

UHP-100

BROADBAND SATELLITE ROUTER

TDM/TDMA

SCPC Rx-only

High-Throughput Satellites (HTS) open unprecedented opportunities for networking over satellite. UHP-100 is a high-performance router designed specifically for large-scale deployment in broadband VSAT networks operating over HTS. This product combines the Universal Hardware Platform (UHP) architecture, which was developed in the previous generation of the award-winning UHP product line, with the state-of-the-art semiconductor technology. The result is its unique performance. Not only UHP-100 can process 200,000 IP packets per second, 210 Mbps of traffic and two 65 Msps carriers, it can do this in a super-compact size, with low power consumption (less than 10W) and with best utilization of the precious satellite resource, as evidenced by up to 32APSK modulation, 5% spectral roll-off, adaptive modulation and coding, adaptive power control and 96% efficient TDMA protocol.



UHP-100 is equipped with two high-speed demodulators together with their independent IF inputs and front ends. These can simultaneously receive two carriers transmitted via two different satellite beams, which can even be in different frequency bands. The dual demodulator in conjunction with a built-in advanced beam switching algorithm facilitates seamless roaming of mobile satellite terminals between distinct beams of HTS satellites.

The main application for UHP-100 is broadband, SCADA, cellular backhaul and multimedia connectivity in large VSAT networks using HTS. The terminal interworks with the latest generation of scalable UHP TDM/TDMA Hubs.

- High-performance Satellite Router for TDM/TDMA networks with aggregate throughput above 200 Mbps
- Two independent DVB demodulators with separate IF inputs and rate up to 65 Msps
- Enhanced DVBS2 QPSK, 8PSK, 16APSK and 32APSK modulations with 5% or 20% rolloff
- MFTDMA modulator with innovative protocol and proven efficiency of 96% compared to SCPC
- Adaptive coding and modulation and transmission power control in forward and return channels
- Dual satellite or dual band operations with dynamic traffic balancing and automatic beam switching
- Superior IP router productivity up to 200'000 pps and reach set of supported protocols, including L2 bridging
- Support of VLAN, multilevel QoS, codec independent handling of RT traffic, TCP acceleration, AES encryption
- Built-in adaptive hierarchic traffic shaper specially designed for VSAT applications
- Two Ethernet user's ports with built-in switch simplifies connection of CPE and maintenance
- Ultra-low latency VSAT system with roundtrip delay about 570 ms for TDMA mode of operations
- Fast network startup — network is ready for use in less than a minute upon power up
- Low power consumption – less than 10 Watt (without RF ODU)



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UHP-100 SATELLITE ROUTER SPECIFICATIONS

NETWORK

Modes of operation	TDM/TDMA, Rx-only SCPC
Network role	TDM/TDMA terminal, SCPC receiver
Frequency bands	C, X, Ku, Ka, including multi-beam HTS satellites
Compatibility	UHP-200 or UHP-1000 based Hubs

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

Modulation	DVB S2 ACM: QPSK, 8PSK, 16APSK, 32APSK; TLC; roll-off 5% or 20%									
Symbol rate	300 ksp/s - 65 Msps with 1 ksp/s step									
Data rate	200 kbps - 210 Mbps (210 Mbps of aggregate rate for two demodulators)									
Demodulator Performance C/N, BER 10^{-8}	FEC	1/3	2/5	1/2	3/5	2/3	3/4	4/5	5/6	8/9
	QPSK	-0.9	-0.0	0.9	2.6	3.3	4.2	5.0	5.5	6.4
	8PSK	-	-	-	7.6	7.5	8.6	-	9.9	11.3
	16APSK	-	-	-	-	10.3	11.0	11.8	12.2	13.4
	32APSK	-	-	-	-	-	12.7	13.6	14.3	15.7
QoS	4-level prioritization, traffic policies, CIR, MIR, group QoS, hierarchic traffic shaper, FAP									

TDMA CHANNEL (Tx-only)

Modulation	BPSK*, QPSK, 8PSK; ACM; TLC; roll-off 5% or 20%									
Symbol rate	100 ksp/s - 4 Msps (8* Msps); 1 ksp/s step									
TDMA Protocol	frame 30-1000 ms, 8 slot sizes, manageable minimal bandwidth; slot-to-slot fast MF-TDMA hopping									
Modulation / Coding Demodulator Performance C/N, BER 10^{-7}	FEC	2/3			5/6					
	BPSK	2.9			3.8					
	QPSK	5.4			6.9					
	8PSK	9.6			12.0					
QoS	CIR, MIR, group QoS, FAP, RT traffic support, day/night, hierarchic manager of TDMA bandwidth									

ROUTER

Performance	up to 200'000 packets per second
Support	DSCP, multiple IP/VLANs, NAT, proxy ARP, L2 Bridging, TCP Acceleration, AES-256 encryption
Protocols	DHCP, IGMP, SNMP, RIP, SNTTP, TFTP, cRTP
Management	HTTP interface, SNMP, Telnet, NMS with VNO support

INTERFACES

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

MECHANICAL / ENVIRONMENTAL (IDU)

Power	24 VDC or 90-264 VAC (ext. power supply), 10 W
Operating temperature	0°...+50°C, humidity up to 90%
Size / Weight	147x144x29 mm / 530 g

* Available with future SW releases