frequency Range	100MHz to 2.2 GHz in 1KHz Steps
Output frequency accuracy	better than ± 3ppm over temperature range
Signal output level	0dBm nominal to -110dBm
Output Impedance	50 Ω
Resolution	0.5 dB
Repeatability	±1dB
Output RLR	Better than 10dB
Spectral flatness	Better than ± 0.5dB across any 8MHz channel
Gain Taper	Better than ± 2dB across the band
Intermodulation products	Better than -45dBc in channel, -60dBc out of channel

Modulation:

DVB-S	EN 302307
DVB-S2	EN 300 421
Modulation	QPSK, 8PSK, 16APSK, 32APSK
FEC	1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 7/8, 8/9
Frames	Short (16kb) and normal (64kb) supported
Base Bans Shaping	Roll Off 0.2, 0.25, 0.35
Spectral Polarity	Normal or inverted

Interfaces:

External Frequency Ref.	10MHz SMA Connector
Timing Ref.	1PPS SMA Connector
RF Out	SMA Connector 50Ω
I/Q Out	Differential ±I / ±Q Output
Serial	USB (Slave) RS232
Transport Stream In	Dual DVB ASI BNC connectors
Transport Stream In	Synchronous Parallel Interface (SPI) 25way D connector
Internal Memory	32 GByte Flash Drive
Removable Memory	Compact Flash Memory Card

Installation:

Desk top case	210 W x 74mm H x 220mm D
Weight	2.5Kg

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