CDM-740 Satellite Modem

INTRODUCTION

The CDM-740 is Comtech EF Data's point to multi-point IP satellite modem that provides industry-leading performance with integrated DVB-S/S2 and Turbo Product Coding (TPC) technology in a 1 RU package at a very competitive price.

With the innovative high performance architecture, the CDM-740 allows efficient IP networking and transport over satellite links while supporting a wide range of applications and network topologies. The CDM-740 offers dual Gigabit Ethernet interfaces with industry leading packet per second (PPS) processing.

The unit transmits industry standard TPC interoperable with CDM-570/L, -562L, and -564/L modems up to 9.98 Mbps. The receive side supports DVB-S/S2 operation at L-Band up to 62 Msps. Available configurations include receive only and duplex.

The CDM-740 is the ideal platform for Internet Service Providers (ISPs), Satellite Service Providers, Enterprise, Offshore and Broadcasters for a wide range of applications – point to multi-point IP networks, rapid ISP market penetration, offshore communications, high speed content delivery (digital signage & digital cinema) and IPTV / business television.

The CDM-740 utilizes a high performance processor and a real-time operating system (RTOS) combined with multiple Field Programmable Gate Arrays (FPGAs) for optimal performance. All non-volatile memory is provided by both onboard and Compact Flash devices. Field upgrades are easily loaded via the Ethernet port.

The platform includes support for CCM and VCM operation. VCM allows operators to define groups of remotes that can have different modulation and coding parameters to improve efficiency on existing satellite capacity.

KEY FEATURES

- Transmit data rate: TPC 16 kbps to 9.98 Mbps
- Receive data rate: DVB-S/S2 up to 167 Mbps
- Transmit IF:
  - 950 to 2150 MHz or
  - 50 to 180 MHz
- Receive IF: 950 to 2150 MHz

- Data Interfaces:
  - 2 x 10/100/1000 BaseT Ethernet
- Management: 10/100 BaseT Ethernet for web and SNMP, EIA-232 and CLI
- Modulation types:
  - TPC QPSK, 8-QAM, 16-QAM
- Demodulation: DVB-S/S2 QPSK, 8-PSK, 16-APSK

MANAGEMENT

The modem supports SNMP, web-based and command line interfaces for satellite in-band or local management.

The modem can also be configured and monitored from the front panel, or through the remote M&C port. An event log stores alarm and status information in non volatile memory.

RELIABLE OPERATIONS

- No hard drive – All firmware boots from Flash resulting in no rotating storage media
- High availability product
- Embedded CPU and real time operating system

APPLICATIONS

- Point to Multi-Point IP Networks
- Rapid ISP market penetration
- Offshore Communications
- High Speed Content Delivery
  - Digital Signage
  - Digital Cinema
- IPTV / Business Television

RECEIVER / DEMODULATION FEATURES

- Support for up to 256 PIDs
- MPE/IP Decapsulation (ETSI EN 301 192 Multi-Protocol Encapsulation)

EASE OF USE

Configure via Terminal, HTTP & Telnet	SNMP MIB II and Private MIB
Serial Remote control	Front Panel Interface

DISPLAY/LEDs

Unit Status (Red-Green)	Stored Event (Amber)
Transmitter On (Green)	Rx-1 Status (Green)
Tx Status (Green)	Test Mode (Amber)
Online (Green)	

Modems

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RECEIVER / DEMODULATOR SPECIFICATIONS

L-Band Input	950 to 2150 MHz, Type F female
L-Band Input Power	-25 to -55 dBm
DVB-S	**ETSI EN 300 421**
1-45 Msps	QPSK FEC: 1/2, 2/3, 3/4, 5/6, 7/8
DVB-S2	**ETSI EN 302 307**
1-62 Msps	QPSK FEC: 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 8-PSK FEC: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
1-47 Msps	16-APSK FEC: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
LNB Support	Tuner: 13/18VDC @ 400 mA

TRANSMIT / MODULATOR SPECIFICATIONS

Frequency Range	50 to 180 MHz IF, 950 to 2150 MHz L-Band, 100 Hz frequency resolution
Data Rate Range	Programmable in 1 bps step

Modulation & FEC	Data Rate Range
21/44 QPSK TPC	16 kbps to 2.860 Mbps
3/4 QPSK TPC	16 kbps to 4.500 Mbps
7/8 QPSK TPC	16 kbps to 5.250 Mbps
0.95 QPSK TPC	16 kbps to 5.666 Mbps
3/4 8-QAM TPC	16 kbps to 6.750 Mbps
7/8 8-QAM TPC	16 kbps to 7.875 Mbps
0.95 8-QAM TPC	16 kbps to 8.500 Mbps
3/4 16-QAM TPC	16 kbps to 9.000 Mbps
7/8 16-QAM TPC	16.8 kbps to 9.980 Mbps
Scrambling	Comtech, IESS-315 per ITU V.35 (Intelsat variant), Disabled

CONNECTORS

1 RJ-45	10/100 BaseT Ethernet interface (IEEE 802.3u)
2 RJ-45	10/100/1000 BaseT Ethernet interfaces (IEEE 802.3ab)
4 BNC	2 ASI TX Outputs & 2 ASI RX Inputs
1 RJ-12	Terminal (RS-232) Interface
1 DB-9	Redundancy Interface Tx, Rx traffic alarms and unit faults
3 F-Type	(2) L-Band Input (1) L-Band Monitor Output
1 BNC	IF Transmit Output
1 N-Type	L-Band Transmit Output
1 USB	USB 2.0 Host A Interface (Future)
1 BNC	Reference: External Input / Internal Output

MODULATOR SPECIFICATIONS

	70/140	L-Band
Frequency Stability	±0.06 ppm, 0º to 50ºC (32º to 122ºF)	±0.06 ppm, 0º to 50ºC (32º to 122ºF)
Output Power	-5 to -25 dBm, 0.1 dB steps	-5 to -40 dBm, 0.1 dB steps
Power Accuracy	± 1.0 dB over frequency and temperature	± 1.0 dB at 25 C over frequency and temperature
Phase Noise	< 1 degree RMS double-sided, 100 Hz to 1 MHz	< 1 degrees RMS double-sided, 100 Hz to 1 MHz
Transmit Filtering	IESS-308/-309 spectral mask	
Harmonics and Spurious	< -60 dBc/4 kHz over operating frequency range (Typically < -65 dBc/4 kHz)	
BUC Reference (10 MHz)	Via Tx IF center conductor, 10 MHz per reference, selectable ON/OFF, 0 dBm ±3 dB	

PHYSICAL, POWER & ENVIRONMENTAL

Dimensions (1RU)	D=17.65″ x W= 19.0″x H = 1.75″ 1.75H x 19.0W x 17.7D inches (4.4H x 48W x 44,8D cm) approximate
Power Supply	100-240 VAC, 47Hz-63Hz IEC 320 input
Power Consumption	TBD W maximum, no BUC TBD W maximum, 24 VDC BUC TBD W maximum, 48 VDC BUC
Operating Temperature	0° to 50°C
Storage temperature	−20° to 70°C
Humidity	95% maximum, non-condensing
Weight	TBD lbs (TBD kgs) with 48 VDC BUC
Agency	CE and FCC Part 15 Class B

AVAILABLE OPTIONS

How Enabled	Option	How Enabled	Option
FAST	Tx TPC Data Rate	Hardware	Modulator TPC
FAST	Rx Symbol Rate		
FAST	Rx DVB-S/S2 16-APSK	Hardware	24 VDC BUC PS 48 VDC BUC PS
FAST	Tx 70/140 MHz and L-Band 950-2150		