

The 03bTrunk product suite is supported by the most advanced modulation technologies in the industry. 03bTrunk is offered in unprecedented data rates ranging from 100megabits to 1gigabit with a forward-to-return ration of approximately 3:1, and supports applications such as VoIP, video conferencing and private corporate data network applications.



CDM-750 Advanced High-Speed Trunking Modem

The CDM-750 Advanced High-Speed Trunking Modem was designed to be the most efficient, highest throughput, point-to-point trunking modem available. The CDM-750 accommodates the most demanding Internet Service Provider (ISP) and telco backhaul links by offering users the most advanced combination of space segment saving capabilities while minimizing the need for unnecessary overhead. With the ability to process packets at line speed, the CDM-750 will not throttle throughput due to processing limitations. Beginning with the most efficient coding and modulation available, the CDM-750 leverages the DVB-S2 EN 302 307 LDPC/BCH standard to provide the best possible combination of coding and forward error correction ensuring that the maximum amount of satellite traffic is transported for a given signal to noise capacity.

Implementing Adaptive Coding and Modulation (ACM) operation (in packet-based applications) allows link margin to be converted to user capacity during non-faded conditions by taking advantage of the actual signal to noise ratio rather than calculated worst case signal to noise. This technology transforms link margin, implementation margin and margin for antenna pointing directly to improved throughput.

By using the best encapsulation methods, the CDM-750 further increases throughput by using minimal overhead. In G.703 synchronous mode, users can implement monitor and control over the satellite with no additional overhead. When using Ethernet bridge mode, less than 1% overhead is used for encapsulation.

The optional K4 GZIP lossless compression engine performs real-time compression of Ethernet traffic and is capable of running at the full rate of the modem. Offering 52% to 59% compression rates at random packet sizes using the Calgary Corpus bitstream, K4 GZIP can greatly increase the throughput of the satellite link, or reduce required bandwidth.

These technologies alone offer enormous savings to the ISP and telco operator. When used in combination, however, the savings are astronomical. The innovative high-performance architecture of the CDM-750 allows efficient networking and transport over satellite links while supporting a wide range of applications and network topologies.

Typical users

- Mobile Operators
- Telecom Operators
- ISPs
- Government & Military

Common applications

- IP Trunking
- G.703 Trunking
- High-Speed Content Delivery
- Disaster Recovery & Emergency Communications



Features

- Symbol Rate: 1 – 63 Msps
- Data Rate: 1 – 169 Mbps
- DVB-S2 ETSI EN 302 307 compliant
- ACM and CCM
- GSE – industry standard encapsulation
- K4 GZIP lossless compression
- Modulation: QPSK, 8-PSK, 16-APSK, 32-APSK
- Coding: DVB-S2 LDPC/BCH
- Dual IF: 70/140 MHz, L-Band and L-Band monitor (standard)
- Data Interfaces
 - 2 Gigabit 10/100/1000Base-T interfaces (standard)
 - 1 Optical Gigabit interface (optional)
 - Process > 300,000 pps simplex, > 600,000 pps duplex
 - PIIC optional interface cards
 - G.703 E3/T3/STS-1 (34.368, 44.736, 51.84 Mbps)
 - STM-1 Copper SDH (155.52 Mbps)
 - OC-3 SONET single mode or multi-mode 1300 nm (155.52 Mbps)
- Management: HTTP, SNMP, Telnet, RS 232/485
- In-band (over satellite) M&C control
- 1:1 redundancy switching available

Specifications

Symbol/Data Rate Range DVB-S2	Programmable in 1 sps increments <ul style="list-style-type: none"> • QPSK 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 to 63 Msps/112.6 Mbps max. • 8-PSK 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 to 63 Msps/168.7 Mbps max. • 16-APSK 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 to 47 Msps/167.6 Mbps max. • 32-APSK 3/4, 4/5, 5/6, 8/9, 9/10 to 38 Msps/169.2 Mbps max.
FECFrame	Normal (64,800 bits) or short (16,200 bits)
Pilots	On or off
Alpha (Rolloff)	20%, 25% or 35%
Management	Front panel keypad/display RS-232 /485, or 10/100Base-T with SNMP, Telnet, HTTP
Reflash	Ethernet management port
Frequency Stability	Internal, stability ± 0.06 ppm
External Reference Input/ Output (BNC Female)	Internal, 1, 2, 5 or 10, MHz for IF and data, internally phase locked. Output: off or internal 10 MHz
Form C	Modulator, demodulator and unit fault
Spectral Sense	Normal and inverted
Configuration Retention	Non-volatile memory; Returns upon power up

