



Description

The versatile HUB6000 is the next generation satellite hub designed for IP applications over satellite in full compliance with DVB-S2 and the upcoming S2-Extensions candidate for improved performance. The HUB6000 merges cutting edge modulation with the unique combination of IP shaping and satellite segment bandwidth management. The multi-carrier demodulator unit inside the hub integrates three S2/S2 Extensions demodulators in one unit which greatly reduces the Total Cost of Ownership (TCO).

Efficiency at the Core

The HUB6000 satellite hub embeds the award-winning FlexACM® function. FlexACM® combines a set of advanced technologies which work together to ensure the satellite link is operating at full efficiency.

These advanced technologies include Adaptive Coding and Modulation (ACM), Cross-Layer Optimization, Noise & Distortion Estimator (NoDE) and Thin Margin Manager (ThiMM). All of them individually reduce the satellite link margin and contribute to optimize the IP link.

New modulation and Forward Error Correction (FEC) codes up to 64APSK 9/10 (which can be seen as demonstrators for evolutions in extending the DVB-S2 standard) in combination with innovative technologies such as wideband (up to 72Mbaud), Clean Channel Technology™, and Automated Equalink® are embedded in the hub and bring the satellite link to full efficiency. By increasing the amount of data that can be transferred per transponder the HUB6000 effectively increases business opportunities for Service Providers.

The performance can be increased even more by adding Newtec's network optimization technologies such as TCP acceleration and compression.

Optimal Availability

Newtec's auto-adaptive technology FlexACM® embedded in the HUB6000 deals with fading conditions (rain, dust, interference) and inclined orbit satellites with varying throughput patterns.

Thanks to FlexACM® these fading conditions will no longer interrupt the transmission between the hub and remote sites nor result in loss of data. The maximum possible throughput can be achieved at all times in accordance with Service Level Agreement (SLA) requirements.

Thanks to the Automatic Uplink Power Control feature it is possible to also combat uplink fading leading to even higher SLAs.

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Flexible Business Models

The HUB6000 Satellite Hub provides a scalable and flexible platform which allows the customers to grow depending on their application and investment plan.

The Newtec hub brings the unique bandwidth manager feature where both the IP and satellite segment can be shaped. Individual customers are added or removed from the same network. Different services (Internet Access, VoIP, etc.) can be combined in the same satellite carrier with separate Service Level Agreement requirements and rate options. Both Committed Information Rates (CIR) and Peak Rates (PIR) are offered in an adaptive environment at various speeds.

The HUB6000 can be configured to match the size and the satellite network configuration (one-way or two-way) independent of speed rate, modulation and amount of return links. Through Gigabit Ethernet interface the Newtec hub integrates seamlessly with terrestrial IP networks and equipment. Moreover the hub can be coupled with any industry standard EMS/NMS system.

The Newtec HUB6000 Satellite Hub and the market renowned Newtec FlexACM® implementation double the IP throughput over satellite at optimal *availability*. Optimal *efficiency* can be kept in adaptive environments with respect for *flexible business models*.

SPECIFICATIONS

Key Features

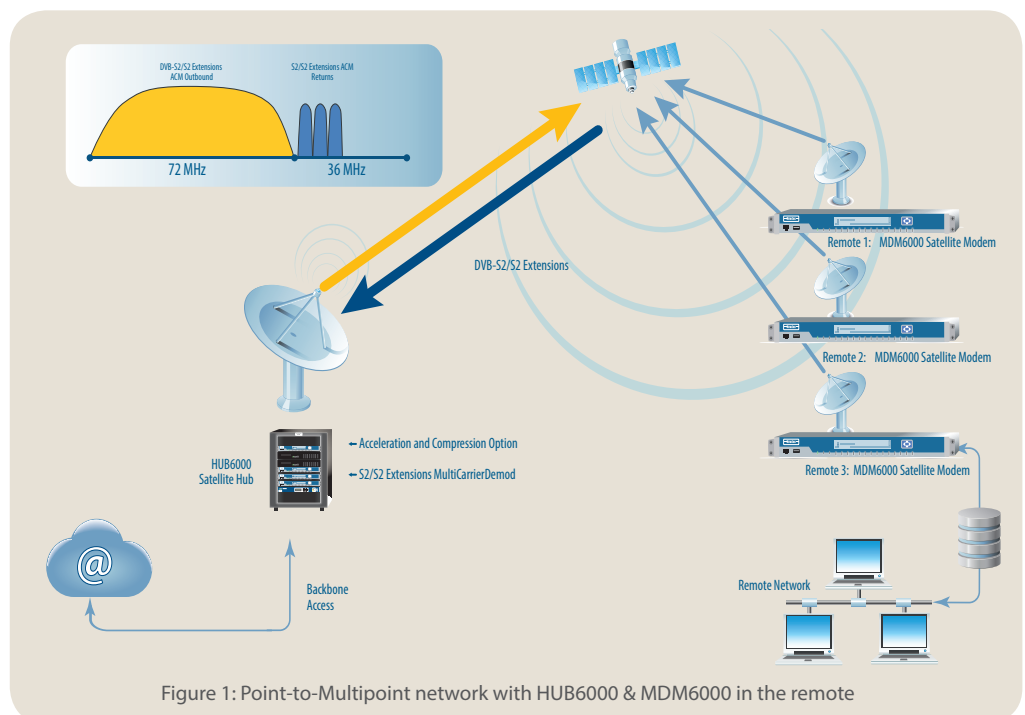
- Data rates up to 380Mbit/s for handling new applications and lower TCO
- Baudrates upto 72Mbaud to handle all common transponder sizes
- DVB-S2 and candidate S2 Extensions (QPSK upto 64APSK) for optimal use of allocated bandwidth
- Clean Channel Technology™ for additional bandwidth efficiency gains by allowing optimal carrier spacing
- Optional Automated Equalink® Pre-distortion for optimal use of semi-saturated transponders
- Help fight RFI by using the optional DVB RF Carrier ID (DVB-CID)
- All modcodes and baudrates default enabled for flexible and optimal operation of the network
- Automatic Uplink Power Control for combating uplink fading
- Optional FlexACM for adaptive environments like variable interference or inclined orbit
- Standard GSE encapsulation for minimal overhead
- Adaptive traffic shaping and bandwidth management allowing maximal SLA adherence even in case of ACM
- Advanced Quality of Service (QoS) for better customer experience
- Optional Network Optimization (acceleration & compression) components
- Easy integration with terrestrial IP networks

