



**Overview**

Comtech EF Data's Advanced VSAT Solutions portfolio provides high-performance satellite-based communication solutions for a diverse range of applications, including mobile backhaul with RAN optimization, IP trunking and backhaul, maritime and offshore networks, corporate and enterprise networks, emergency and disaster recovery. Incorporating advanced technologies developed by Comtech EF Data, AHA Products Group, Memotec and Stampede, the solutions provide unmatched performance, industry-leading bandwidth efficiencies and network optimization – while minimizing Total Cost of Ownership.

Designed for use at the hub site, CDM-800 combines a wide range of advanced technologies in a 1RU platform enabling the most efficient Time Division Multiplexed (TDM) outbound for hub-spoke networks:

- DVB-S2 with Adaptive Coding & Modulation (ACM)/ Variable Coding & Modulation (VCM)
- Low overhead encapsulation
- Lossless Payload compression
- Header compression

**Features**

- ACM/VCM Controller
- Symbol rate: 1 Msps to 62 Msps
- DVB-S2 Forward Error Correction
  - Modulation: QPSK, 8PSK, 16APSK, 32APSK
  - Adaptive Coding and Modulation (ACM)
  - Variable Coding and Modulation (VCM)
  - Rolloff : 20%, 25%, 35%
- Integrated packet processor
  - Low overhead Enhanced Generic Stream Encapsulation (GSE)
  - Header compression
  - Lossless Payload compression
  - Group Quality of Service (QoS)
- Bypass Mode for use with CTOG-250
- Transmit Frequency: 50 to 180 MHz or 950 to 2150 MHz
- Traffic Interfaces: 2 x 10/100/1000Base-T Ethernet
- Management Interface: 10/100Base-T Ethernet for web and SNMP
- BUC support
- 1:1 Redundancy

- Typical Users**
- Mobile Operators
  - Telecom Operators
  - Offshore & Maritime
  - Enterprise
  - Internet Service Providers (ISPs)
- Common Applications**
- Mobile Backhaul with RAN Optimization
  - IP Trunking & Internet Access
  - Maritime & offshore communications



CDM-800 Back Panel

## Specifications

Transmit Data Rate (Pilots OffOn)	QPSK	0.479 – 108.255 Mbps
	8PSK	1.740 – 160.0 Mbps
	16APSK	2.575 – 160.0 Mbps
	32APSK	3.623 – 160.0 Mbps
Transmit Symbol Rate	QPSK	1 to 62 Msps
	8PSK	1 to 62 Msps
	16APSK	1 to 47 Msps
	32APSK	1 to 37 Msps
FEC	DVB-S2 Decoder (ACM, CGM and VCM modes) Short Frame, Normal frame	
<b>Modulation &amp; FEC</b>	<b>Data Rate Range (Normal FEC frame, ots on)</b>	
QPSK 1/4	0.479 – 29.672 Mbps	
QPSK 1/3	0.641 – 39.731 Mbps	
QPSK 2/5	0.771 – 47.779 Mbps	
QPSK 1/2	0.965 – 59.850 Mbps	
QPSK 3/5	1.160 – 71.922 Mbps	
QPSK 2/3	1.291 – 80.029 Mbps	
QPSK 3/4	1.452 – 90.029 Mbps	
QPSK 4/5	1.549 – 96.064 Mbps	
QPSK 5/6	1.615 – 100.148 Mbps	
QPSK 8/9	1.724 – 106.914 Mbps	
QPSK 9/10	1.746 – 108.255 Mbps	
8PSK 3/5	1.740 – 107.853 Mbps	
8PSK 2/3	1.936 – 120.011 Mbps	
8PSK 3/4	2.178 – 135.007 Mbps	
8PSK 5/6	2.422 – 150.181 Mbps	
8PSK 8/9	2.586 – 160.000 Mbps	
8PSK 9/10	2.618 – 160.000 Mbps	
16APSK 2/3	2.575 – 121.007 Mbps	
16APSK 3/4	2.896 – 136.127 Mbps	
16APSK 4/5	3.090 – 145.253 Mbps	
16APSK 5/6	3.222 – 151.428 Mbps	
16APSK 8/9	3.440 – 160.000 Mbps	
16APSK 9/10	3.483 – 160.000 Mbps	
32APSK 3/4	3.623 – 134.063 Mbps	
32APSK 4/5	3.866 – 143.051 Mbps	
32APSK 5/6	4.031 – 149.132 Mbps	
32APSK 8/9	4.303 – 159.207 Mbps	
32APSK 9/10	4.357 – 160.000 Mbps	
Encapsulation	Low Overhead Enhanced GSE	

