Newtec

MDM5000
SATELLITE MODEM
(R3.2)

Newtec Dialog®

MDM5000 High Throughput Modem on the Newtec Dialog® Platform

The Newtec MDM5000 Satellite modem – as used on the Newtec Dialog® platform – is the first VSAT modem on the market that supports DVB-S2X. With a symbol rate ranging from 1 up to 133 Mbaud and coding from QPSK to 256APSK in the forward channel, it enables network operators to set-up almost any type and size of network on any available type of satellite – for example, traditional FSS, next generation High Performance Satellites, HTS.

The Newtec MDM5000 Satellite Modem supports a wide range of IP Services including internet/intranet access, Voice over IP (VoIP), backbones for mobile backhauling and trunking, contribution and multicasting services.

The high-speed capabilities and high efficiency in receive and transmit makes the MDM5000 a perfect fit for very bandwidth-intensive services in the enterprise, backhauling, offshore and maritime markets.

Return Link Technology Flexibility for Tailored Services

For the return channel, a choice can be made between three different return technologies depending on the type of application.

The modem supports S2 Extensions **SCPC** in the return, which allows for highly efficient, medium to high rate dedicated return bandwidth, ranging from 1 to 40 Mbaud for applications such as high speed IP backbones, cellular backhauling, trunking, maritime, mobility and file/video contribution. **MF-TDMA** mode enables low rate overbooked and bursty traffic profiles for inactive sites in business continuity networks or for always-on connectivity in occasional use networks. The third mode, Mx-DMA®, combines the best of both worlds and fills in the gap between MF-TDMA and SCPC.

With Newtec's **Mx-DMA,** satellite bandwidth is allocated dynamically in real-time depending on traffic demand, Quality of Service (QoS) profiles and link conditions. Changes are seamless without any packet loss or additional jitter. This allows services with continuously changing rates (from a few kbps up to 60 Mbps) as with MF-TDMA, but at SCPC efficiency. Mx-DMA allows network operators to deploy anything between dedicated to low-to-medium overbooked services at any given time at minimum space capacity cost.

Having the choice between these three return technologies in a network within a single modem guarantees network operators a business model with maximum flexibility in supported applications, responsiveness to new market opportunities and Service Level Agreement (SLA) schemes that fit customers' needs.

The MDM5000 offers cost-effective satellite connectivity for a wide variety of professional applications on the Newtec Dialog platform.

High Service Satisfaction

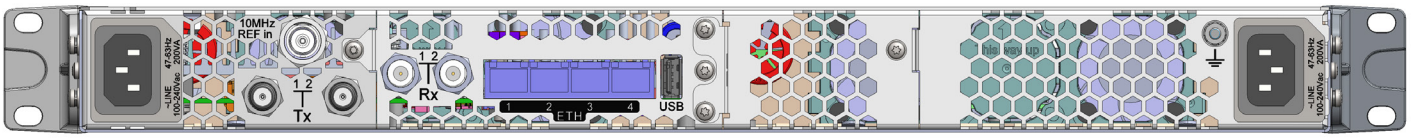
For a true broadband experience at minimal bandwidth consumption, the Newtec MDM5000 modem incorporates IP traffic enhancement software for TCP acceleration, pre-fetching, compression and encryption. Traffic can be classified in seven different QoS classes based on IP traffic characteristics (protocol types, source/destination address and more). This allows the network operator to provide a flexible hierarchical QoS model depending on any application's SLA.

Main Advantages

- High throughput upstream and downstream capabilities
- DVB-S2X forward and MF-TDMA, S2 Extensions SCPC and Newtec patented Mx-DMA return link capabilities
- The most optimal modulation and bandwidth allocation while guaranteeing the highest efficiency and availability
- Bolstered with Newtec's technologies FlexACM®, Point&Play®, HRC™
- Easy to use multilingual web GUI for installation, diagnostics and troubleshooting

SPECIFICATIONS

MDM5000
SATELLITE MODEM (R3.2)