Architecture

Depending on the application and the activated features, the HUB6000 Satellite Hub can be used in conjunction with professional modems such as the Newtec MDM6000 or EL470.

Applications

- IP Trunking networks
- IP Access networks
- IP Backhauling networks
- Government networks
- Content Contribution and Distribution over IP
- Corporate networks



Related Products

MDM6000	Satellite Modem
BWC0900	Bandwidth Canceller
NOP184x	PEP Servers
NOP183x	PEP Gateways
AZ202	Redundancy Switch
AZ7x0	Frequency Converters Portfolio

Support Services for your Professional Equipment

Care Pack Basic and Care Pack Enhanced are the Newtec service and support packages protecting your Newtec equipment over a three-year period.

Newtec

Input/Output Interfaces

SYSTEM ARCHITECTURE

- One-way or two-way point-to-multipoint operation
- IPv4 modes
- Redundancy as option for Forward (1+1) and Return links (N+1)
- Built with proven Newtec FlexACM technology
- Remotes can be purchased separately
- Extendible with more remotes and/or higher speeds as the need arises
- 3x demodulators in one MCD6000 Multicarrier demodulator unit

Modulation and Demodulation

SUPPORTED MODULATION SCHEMES AND FEC DVB-S2 OUTBOUND (INBOUND OPTIONAL)

- Outer/Inner FEC: BCH/ LDPC
- MODCODS:
 - QPSK: 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10;
 - 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10;
 - 16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10;
 - 32APSK: 3/4, 4/5, 5/6, 8/9, 9/10
- Baud rate: 1-72Mbaud

S2 EXTENSIONS OUTBOUND (OPTIONAL)

- Outer/Inner FEC: BCH/ LDPC
- Non-Linear MODCODS:
 - QPSK: 45/180, 60/180, 72/180, 80/180, 90/180, 100/180, 108/180, 114/180, 120/180, 126/180, 135/180, 144/180, 150/180, 160/180, 162/180
 - 8PSK: 80/180, 90/180, 100/180, 108/180, 114/180, 120/180, 126/180, 135/180, 144/180, 150/180, 160/180, 162/180
 - 16APSK: 80/180, 90/180, 100/180, 108/180, 114/180, 120/180, 126/180, 135/180, 144/180, 150/180, 160/180, 162/180
 - 32APSK: 100/180, 108/180, 114/180, 120/180, 126/180, 135/180, 144/180, 150/180, 160/180, 162/180
 - 64APSK: 90/180, 100/180, 108/180, 114/180, 120/180, 126/180, 135/180, 144/180, 150/180, 160/180, 162/180
- Linear MODCODS:
 - 8PSK-L: 80/180, 90/180, 100/180, 108/180, 114/180, 120/180
 - 16APSK-L: 80/180, 190/180, 100/180, 108/180, 114/180, 120/180, 126/180, 135/180, 144/180, 150/180, 160/180, 162/180
 - 64APSK-L: 90/180, 100/180, 108/180, 114/180, 120/180, 126/180, 135/180, 144/180, 150/180, 160/180, 162/180
- Baud rate 1 - 72 Mbaud (depending on modcod)

