

UHP-231

INTELLIGENT SATELLITE ROUTER

SCPC

TDM/TDMA

Hubless TDMA

UHP is the established leader for the high-performance satellite networks. Our new UHP-231 router with additional processing power allows to reduce the bandwidth consumption and improve the user experience with help of intelligent optimization and acceleration value-added software. UHP-231 is based on a new advanced hardware platform and is backward compatible with the previous generations of UHP routers. It comprises multichannel DVB and MF TDMA demodulators, a universal SCPC/TDMA modulator, a powerful IP router and a multipurpose embedded computer. The primary application of UHP-231 router is in 2G/3G/LTE Cellular Backhaul. This satellite router is also a good fit for M2M networks, where the embedded computer can perform additional tasks to collect and process data using a customized software.

The UHP-231 single-box intelligent router supports various network topologies, including SCPC links, TDM/SCPC, TDM/TDMA Star, TDM/TDMA Mesh and Hubless TDMA networks.



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.

UHP231 router is supplied in a compact 1U chassis for installation in a standard 19 inch rack. Builtin AC power supply with high power rating and 10 MHz frequency reference ensure reliable operation of the router itself and of the outdoor RF equipment from multiple vendors. Low power consumption, optional DC power input, and uniquely fast start on powerup facilitate use of alternative power sources, such as solar batteries.

- 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 Msp/s
- 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
- Made for HTS VSAT with support of multiple beams, bands, satellites reception with traffic balancing
- Superior IP router productivity up to 200K pps and rich set of supported protocols
- Support of Layer 3 routing architecture and Layer 2 bridging mode with IPV6 transport
- Embedded computer for advanced data processing, including backhaul optimization and traffic acceleration
- Optional 2G/3G/LTE backhaul optimization, GTP decoding, TCP acceleration and payload compression
- Ultra-low latency VSAT system with round-trip delay about 570 ms for TDMA mode of operations
- Support of 1:1 or 1:N automatic redundancy schemes without use of external controllers





UHP-231 INTELLIGENT 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 kbps - 65 Msps with 1 kbps 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

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 kbps - 8 Msps; 1 kbps step; 8 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									
	FEC	1/2		2/3		3/4		5/6		
C/N threshold levels, dB	Slot	8	15	8	15	8	15	8	15	
BER < 10 ⁻⁷ , 20% roll-off	QPSK	3.1	2.9	4.6	4.1	5.5	5.3	6.8	6.2	
(+0.5 dB for 5% RO)	8PSK	9.5	9.8	9.5	9.9	10.1	10.0	11.4	11.1	
QoS	CIR, MIR, group QoS, FAP, RT traffic support, day/night, hierarchic manager of TDMA bandwidth									

ROUTER

Performance	Up to 190'000 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
User LAN	2 x Gigabit 10/100/1000 Base-T
Maintenance console	MiniUSB, B female
IF Rx (Rx1 and Rx2)	950-2150 MHz (LO 10 MHz/+5 dBm [RX2], 13.5/18 VDC 0.75 A), F type
IF Tx	950-1750 MHz (opt. 2150 MHz), -45...-5 dBm/0.1 dB steps, LO 10 MHz/+5dBm, 24VDC/2A, F type

EMBEDDED COMPUTER

Performance	Intel Celeron J1900 Quad Core Four Thread 2.0GHz; Intel HD Graphics; DDR3L
Interfaces	2 x Gigabit 10/100/1000 Base-T; USB 2.0; VGA

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	440x44x172 mm / 2.3 kg



* Available with future SW releases

