CDD-564L L-Band Demodulator

INTRODUCTION

The CDD-564L receives four, independent L-Band channels and combines them into a single, network-ready, 10/100 Base-T Ethernet port. The four demodulators, integral router and IP Module are housed in a 1RU chassis. The CDD-564L is designed to operate with Comtech EF Data's IP-enabled product line, including modems and performance enhancement proxies.

FEATURES FOR EACH DEMODULATOR

- 950 to 1950 MHz each demodulator
- 7.2 kbps to 4.72 Mbps data rate
- Fast acquisition demodulator
- QPSK modulation
- 2nd Generation Turbo Product Coding (TPC) forward error correction
- LNB support: 10 MHz reference and, LNB power

STANDARD FEATURES

- Static IP routing for unicast and multicast
- Powerful network management via SNMP, Web, or Telnet
- IGMP v1 and v2
- Symmetric as well as asymmetric operation for maximum bandwidth efficiency
- Point-to-Point or Point-to-Multi-Point configuration
- Supports Quality of Service
- 10/100 Base-T Ethernet data interface (RJ-45)
- Reflash using FTP via Ethernet port
- FAST feature upgrades from factory or field
- Front Panel LEDs for Unit Status, Stored Event and the status of each of the four receive channels
- Interoperable with the CDM-570L with IP Module, CDM-IP 550, CDM-IP 300L

QUALITY OF SERVICE (QoS)

QoS support is provided by the CDD-564L by operating seamlessly with the QoS modes in the CDM-570L.

OPTIONAL FEATURES

- Header Compression
- Payload Compression
- 3xDES Encryption

HEADER COMPRESSION OPTION

Configurable on a per route basis, header compression reduces the required Voice over Internet Protocol (VoIP) bandwidth by as much as 60%. Example: A G.729 voice codec, operating at 8 kbps, will occupy 32 kbps once encapsulated into IP framing on a LAN. Using IP/UDP/RTP Header Compression, the same traffic only needs 10.8 kbps total WAN satellite bandwidth to cross the link. Normal Web/HTTP traffic can be reduced an additional 10% via IP/TCP header compression.

PAYLOAD COMPRESSION OPTION

Compressing payload reduces both the data frame size and satellite bandwidth required to transmit across the link. Configurable on a per route basis, Payload Compression optimizes traffic and reduces bandwidth up to 40%.

DATA ENCRYPTION OPTION

The CDD-564L supports 3xDES data encryption to prevent unauthorized access to data over the satellite link, and is configurable on a per demodulator basis.

NETWORK TOPOLOGIES

The CDD-564L simplifies hub site installations by reducing rack space and costs with four independent demodulators in a chassis. A bank of CDD-564L demodulators is ideal for a star network consisting of a single outbound carrier at the hub with multiple carriers returned from the remote sites.

At remotes sites, the CDD-564L supports mesh connectivity between multiple sites. Operating in mesh topology with links directly between sites eliminates double-hops through the hub, conserving bandwidth and reducing latency.

Modems

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SYSTEM SPECIFICATIONS

Frequency Range	950 to 1950 MHz, 100 Hz frequency resolution
Inputs	4 separate Rx Only, Type N female Connector
Input Impedance	50Ω, 17 dB minimum return loss
Traffic & Management Interface	10/100 Base-T Ethernet, RJ-45
Command Line Interface (CLI)	RS-232, RJ-11
Factory Test Connector	DB-9 male
Frequency Reference	± 0.06 ppm, 32 to 122°F (0 to 50°C) internal External - none
Symbol Rate Range	4.8 ksps to 2.5 Msps
Data Rate Range – Each demodulator independently in 1 bps increments	
Rate 3/4 QPSK TPC	7.2 kbps to 3.75 Mbps
Rate 0.95 QPSK TPC	9.1 kbps to 4.72 Mbps *(See the CDD-564L manual for details)*
Scrambling	Comtech or IESS-315
FEC Turbo Product Coding (Standard)	Rate 3/4, 0.95 QPSK

DEMODULATOR

Input Power Range	(-130 + 10 Log Symbol Rate) dBm minimum (-90 + 10 Log Symbol Rate) dBm maximum
Max Composite Level	+43 dBc, up to -10 dBm
Acquisition Range	± 1 to ± 32 kHz (1 kHz steps) < 625 ksps ± 1 to ± 200 kHz ≥ 625 ksps

EXAMPLE BER PERFORMANCE

Met with two adjacent carriers 7 dB higher
Guaranteed E_b/N_o in dB (Typical values in parentheses)

Turbo Product Codec

(QPSK)	3/4	0.95
10^{-5}	3.8 (3.4)	6.4 (6.0)
10^{-6}	4.4 (4.0)	6.9 (6.5)

Monitor Functions	E_b/N_o, Frequency Offset, BER, LNB current and voltage Rx receive signal level

LOW-NOISE BLOCK CONVERTER (LNB) SUPPORT

LNB Voltage	+13 volts, +18 volts and +24 volts DC or OFF at 500 mA max per Rx Input
10 MHz Reference Power Level	-3 dBm ± 3dB via Rx center conductor. Selectable ON or OFF per Rx Input

ENVIRONMENTAL AND PHYSICAL

Temperature	
Operating	32 to 122°F (0 to 50°C)
Storage	-13 to 185°F (-25 to 85°C)
Power Supply	100 to 240 volts AC, 50/60 Hz Optional 48 VDC Input (38 to 60)
Power Consumption	75 W typical (140 W max – powering 4 LNBs)
Physical Dimensions	1RU high, 16 inches deep (40.6 cm)
Weight	7 lbs (3.2 kg)
Agency Approvals	CE Mark FCC Part 15 Class B

NETWORK PROTOCOLS

RFC 768 – UDP	RFC 1812 – IPv4 Routers
RFC 791 – IP	RFC 2045 – MIME
RFC 792 – ICMP	RFC 2236 – IGMP v2
RFC 793 – TCP	RFC 2578 – SMI
RFC 826 – ARP	RFC 2597 – AF PHB
RFC 856 – Telnet	RFC 2598 – Expedite Forwarding
RFC 862 – Ping	RFC 2616 – HTTP
RFC 894 – IP	RFC 2821 – SMTP
RFC 959 – FTP	RFC 3412 – SNMP
RFC 1112 – IP Multicast	RFC 3416 – SNMPv2
RFC 1213 – SNMP MIB II	RFC 3418 – SNMP MIB

AVAILABLE OPTIONS

How Enabled	Option
Standard	Variable Rate to 512 kbps
FAST	Variable Rate to 2.048 Mbps
FAST	Variable Rate to 4.72 Mbps
FAST	Header Compression
FAST	Payload Compression
FAST	3xDES Data Encryption
Hardware	-48 VDC Prime Power Supply