FRAME LENGTH

- DVB-S2 Short Frames 16200 bits
- DVB-S2 Normal Frames 64800 bits
- S2 Extensions Normal Frames 64800 bits

CLEAN CHANNEL TECHNOLOGY™

- Roll-off : 5% -10% -15% -20% - 35%
- Optimum carrier spacing
- Advanced filter technology

CARRIER INTERFERENCE REDUCTION

- DVB RF Carrier ID (DVB-CID)
- Spread Spectrum Modulator (BPSK)
- Supports User Data
- Compliant to DVB Standard

Interfaces

INPUT/OUTPUT

- User Traffic on Gigabit Ethernet in/out
- M&C connectivity via separate Ethernet links
- All RF Interfaces on extended L-band (950-2150 MHz) or IF (50-180Mhz)

CONFIGURATION/MONITORING

- WEB GUIs to monitor all Newtec devices
- Command line interfaces
- SNMP

Functionalities

- VCM Multistream support
- FlexACM Optional
- Supports GSE encapsulation
- Traffic shaping using Cross-Layer-Optimization to take variable bandwidth into account
- Allows for overbooking and extensive SLA definition
- Optional Network Optimization Technology (Acceleration, Compression, Encryption) up to 160 Mbps
- Clean Channel Technology™
- Wideband up to 72 Mbaud
- Automatic Uplink Power Control
- Basic network monitoring functionality

Implementation Services

- Project management
- Network implementation design
- Hub configuration
- Factory Integration and Test
- Logistics documentation
- On-site services (3 days) for installation and training
- Remote installation support for remote sites
- Satellite System handover
- Start-up care & customer support hand-over

Physical

- Collection of 1U rack-mountable devices (standard 19inch rack optional)
- Total number of units depending on configuration
- Minimum 5U for non-redundant one way system
- Gigabit Ethernet switch included
- Power: 100/240AC, 50/60Hz
- Operational Temperature: 10°C-40°C
- CE label on all devices

Newtec HUB6000 Technology

FlexACM®: is the unique and market proven end-to-end solution combining a range of technologies to maximise the efficiency of IP applications over adaptive satellite links at optimal efficiency

S2-Extensions: are the candidate improvements in the upcoming DVB standard, including higher order modcodes (64APSK), additional FEC factors and smaller roll-off factors (5%, 10%, 15%) improving overall efficiency

Equalink®: Provides significant improvements by pre-distorting the modulated signal resulting in 10% bandwidth gains and higher Quality of Service

Clean Channel Technology™: improves satellite efficiency by up to 15% compared to the current DVB-S2 standard by implementing smaller roll- offs (5%, 10%, 15%) and advanced filter technology, thereby allowing optimum carrier spacing.

Cross-Layer-Optimization™: the satellite modulation equipment is in continuous interaction with Acceleration, Compression, Bandwidth Management and IP Shaping technology. As soon as a satellite link condition changes the link will be auto-optimised following Quality-of-Service and Priority Settings without the loss of data or link.

Thin Margin Manager (ThiMM): allows setting of a target BER of the link and provides an accurate prediction of the upcoming variation (depth and direction) of the link condition. As a result, the excess link margin can be kept to the absolute minimum and further increase the efficiency of the link.

Noise & Distortion Estimator (NoDE): provides the estimation of the amount of linear and non-linear distortion on the received signal in order to provide the real satellite link margin and helps FlexACM to work at maximum accuracy

Newtec HUB6000 Satellite Hub (R1.1)	Ordering n°
Default Configuration	
DVB-S2/S2 Extensions IP Satellite Hub including - Ethernet switches, dynamic shaper, multi-site modulation controller - Outbound modulation up to 64APSK & 72 Mbaud - Clean Channel Technology - CCM, VCM, Advanced Quality-of-Service (QoS) - AUPC - 10 Mbps - Single thread	HUB6000
Configuration Options Category	
Select 1 option	
Outbound rate license (select from drop-down)	10-380 Mbps
Select 1 option	
ACM License	yes/no
Select 1 option	
Network Optimization (Acceleration, Compression, Encryption)	yes/no
Select 1 option	
DVB Carrier Identifier	yes/no
Select 1 option	
Automated Equalink Pre-distortion	yes/no
Select 1 option	
S2 Extension Support	yes/no
Configuration Options Inbound	
Select required option	
Return channel Class 2 Demodulator (select # return channels)	2-n
Select 1 option	
S2 Extensions Inbound License	yes/no
Select 1 option	
ACM Inbound License	yes/no
Redundancy	
Select 1 option	
Dual Power Supplies on Critical devices	yes/no
Select 1 option	
Outbound Redundancy	yes/no
Select 1 option	
Inbound Redundancy	yes/no
Select 1 option	
Rack Option	
Select 1 option	
19 inch Rack for Hub	yes/no

(*) Selectable via license key
Contact your sales representative for details
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Newtec

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