Key Features

- High performance unicast service rates up to 120/40 Mbps
- Transmit multicast up to 60 Mbps
- Receive multicast support (IGMPv2/static configuration) up to 200 Mbps
- Embedded TCP acceleration and encryption
- Multilevel QoS with seven QoS Classes
- Low jitter for real time applications
- DNS Cache/Relay and HTTP pre-fetching
- Versatile IP routing and addressing
- Support of IPv4 and IPv6
- Multiple virtual networks behind the modem
- DVB-S2X forward
- MF-TDMA 4CPM with Adaptive Return Link
- Mx-DMA HRC return with AUPC and ACM
- SCPC S2 Extensions return with ACM

Markets

- Enterprise/SME
- Trunking
- Cellular backhaul
- Government and defense
- Broadcast
- Offshore and maritime

Applications

- Internet/Intranet access
- VoIP telephony (SIP, H.323, …)
- 2G/3G/rural cellular backhauling
- Backbone connections, fiber restoration
- FNG/SNG live and file contribution

Satellite Link Interface

FORWARD CARRIER (RX)

- Standard: DVB-S2/DVB-S2X
- Modulation: QPSK, 8PSK, 16APSK, 32APSK, 64APSK, 256 APSK
- FEC: BCH/LDPC
  - 53 MODCODs (normal frames): QPSK: from 1/4 to 9/10; 8PSK: from 3/5 to 9/10; 16APSK: from 26/45 to 9/10; 32APSK: from 32/45 to 9/10; 64APSK: from 11/15 to 5/6; 128APSK: 3/4; 7/9; 256APSK: 32/45; 3/4
  - 13 linear MODCODs (normal frames): 8APSK-L: 5/9; 26/45; 16APSK-L: from 1/2 to 2/3; 32APSK-L: 2/3; 64APSK-L: 32/45; 256APSK-L: 29/45 to 11/15
  - 41 MODCODs (short frames): QPSK: from 11/45 to 8/9; 8PSK: from 7/15 to 8/9; 16APSK: from 7/15 to 8/9; 32APSK: from 2/3 to 8/9
- Roll-off: 5, 10, 15, 20, 25 and 35 %
- Symbol rate: 1 Mbaud to 133 Mbaud

RETURN CARRIER (TX)

- MF-TDMA mode
  - Modulation Scheme: 4CPM (Quaternary Continuous Phase Modulation)
  - Channel bandwidth: 128, 192, 256, 384, 512, 768, 1024, 1536, 2048, 2560, 3072, 3584, 4096, 6144, 8192 kHz
  - MODCODs: 0, 1, 2, 3, 4, 5
- Mx-DMA mode
  - Modulation Scheme: HRC
  - Modulation: QPSK up-to 32APSK with 40 MODCODs
  - Roll-off: 5%
  - Symbol rate: 32 kbaud - 20 Mbaud
- SCPC mode
  - Modulation scheme: DVB-S2, S2 Extensions
  - Modulation: QPSK, 8PSK, 16APSK, 32APSK
  - FEC: 1/4, 1/3, 2/5, 1/2,3/5, 2/3,3/4,4/5, 5/6, 8/9, 9/10
  - Roll-off: 5, 10, 15, 20, 25 and 35 %
  - Symbol rate: 1-40 Mbaud

Modem Interfaces

TX INTERFACE - TX1

- Frequency: 950 - 2400 MHz
- Connector: F-Type - 75 Ohm/N-Type - 50 Ohm (hardware option)
- TX level: -55 dBm to +5 dBm
- BUC power supply: 24VDC, 4A/48V, 3.5A (hardware option)
- BUC reference: 10 MHz/100 MHz (hardware option)
- BUC reference level: +3 dBm (+/- 2 dB)

TX INTERFACE - TX2 (FUTURE USE)

RX INTERFACE - RX 1

- Frequency: 950 – 2150 MHz
- Connector: F-Type - 75 Ohm/N-Type - 50 Ohm (hardware option)
- RX level: -65 to -25 dBm
- LNB power supply: 13/18VDC, 500mA
- Polarization selection: power supply voltage
- LNB LO selection: 22kHz on/off
- LNB Reference: 10MHz/100MHz (hardware option)

