

CDD-564A, CDD-564AL & CDD-562AL IP Demodulators

Satellite Modems



Overview

The CDD-564A, CDD-564AL and CDD-562AL are our next generation integrated IP demodulators providing industry leading performance in a 1 RU package at a competitive price. They are designed to receive up to four independent 70/140 MHz or L-Band channels (depending on model) and combine the receive data into a single 10/100Base-T Ethernet port for transmission onto the LAN. The demodulators are designed to operate with Comtech EF Data's CDM-570/L-IP and CDM-570A/L-IP IP-enabled modems.

Typical Users

- Enterprise
- Broadcasters
- Internet Service Providers
- Oil Field Service Providers
- Maritime
- Government & Military

Features

- Independent demodulators
 - CDD-564A: Four 70/140 MHz demodulators
 - CDD-564AL: Four L-band demodulators
 - CDD-562AL: Two L-band demodulators
 - CDD-564A: 50 to 90 or 100 to 180 MHz
 - CDD-562AL & CDD-564AL: 950 to 2250 MHz
 - 16 kbps to 10.239 Mbps data rate
 - BPSK, QPSK, 8PSK/8-QAM, 16-QAM demodulation
 - VersaFEC® low latency LDPC forward error correction (Constant Coding & Modulation Mode)
 - 2nd Generation Turbo Product Coding (TPC) forward error correction
 - 5%, 10%, 15%, 20%, 25% and 35% Filter Rolloff
- Static IP routing for unicast and multicast
- Management via SNMP, Web or Telnet
- IGMP v1 and v2
- 10/100Base-T- Ethernet data interface (RJ-45)
- 10/100Base-T- Ethernet management interface (RJ-45)
- Firmware upgrade via FTP
- Front panel LEDs for unit status, stored event indication and the status of each receive channel
- LNB support: 10 MHz reference and LNB power
- Compatible with the CDM-570/L-IP (TPC) and CDM-570A/L-IP (TPC or VersaFEC)

Common Applications

- Disaster Recovery & Emergency Communications
- Enterprise
- Offshore & Maritime Communications
- Satellite News Gathering

Network Topologies

The CDD-562AL and CDD-564A/L are intended for use as hub receivers for Hub Spoke networks consisting of a shared outbound carrier with multiple return carriers from remote sites. The CDD-562AL and CDD-564A/L simplify hub deployment by reducing rack space and costs by providing two and four independent demodulators respectively in a 1RU chassis. At remote sites, the CDD-562AL or CDD-564A/L is used to enable single hop mesh connectivity between remote sites. Operating in mesh topology with direct connectivity between sites eliminates double-hop through the hub, thereby conserving bandwidth and reducing latency.

Quality Of Service (QoS)

The CDD-564A/L and CDD-562AL transparently pass the QoS prioritization established at the transmit end by the CDM-570A/L-IP Satellite Modem.

Header Decompression Option

Header compression reduces the bandwidth required for Voice over Internet Protocol (VoIP) by as much as 60%. Example: A G.729 voice codec, operating at 8 kbps, requires 32 kbps bandwidth once encapsulated into an IP/UDP/RTP frame. With IP/UDP/RTP header compression, the same voice call needs only 10.8 kbps total WAN satellite bandwidth. Typical Web/HTTP traffic can be reduced by 10% via IP/TCP header compression. Each demodulator can be independently configured for header decompression.

VersaFEC Forward Error Correction

VersaFEC is a patent-pending system of high-performance low latency LDPC codes designed to provide maximum coding gain while minimizing latency. CDD-564A/L and CDD-562AL support VersaFEC's Constant Coding & Modulation (CCM) mode of operation.

Vipersat Management System Integration

A Vipersat powered network integrates these advanced demodulators with a powerful network management tool, the Vipersat Management System (VMS). In addition to the traditional Monitoring and Control of the CDM-570A/L-IP modems and the CDD-564A/L and CDD-562AL demodulators, the VMS allows these devices to share bandwidth, and when needed, switch automatically to a dedicated SCPC channel on demand.

VMS provides for dynamic bandwidth allocation while in SCPC mode, automatically altering the bandwidth based on traffic conditions. This effectively enables the network to better handle connection oriented applications and reduce network congestion, jitter and latency. The VMS also allows for dynamic point-to-point mesh connections to be established between remotes.