Options

Type	Option
FAST	DVB-S2 TX/RX: 8-PSK, 16-APSK, 32-APSK
FAST	Symbol rate options
FAST & Hardware	K4 GZIP lossless compression
FAST	ACM point to point client/controller
FAST	Optical Gigabit Ethernet enable
Hardware	PIIC optional interface cards
	G.703 E3/T3/STS-1 (34.368, 44.736, 51.84 Mbps)
	STM-1 Copper SDH (155.52 Mbps)
	OC-3 SONET single mode or multi-mode 1300 nm (155.52 Mbps)
Hardware	Rack slides

Modulator (Dual IF)

70/140 MHz	50 to 180 MHz in 100 Hz steps
Impedance/Connector	75 Ω , BNC female. Return loss ≥ 18 dB
Output Power	0 to -25 dBm, 0.1 dB steps (70/140 MHz)
Power Accuracy	± 0.5 dB of nominal at 25°C; Within ± 0.5 dB from 25°C value at same frequency
L-Band	950 to 2150 MHz in 100 Hz steps
Impedance/Connector	50 Ω , Type N female. Return loss ≥ 15 dB
Output Power	0 to -40 dBm, 0.1 dB steps
Power Accuracy	± 0.5 dB of nominal at 25°C ± 0.5 dB from 25°C value at same frequency
L-Band Monitor	Same as L-Band or 900 + 70/140 MHz IF at -27 dBm ± 3 dB
Harmonics and Spurs	< 60 dBc/4kHz, modulated carrier; Excludes spectral mask area
External TX Carrier Off	TTL low signal
Quadrature Phase Error and Amplitude Imbalance	Sideband 35 dB below unmodulated carrier

Demodulator (Dual IF)

70/140 MHz	50 to 180 MHz in 100 Hz steps
Impedance/Connector	75 Ω, BNC female. Return loss 15 dB min.
Input Power	Desired carrier = -58 + 10Log (symbol rate in Msps) dBm min. and -18 dBm max.
Max. Composite Power	The lesser of 20 dBc -10Log (symbol rate in Msps) or -3 dBm
L-Band	950 to 2150 MHz in 100 Hz steps
Impedance/Connector	50 Ω, Type N female. Return loss 10 dB min.
Input Power	Desired carrier = -65 + 10 Log (Symbol rate in Msps) dBm min. and -25 dBm max.
Maximum Composite	The lesser of 30 dBc - (normal frame) 10 Log (symbol rate in Msps) or -10 dBm

Guaranteed Es/No per DVB-S2 QEF specification PER 1E-7

Mod/Cod	Es/No	Mod/Cod	Es/No	Mod/Cod	Es/No
QPSK - 1/2	1.4	8-PSK - 2/3	7.4	16-APSK - 8/9	13.8
QPSK - 3/5	2.7	8-PSK - 3/4	8.5	16-APSK - 9/10	14.0
QPSK - 2/3	3.4	8-PSK - 5/6	10.0	32-APSK - 3/4	14.6
QPSK - 3/4	4.6	8-PSK - 8/9	11.3	32-APSK - 4/5	15.8
QPSK - 4/5	5.1	8-PSK - 9/10	11.6	32-APSK - 5/6	16.6
QPSK - 5/6	5.6	16-APSK - 2/3	9.9	32-APSK - 8/9	19.1
QPSK - 8/9	6.7	16-APSK - 3/4	11.2	32-APSK - 9/10	19.5
QPSK - 9/10	6.8	16-APSK - 4/5	12.0		
8-PSK - 3/5	6.4	16-APSK - 5/6	12.4		

Test Functions

Data Test Pattern	2047 and 2 ²³ -1 compatible with BERT on TX data on applicable interfaces
CW	Modulation disabled and CW signal is transmitted
SSB Carrier	Provides suppressed carrier and suppressed sideband
Loopback	Full-duplex only

Environmental and Physical

Temperature	
- Operating	0 to 50°C (32 to 122°F)
- Storage	-40 to 70°C (-40 to 158°F)
Humidity	95% maximum, non-condensing
Power Supply Input	100 to 240 AC 50/60 Hz
Power Consumption	
- 120 VAC at 60 Hz	88 W, 93 VA typical
- 230 VAC at 50 Hz	88 W, 133 VA typical
Dimensions (1RU) (height x width x depth)	1.75" x 19" x 18.65" (48 x 47.4 x 4.4 cm)
Weight	15 lbs (6.8 kg)
AC Receptacles	Includes restraint for standard IEC-320 inlet
Agency Compliance	CE Mark and FCC part 15

Accessories

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



CDM-750 Rear Panel



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