RX INTERFACE - RX 2 (FUTURE USE)

10 MHZ BUC REFERENCE INPUT

- Connector: BNC

DATA INTERFACE

- Local Area Connection (LAN) 100/1000 TX (4/2 X RJ-45, auto MDI/MDIX)

MANAGEMENT INTERFACE

- Local Area Connection (LAN) 100/1000 TX (2 X RJ-45, auto MDI/MDIX)

FUTURE USE

- USB (future use) USB 2.0
- Mass storage option (future use) MicroSD cards

Management

MULTILINGUAL WEB GUI

- Web-based multilingual GUI: no installation of client software required
- Supported web browsers: Internet Explorer, Mozilla Firefox, Google Chrome, Safari
- Management web GUI accessible via configurable management IP address

ANTENNA CONTROL

- OpenAMIP support

SNMP

- The modem support SNMPv2 for modem performance management.

Performance

LAYER 2 OR LAYER 3

- Max RX: 200 Mbps
- Max TX: 60 Mbps
- Maximum concurrent receive multicasts : 10
- Maximum concurrent transmit multicasts: 4

LAYER 3 - UNICAST TRAFFIC

- Concurrent (accelerated): 100/25 Mbps
- Concurrent (non-accelerated): 120/40 Mbps
- Number of TCP connections: 16.000

LAYER 2 - NON ACCELERATED TRAFFIC

- Concurrent receive/transmit: 145/50 Mbps

PPS

- RX: 90 kPPS
- TX: 45 kPPS
- RX + Tx: 60 kPPS

Diagnostics & Configuration

- Self-test on management GUI for end-user and operator troubleshooting including diagnostics for support case reporting.
- Software upgradeable via satellite

Mechanical & Environment

- Housing Height:1RU, width: 19", depth 44,5 cm
- Weight: 8 kg
- Operational Temperature: 0 to 50 C°
- Humidity: 5% - 95% non-condensing
- Storage: 10 to 60 C°

Power Supply

- Power supply: AC, 50Hz\220-260V and 60Hz\100-130V DC, 36-76 V (hardware option)
- Modem power consumption: 60W maximum

Standards and Protocols

STANDARDS

Satellite Interface

- EN 302307-1 DVB-S2
- EN 302307-2 DVB-S2X
- EN 301 428 V1.3.1 (2006-02) Ku-band VSAT spectrum usage
- EN 301 459 V1.4.1 (2006-02) Ka-band VSAT spectrum usage
- EN 301 443 C-band VSAT spectrum usage

EMC

- ETSI EN 301 489-1 V1.6.1 (2005-09)
- ETSI EN 301 489-12 V1.2.1 (2003-05)
- ICES-003 Issue 4 (2004)
- FCC: title 47 of the CFR: 2008 part 15(b)

Certification

- Safety: EN 60950-1 second edition
- RoHS: 2002/95/EG directive compliant
- WEEE: 2002/96/EG directive compliant
- CE: CE compliant and marked
- UL: UL compliant

LAN Interface

- IEEE 802.3: 10T Ethernet
- IEEE 802.3u: 100TX Ethernet
- IEEE 802.2ab: 1000TX Ethernet
- IEEE 802.1q: VLANs

PROTOCOLS

- Terminal Authentication, UDP, IP, IPv6, ICMP, TCP, ARP, FTP, DHCP, IP forwarding, Diffserv, DNS, IGMPv1/2

Newtec

SHAPING THE FUTURE OF SATELLITE COMMUNICATIONS

Europe	North America	South America	Asia-Pacific	China	MENA
Tel: +32 3 780 65 00	Tel: +1 203 323-0042	Tel: +55 11 2092 6220	Tel: +65 6777 22 08	Tel: +86 10-823 18 730	Tel: +971 4 443 60 58
Fax: +32 3 780 65 49	Fax: +1 203 323-8406	Fax: +55 11 2093 3756	Fax: +65 6777 08 87	Fax: +86 10-823 18 731	Fax: +971 4 368 67 68