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 72 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.

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

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SPECIFICATIONS

**Satellite Link Interface**

**FORWARD CARRIER (RX)**
- Standard: DVB-S2/DVB-SX
- Modulation: QPSK, BPSK, 16APSK, 32APSK, 64APSK, 256 APSK, BCH/LDPC
- 53 MOCODCs (normal frames), 13 linear MOCODCs (normal frames)
- 32APSK-L: 5/9, 26/45
- 32APSK-L: 2/3, 32APSK-L: 32/45
- Roll-off 5, 10, 15, 20, 25 and 35%
- Symbol rate: 1 Mbaud to 133 Mbaud

**RETURN CARRIER (TX)**
- 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
- MxDMA mode
- Roll-off 5, 10, 15, 20, 25 and 35%
- Symbol rate: 32 kbaud - 20 Mbaud

**Modem Interfaces**
- **TX INTERFACE - TX1**
  - Frequency: 950 - 2400 MHz
  - Connector: F-Type - 75 Ohm/N-Type - 50 Ohm (hardware option)
  - 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)**
  - Frequency: 950 - 2400 MHz

- **RX INTERFACE - RX 1**
  - Frequency: 950 - 2150 MHz
  - Connector: F-Type - 75 Ohm/N-Type - 50 Ohm (hardware option)
  - Roll-off 5, 10, 15, 20, 25 and 35%

- **RX INTERFACE - RX 2 (FUTURE USE)**

**Performance**
- **LAYER 2 OR LAYER 3**
  - Max RX: 200 Mbps
  - Max TX: 100 Mbps
  - Maximum concurrent receive multicasts: 10
  - Maximum concurrent transmit multicasts: 10

**Diagnostics & Configuration**
- Self-test on management GUI for end-user and operator troubleshooting including diagnostics for support case reporting.
- Software upgradable via satellite

**Mechanical & Environment**
- Housing Height: 19U, 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/220-260 V and 60 Hz/100-130 V
- DC, 36-76 V (hardware option)
- Modern power consumption: 60 W maximum

**Standards and Protocols**

**STANDARDS**
- Satellite Interface: EN 302307-1 DVB-S2, EN 302307-2 DVB-SX, EN 301428 V1.3.1 (2006-02)
- Ku-band VSAT spectrum usage
- ETSI EN 301428 V1.2.1 (2003-05)
- K-band VSAT spectrum usage
- EN 301 443 C-band VSAT spectrum usage
- EMC
  - ETSI EN 301 489-12 V1.2.1 (2006-02)
  - EN 301 489-12 V1.2.1 (2003-05)
  - FCC: title 47 of the CFR: 2008 part 15(b)
  - RoHS 2002/95/EG directive compliant
  - CE compliant and marked
- Certifications
  - UL compliant
  - LAN interface: IEEE 802.3, IEEE 802.3u, IEEE 802.3ab
- IEEE 802.1q
- VLANs

**NEWTEC SATELLITE MODEM (R3.2)**

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