Specifications

| | |
|---------------------------------------|--|
| Data Rate Range | 16 kbps to 10.239 Mbps (VersaFEC) 16 kbps to 9.98 Mbps (TPC) |
| Maximum Symbol Rate | 3.0 Msps |
| Traffic Interface | 10/100Base-T Ethernet (RJ-45) |
| M&C Interface | 10/100Base-T Ethernet (RJ-45) |
| Command Line Interface (CLI) | RS-232, RJ-11 |
| Descrambling | Comtech or IESS-315 |
| Demodulation, FEC and Data Rate Range | Each demodulator independently configurable in 1 bps increments (<i>See the User's Manual for details</i>) |
| VersaFEC | |
| BPSK 0.488 | 16 kbps to 1.462 Mbps |
| QPSK 0.533 | 16 kbps to 3.200 Mbps |
| QPSK 0.631 | 16 kbps to 3.785 Mbps |
| QPSK 0.706 | 16 kbps to 4.233 Mbps |
| QPSK 0.803 | 16 kbps to 4.818 Mbps |
| 8-QAM 0.576 (ECCM) | 16 kbps to 5.179 Mbps |
| 8-QAM 0.642 | 16 kbps to 5.782 Mbps |
| 8-QAM 0.711 | 16 kbps to 6.401 Mbps |
| 8-QAM 0.780 | 16 kbps to 7.021 Mbps |
| 16-QAM 0.644 (ECCM) | 16 kbps to 7.726 Mbps |
| 16-QAM 0.731 | 16 kbps to 8.776 Mbps |
| 16-QAM 0.780 | 16 kbps to 9.361 Mbps |
| 16-QAM 0.829 | 16 kbps to 9.946 Mbps |
| 16-QAM 0.853 | 16.4 kbps to 10.239 Mbps |
| TPC | |
| BPSK 5/16 | 16 kbps to 0.937 Mbps |
| BPSK 21/44 | 16 kbps to 1.430 Mbps |
| QPSK/OQPSK 21/44 | 16 kbps to 2.860 Mbps |
| QPSK/OQPSK 3/4 | 16 kbps to 4.500 Mbps |
| QPSK/OQPSK 7/8 | 16 kbps to 5.250 Mbps |
| QPSK/OQPSK 0.95 | 16 kbps to 5.666 Mbps |
| 8PSK/8-QAM 3/4 | 16 kbps to 6.750 Mbps |
| 8PSK/8-QAM 7/8 | 16 kbps to 7.875 Mbps |
| 8PSK/8-QAM 0.95 | 16 kbps to 8.500 Mbps |
| 16-QAM 3/4 | 16 kbps to 9.000 Mbps |
| 16-QAM 7/8 | 16.8 kbps to 9.980 Mbps |

Demodulator

| | |
|---------------------|--|
| Frequency Range | CDD-564A: 50 to 90 or 100 to 180 MHz, CDD-564AL & CDD-562AL: 950 to 2250 MHz, 100 Hz frequency resolution |
| Inputs | CDD-564A: 4 separate BNC female CDD-564AL: 4 separate Type N female CDD-562AL: 2 separate Type N female |
| Input Impedance | CDD-564A: 50 or 75 Ω user selectable, 17 dB minimum return loss CDD-564AL & CDD-562AL: 50 Ω , 17 dB minimum return loss |
| Input Power Range | CDD-564A: -30 to -60 dBm CDD-562AL & CDD-564AL: -130 + 10 log(symbol rate) dBm to -90 + 10 log(symbol rate) dBm |
| Max Composite Level | CDD-562AL & CDD-564AL : +40 dBc, up to -10 dBm CDD-564A: +35 dBc, up to -5 dBm |
| Acquisition Range | ± 1 to ± 32 kHz (1 kHz steps) < 625 kcps ± 1 to ± 200 kHz ≥ 625 kcps (CDD-562AL & CDD-564AL) |

| | |
|---------------------|--|
| Frequency Reference | CDD-564AL & CDD-562AL: Internal ± 0.06 ppm, 32 to 122°F (0 to 50°C) CDD564A: Internal ± 1 ppm, 32 to 122°F (0 to 50°C) External – none |
| Monitor Functions | E_b/N_0 , Frequency offset, BER, LNB current and voltage, RX receive signal level |

LNB Support (CDD-562AL & CDD-564AL)

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|------------------------------|--|
| LNB Voltage | +13 VDC, +18 VDC or OFF at 500 mA max. per RX input |
| 10 MHz Reference Power Level | 0 dBm ± 5 dB via RX center conductor. Selectable ON or OFF per RX input |

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 2474 – Diff Serv |
| RFC 826 – ARP | RFC 2475 – ADS |
| RFC 856 – Telnet | RFC 2578 – SMI |
| 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 |

Vipersat Operation Mode

Vipersat operation is enabled via a FAST feature code. Networks can easily start off in point-to-point or point-to-multipoint configurations. As the network grows and users wish to take advantage of the bandwidth on demand savings by implementing a Vipersat network, demodulators can easily be upgraded to Vipersat mode. Vipersat mode provides for the ability to operate in the following demodulation/FEC rates:

| | |
|-------|--|
| STDMA | QPSK, rate 3/4 Turbo FEC – all STDMA modes. Data rate range: 64 kbps – 4.5 Mbps |
| SCPC | All VersaFEC and TPC rates as detailed herein |

Available Options

| How Enabled | Option |
|-------------|---|
| Standard | Data rate to 512 kbps |
| FAST | Data rate to 1.1 Mbps |
| FAST | Data rate to 2.5 Mbps |
| FAST | Data rate to 5.0 Mbps |
| FAST | Data rate to 10.239 Mbps |
| FAST | 8PSK/8-QAM demodulation |
| FAST | 16-QAM demodulation |
| FAST | VersaFEC (CCM Only) |
| FAST | TPC Codec for Rate 5/16, 21/44, 3/4 and 7/8 (Rate 5/16, 21/44, 3/4 and 7/8 can be supported with or without the TPC board) Not required if TPC board is present. |
| FAST | 5%, 10%, 15%, 20% and 25% filter rolloff |
| FAST | Header decompression |
| FAST | Payload decompression |
| Hardware | Turbo Product Code (TPC) Board (Required for Rate 0.95. Rate 5/16, 21/44, 3/4 and 7/8 can be supported with or without the TPC board) |
| Hardware | -48 VDC Prime power supply |

Environmental & 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

Power Consumption 55 W typical (106 W max. – powering 4 LNBs)

Dimensions 1.75" x 19" x 17.3"
(height x width x depth)

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

Weight 7 lbs (3.2 kg)

Rear Panels



CDD-562AL



CDD-564A



CDD-564AL



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