### Modulator Specifications

Operating Frequency	50 to 180 MHz
	950 to 2150 MHz (L-Band)
	100 Hz frequency resolution
Frequency Stability	± 0.06 ppm (± 6 x 10 <sup>-8</sup> ), 0 to 50°C (32 to 122°F)
Scrambling	PL Scrambling (Gold Codes), disabled
Spectral Inversion	Normal or inverted
Transmit Filtering	Per ETSI EN 302-207
Transmit Filter Rolloff (Alpha)	20%, 25% and 35%
Pilot Insertion	User Selectable – on/off
Output Power	-5 to -25 dBm, in 0.1 dB steps (50 – 180 MHz)
	-5 to -40 dBm, in 0.1 dB steps (950 – 2150 MHz)
Output Power Accuracy	± 1.0 dB over frequency, data rate, modulation type and temperature range of 0 to 50°C
Transmit On/Off Ratio	-60 dBc minimum
Harmonics and Spurious	Better than -60 dBc/4 kHz (typically < 65 dBc/4 kHz) Measured from 1 to 500 MHz (50 - 180 MHz) Measured from F <sub>o</sub> +/- 500 MHz (950 - 2150 MHz)

Output Phase Noise	< 1° rms double sided, 100 Hz to 1 MHz (minimum of 6 dB better overall than the Intelsat IESS-308/309 requirement)
	<b>dB/Hz      Frequency Offset</b>
	-66.0      100 Hz
	-76.0      1 kHz
	-86.0      10 kHz
	-96.0      100 kHz
	Fundamental AC line spurious is -42 dBc or lower The sum of all other single sideband spurious, from 0 to 0.75 x symbol rate, is 48 dBc or lower
Impedance	50 Ω /75 Ω (50 – 180 MHz) 50 Ω (950 – 2150 MHz)
Return Loss	15 dB, minimum (50 – 180 MHz) 12 dB, minimum (15 dB typical) (950 – 2150 MHz)
External TX Carrier Off	By TTL 'low' signal
Test Modes	CW, 1/0 pattern, 2 <sup>23</sup> -1 and 2047 patterns

### Packet Processor

#### Supported Protocols

RFC 768 – UDP	RFC 1812 – IPv4 Routers
RFC 791 – IP	RFC 2045 – MIME
RFC 792 – ICMP	RFC 2474 – Diffserv
RFC 793 – TCP	RFC 2475 – Diffserv
RFC 826 – ARP	RFC 2578 – SMI
RFC 856 – Telnet	RFC 2597 – AF PHB
RFC 862 – Ping	RFC 2598 – Expedite Forwarding
RFC 894 – IP	RFC 2616 – HTTP
RFC 959 – FTP	RFC 3412 – SNMP
RFC 1112 – IP Multicast	RFC 3416 – SNMPv2
RFC 1213 – SNMP MIB II	RFC 3418 – SNMP MIB
Statistics	Detailed packet and throughput stats

### Connectors

70/140 MHz Transmit	BNC (female)
L-Band Transmit	N-type (female)
External Reference	BNC (female)
10/100Base-T Ethernet interface (IEEE 802.3u)	1 x RJ-45
10/100/1000Base-T Ethernet interface (IEEE 802.3ab)	2 x RJ-45
Remote Control / Console Port	9-pin D-sub (male)

### Available Options

<b>Option</b>	<b>ye</b>
-48 VDC, Primary Power Supply	Hardware
24 VDC, 90 W @ 50 °C BUC Power Supply	Hardware
48 VDC, 150 W @ 50 °C BUC Power Supply	Hardware
Transmit Symbol Rate	FAST

### Physical, Power & Environmental

Dimensions (1RU) (height x width x depth)	1.75" x 19.0" x 17.7" (4.4 x 48 x 44.8 cm) approximate
Power Supply	100-240 VAC, 47 Hz-63 Hz IEC 320 input -48 VDC (HW option)
Operating Temperature	0 to 50°C
Storage temperature	-20 to 70°C
Humidity	95% maximum, non-condensing

### Accessories

CRS-170A	1:1 Modem Redundancy Switch (L-Band)
CRS-180	1:1 Modem Redundancy Switch (70/140 MHz)

### Regulatory

CE Mark	EN 301 489-1 (ERM) EN55022 (Emissions) EN55024 (Immunity) EN 61000-3-2 EN 61000-3-3 EN60950 (Safety)
FCC	FCC Part 15, Subpart B

