Advanced Technologies | Datasheet

CALIAN
Confidence. Engineered.

Hercules satellite modulator

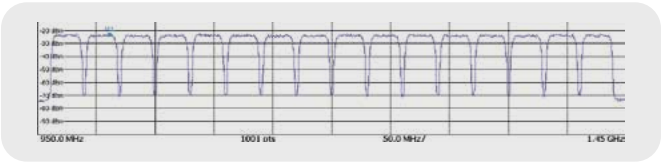
Generate multiple channels out of a single 1RU chassis

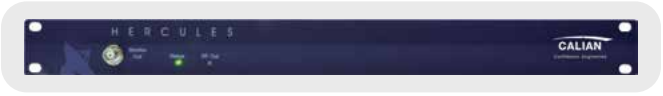
The Calian, Advanced Technologies Hercules satellite modulator is an innovative product for use in a multi-channel environment. The high density provides significant savings in capital costs, reduced operating expenses and other benefits.

Equipped with two GigE based IP data inputs, Hercules is capable of generating up to 16 independent 30 Msps carriers in the 950 MHz to 1750 MHz band.

All carriers are frequency agile and have individual control of power, symbol rate, FEC rate and roll off.

Hercules is flexible to support multiple operational modes and includes the ability to generate a single carrier up to 416 Msps. The convenient rear panel Ethernet management port provides easy access to the user interface using any standard web browser. An SNMP-based monitor and control interface provides a connection to external management systems.





Notes:

1. Several different operational scenarios are available. Contact Calian for more details.
2. Rate 9/10 is not applicable for short frames.
3. All specifications at 25°C unless otherwise noted.
4. All specifications subject to change without notice.

Technichnical specifications

DVB-S2

Signal format	• CCM
Modulation format and FEC rates	• **QPSK;** FEC rates 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/102 • **8PSK;** FEC rates 3/5, 2/3, 3/4, 5/6, 8/9, 9/10* • **6APSK;** FEC rates 2/3, 3/4, 4/5, 5/6, 8/9, 9/10* • **32APSK**; FEC rates 3/4, 4/5, 5/6, 8/9, 9/10*
Roll-off factor	• 0.05 to 0.35 with 0.05 resolution *Normal mode only

DVB-S/DSNG

Modulation format and FEC rates	• **QPSK;** FEC rates 1/2, 2/3, 3/4, 5/6, 7/8 • **8PSK;** FEC rates 2/3, 5/6, 8/9 • **16 QAM;** FEC rates 3/4, 7/8
Roll-off factor	• 0.05 to 0.5 with 0.05 resolution

Common

Spectral inversion	• On/Off
Packet stuffing and PCR recalculation	• Insert Null packets as required and recalculate PCR
Input sync	• On/Off. When on, symbol rate is determined from input data and selected modulation type and FEC rate.
Carrier control	• Off / No modulation (CW) / Random PN23 bit stream / input stream

Turbo

Modulation format and FEC rates	• **QPSK;** FEC rates 1/2, 2/3, 3/4, 5/6, 7/8 • **8PSK;** FEC rates 2/3, 3/4, 4/5, 5/6, 8/9
Roll-off factor	• 0.1 to 0.5 with 0.05 resolution

Performance

Min. symbol rate (per carrier)	• 1 carrier 45 Mbaud • 8 carrier 5 Mbaud • 6 carrier 100 Mbaud
Max. symbol rate (per carrier)	• 1 carrier 416 Mbaud • 8 carrier 72 Mbaud • 16 carrier 30 Mbaud
Max. symbol rate step	• 1 Baud
User packet size	• 188 bytes

Input interface

DVB-ASI*	• 75 Ω BNC; Qty 2

Ethernet (data)	• 10/100/1000 Base T (RJ-45); Qty 2
	• Supports COP3 as per:
	  • SMPTE 2022-1-2007 and
	  • SMPTE 2022-2-2007

Ethernet (control)	• 10/100 Base T (RJ-45)
10 MHz freq. ref.	• 50 Ω BNC-Female
Power	• Male IEC 320 • 100–120 VAC, 220–240 VAC auto-ranging, 50–60 Hz. Power consumption: 75 W typical

Control interface

SNMP	• SNMPv2. Accessed over ethernet physical interface.
Web interface	• Accessed over the ethernet physical interface.
Alarms	• Complete suite of parameters monitored. Access via GUI or SNMP. Comprehensive alarm history. Alarm relay contact - DB9 sockets.

L-band interface

Operating frequencies	• Band 1: 950 MHz to 1450 MHz • Band 2: 1250 MHz to 1750 MHz
L-band output	• 950 - 1750 MHz, 1 Hz step • 50 Ω SMA-Female • +5 to -25 dBm (composite)
Output power step	• 0.1 dB
Output power stability	• + 0.5 dB
Output power accuracy	• + 0.5 dB (single carrier)
Monitor output	• 50 Ω BNC - Female • 950 - 1750 MHz • -32 dBc, ±3 dB
Return loss	• Minimum 14 dB
Spurious	• -55 dBc in any 4 kHz bandwidth
Phase noise	• 100 Hz -80 dBc/Hz • 1 kHz -85 dBc/Hz • 10 kHz -85 dBc/Hz • 100 kHz -100 dBc/Hz • 1 MHz -110 dBc/Hz

Physical

Size	• 19" W, 1RU (1.75")H, 11" D • EIA standard 19 inch rack mountable
Weight	• 7 pounds

Environmental

Operating temp.	• 0°C to 50°C
Storage temp.	• -10°C to 55°C
Operating humidity	• 10% to 80% non-condensing
Electromagnetic compatibility	• EN 61000-6-2 2005, EN 55022 2006 Class A • FCC Title 47, Part 15
Safety	• EN 60950-1, UL 60950-1, CSA22.2 No. 60950-1

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calian.com/products/**hercules-satellite-modulator**
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