

UHP-200

COMPACT SATELLITE ROUTER

SCPC

TDM/TDMA

Hubless TDMA

We pioneered Software Defined UHP Architecture for VSAT in 2005 and successfully installed over 170 UHP VSAT networks worldwide. Innovation continues with the latest UHP-200 - the industry-highest processing capability router, which expands the UHP series of VSAT products. UHP-200 is based on a new advanced hardware platform and is backward compatible with previous generations of UHP routers. It comprises multi-channel DVB and MF TDMA demodulators, a universal SCPC/TDMA modulator and a powerful IP router. The primary application of UHP-200 is complex remote TDM/TDMA or Hubless TDMA terminal with high throughput and multi-mode operation. This universal satellite router can also be used as a compact TDM/TDMA Hub.

Innovative algorithms for network access, resource allocation and data encapsulation as well as advanced modulation and coding, implemented in the UHP routers, ensure efficient utilization of satellite resource.



Multiple demodulators allow simultaneous reception of two TDM or SCPC carriers and group of TDMA mesh carriers from two distinct satellite beams or from two antennas. Universal modulator can instantaneously switch from TDMA burst mode to SCPC mode, thus assuring high data throughput and efficiency.

UHP-200 router is a compact and reliable device and can be installed on a work desk or in an equipment rack or inside a customized enclosure. Low power consumption and uniquely fast start on power-up facilitate use of alternative power sources, such as solar batteries. Integrated high-performance IP router supports different protocols and has expanded means for provision of Quality of Service (QoS).

- The world's fastest VSAT router with aggregate throughput up to 450 Mbps and powerful UHP-RTOS™
- Two independent DVB demodulators with separate software-switchable IF inputs and rate up to 65 Msps
- Enhanced DVB-S2 QPSK, 8PSK, 16APSK and 32APSK modulations with 5% or 20% roll-off
- Multichannel MF-TDMA demodulator with innovative protocol and proven efficiency of 96% vs. SCPC
- Adaptive coding and modulation (ACM) in forward and return channels, including SCPC and TDMA modes
- Various modes of operation and topologies: SCPC, TDM/TDMA, TDM/TDMA Mesh, Hubless TDMA
- HTS-ready VSAT with support of multiple beams, bands, satellites reception with traffic balancing
- Superior IP router productivity up to 226'000 pps and rich set of supported protocols, multi-level QoS
- Support of Layer 3 routing architecture and Layer 2 bridging mode with IPV6 transport
- Two Gigabyte Ethernet user's ports with built-in switch simplifies scalability and connection of CPE
- Ultra-low latency VSAT system with round-trip delay about 570 ms for TDMA mode of operations
- The industry's most compact full-scale Hub with multiple MF-TDMA channels and up to 2000 terminals
- Support of 1:1 or 1:N automatic redundancy schemes without use of external controllers





UHP-200 COMPACT SATELLITE ROUTER SPECIFICATIONS (SW v3.4)

NETWORK

| | |
|--------------------|--|
| Topology | 'point-to-point', 'hub and spoke', 'multilevel tree', 'mesh' |
| Modes of operation | SCPC, SCPC DAMA, TDM/SCPC, TDM/TDMA, TDM/TDMA MF Mesh, Hubless MF TDMA |
| Network size | Up to 252 TDMA Inroute channels or MF groups and 500 000 terminals per network |
| Network role | SCPC modem, TDM/TDMA terminal or Hub, Hubless Slave or Master |
| Frequency bands | C, X, Ku, Ka, including multi-beam HTS satellites |

SCPC (TDM) CHANNEL - Two demodulators with selectable IF inputs

| | | | | | | | | | | |
|--------------------------|--|------|-----|-----|-----|-----|------|------|------|------|
| Modulation | DVB S2 ACM: QPSK, 8PSK, 16APSK, 32APSK; TLC; roll-off 5% or 20% | | | | | | | | | |
| Symbol rate | 300 ksps - 65 Msps with 1 ksps step; max 53.8 Msps for 32APSK; In dual-demodulator mode 44.5 Msps (8PSK); 33.7 Msps (16APSK); 27.0 Msps (32APSK) max. | | | | | | | | | |
| Data rate | 200 kbps - 225 Mbps | | | | | | | | | |
| C/N threshold levels, dB | FEC | 1/3 | 2/5 | 1/2 | 3/5 | 2/3 | 3/4 | 4/5 | 5/6 | 8/9 |
| BER 10^{-8} | QPSK | -0.9 | 0.0 | 1.1 | 2.7 | 3.6 | 4.4 | 5.0 | 5.5 | 6.5 |
| 20% roll-off | 8PSK | - | - | - | 6.1 | 7.1 | 8.4 | - | 9.7 | 11.3 |
| (+0.1 dB for 5% RO) | 16APSK | - | - | - | - | 9.4 | 10.8 | 11.5 | 12.2 | 13.4 |
| | 32APSK | - | - | - | - | - | 14.6 | 15.8 | 16.9 | 18.4 |
| QoS | 8-level prioritization, traffic policies, CIR, MIR, group QoS, hierarchic traffic shaper, FAP | | | | | | | | | |

TDMA CHANNEL - Up to 4 demodulators with common IF input

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|--|---|--|-----|--|-----|--|-----|--|------|--|
| Number of channels | 1 standalone TDMA or up to 4-channel MF-TDMA group with common IF input | | | | | | | | | |
| Modulation | BPSK*, QPSK, 8PSK; ACM; TLC; roll-off 5% or 20% | | | | | | | | | |
| Symbol rate | 100 ksps - 8 Msps; 1 ksps step; 10 Msps of aggregate rate for all TDMA demodulators | | | | | | | | | |
| TDMA Protocol | Frame 50 -1000 ms, 14 slot sizes, manageable minimal bandwidth; slot-to-slot fast MF-TDMA hopping | | | | | | | | | |
| C/N threshold levels, dB | FEC | | 1/2 | | 2/3 | | 3/4 | | 5/6 | |
| BER 10^{-7}, 20% roll-off | QPSK | | 3.1 | | 4.7 | | 5.5 | | 6.6 | |
| (+0.5 dB for 5% RO) | 8PSK | | 8.5 | | 9.1 | | 9.8 | | 11.1 | |
| QoS | CIR, MIR, group QoS, FAP, RT traffic support, day/night, hierarchic manager of TDMA bandwidth | | | | | | | | | |

ROUTER

| | |
|-------------|---|
| Performance | Up to 220'000 packets per second |
| Support | DSCP, multiple IP/VLANs, NAT, proxy ARP, L2 Bridging, TCP Acceleration, AES-256, Jumbo frames |
| Protocols | DHCP, IGMP, SNMP, RIP, SNTP, TFTP, cRTP |
| Management | HTTP interface, SNMP, Telnet, NMS with VNO support |

INTERFACES

| | |
|---------------------|--|
| User LAN | 2 x Gigabit Ethernet, RJ-45 |
| Maintenance console | MiniUSB, B female |
| IF Rx (two inputs) | 950-2150 MHz (LO 10 MHz/+5 dBm, 13.5/18 VDC 0.75 A), F type |
| IF Tx | 950-1750 MHz (optionally up to 2150 MHz), -45...- 5 dBm, (LO 10 MHz/+5dBm, 24VDC/2A), F type |

MECHANICAL / ENVIRONMENTAL (IDU)

| | |
|-----------------------|--|
| Power | 90-264 VAC, 10 W; optional 24 VDC or 48 VDC |
| Operating temperature | 0 ⁰ ...+50 ⁰ C, humidity up to 90% |
| Size / Weight | 145x29x144 mm / 485 g |



* Available with future SW releases

