

# UHP-230

## UNIVERSAL SATELLITE ROUTER

SCPC

TDM/TDMA

HUBLESS TDMA

SW DEFINABLE

SMART REDUNDANCY

DUAL GATEWAY

UHP-230 is a universal VSAT router with Software-Defined Architecture pioneered by UHP Networks. The device packs industry-highest processing capability into a very compact size with power consumption under 12W. It can process up to 450 Mbps of aggregate traffic. UHP-230 comprises two DVB demodulators, four TDMA burst demodulators, a universal TDMA/SCPC modulator and a powerful IP router capable of processing over 190 000 IP packets per second (PPS). The high processing capability allows implementation of uniquely efficient protocols for network access, resource allocation and data encapsulation as well as support for advanced modulation and coding.

UHP-230 is a truly universal router which can operate as a star or mesh TDM/TDMA remote or as a Tx/Rx SCPC IP modem, or as a node in a Hubless TDMA (full mesh) network, or as a building block (universal controller) in a large TDM/TDMA Hub. This unique device can work as a fully-fledged TDM/TDMA Hub with one Outbound TDM and up to 4 Inbound TDMA carriers.



Multiple demodulators allow simultaneous reception of two DVB (TDM or SCPC) carriers and a group of up to 4 mesh TDMA carriers from two distinct satellite beams or from two antennas. This makes UHP-230 an optimum choice for TDMA Mesh networks and also for hierarchical networks with multiple DVB carriers.

UHP-230 router is supplied in a compact 1U chassis for installation in a standard 19 inch rack. Built-in 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 power-up facilitate use of alternative power sources, such as solar batteries.

- 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 500 Msp/s
- Efficient DVB-S2/S2X ACM modulations with 5% or 20% roll-off and support for wideband HTS transponders
- 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 190 000 PPS and rich set of supported protocols, multi-level QoS
- Layer 3 routing architecture and Layer 2 bridging mode with IPV6 transport
- Two Gigabyte Ethernet user 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
- Industry's most compact full-scale 1U Hub with scalable MF-TDMA channels
- 1:1 automatic redundancy without external controllers or M:N Smart Redundancy



**UHP Smart Redundancy** facilitates self-healing architecture for a single VSAT Hub and also for multiple geographically diverse (redundant) Hubs. Architecture of the Hub with Smart Redundancy is not different from a traditional Hub architecture, but all the controllers are universal and can assume any role. The NMS dynamically assigns specific roles to the universal controllers. Smart Redundancy dramatically increases network availability level while only requiring a very modest investment.

**UHP Dual Gateway** provides optimum solution for hierarchical networks and makes it possible to design such networks with single-hop connectivity using low-cost VSAT terminals and affordable Regional Gateways. The Central Gateway has a UHP TDM/TDMA Hub with at least one DVB carrier (TDM) and several TDMA return carriers. The Regional Gateway also transmits a DVB carrier and is capable of receiving one or more TDMA carriers.



## UHP-230 UNIVERSAL SATELLITE ROUTER SPECIFICATIONS

### NETWORK

Topology	Point-to-Point, Star, Dual-Gateway, Mesh
Modes of operation	Software-defined router: SCPC, SCPC DAMA, TDM/SCPC, TDM/TDMA Star/Mesh, Hubless MF TDMA
Network role	SCPC Modem, TDM/TDMA Terminal or Hub, Universal Controller of HTS Hub, Hubless Slave or Master
Frequency bands	C, X, Ku, Ka, including multi-beam HTS satellites

### TDM (SCPC) CHANNEL MODULATOR DEMODULATOR

Standard	DVB-S2 / DVB-S2X with Adaptive Coding and Modulation	
Channels	One universal SCPC/TDMA modulator	Two demodulators with selectable IF inputs Rx1 and Rx2
Modulation	QPSK, 8PSK, 16APSK, 32APSK, 64APSK; Roll-off: 5% or 20%;	QPSK, 8PSK, 16APSK, 32APSK, 64APSK, 128APSK, 256APSK
FEC	1/4, 14/45, 1/3, 2/5, 9/20, 7/15, 1/2, 8/15, 11/20, 26/45, 3/5, 23/36, 2/3, 25/36, 32/45, 13/18, 3/4, 7/9, 4/5, 5/6, 77/90, 8/9, 13/45	All DVB-S2 & DVB-S2X MODCODs
Symbol Rate	300 kspcs - 65 Msps; step 1 kspcs (51 Msps @32APSK, 43 Msps @64APSK)	300 kspcs - 500 Msps
Data Rate	150 kbps - 225 Mbps	150 kbps - 225 Mbps
QoS	8-level prioritization, traffic policies, CIR, MIR, group QoS, hierarchic traffic shaper, FAP	

### TDMA CHANNEL MODULATOR DEMODULATOR

Standard	LDPC TDMA with Adaptive Coding and Modulation	
Channels	One universal SCPC/TDMA modulator	Four-channel MF-TDMA demodulator
Modulation	QPSK, 8PSK, 16APSK; Roll-off: 5%, 20%	QPSK, 8PSK, 16APSK
FEC	1/2, 2/3, 3/4, 5/6	1/2, 2/3, 3/4, 5/6
Symbol Rate	100 kspcs - 8 Msps; step 1 kspcs	100 kspcs - 8 Msps; (8 Msps aggregate for all channels)
Data Rate	100 kbps - 26.7 Mbps	100 kbps - 26.7 Mbps
TDMA Protocol	Frame 50 -1000 ms, 14 slot sizes, manageable minimal bandwidth; slot-to-slot fast MF-TDMA hopping	
QoS	8-level prioritization, traffic policies, CIR, MIR, group QoS, hierarchic traffic shaper, FAP	

### ROUTER

Performance	Up to 190 000 packets per second
Support	DSCP, multiple IP/VLANs, NAT*, proxy ARP, L2 Bridging, TCP Acceleration, Jumbo frames, AES-256
Protocols	IPv4/IPv6*, IGMP, cRTP, SNMP, RIP, SNTP, TFTP, PPP, DHCP, DHCP Relay
Management	HTTP interface, SNMP, Telnet, NMS with VNO support

### INTERFACES

User LAN	2 x Gigabit 10/100/1000 Base-T
Maintenance console	miniUSB, B female
IF Rx (two inputs)	950-2150 MHz; Ref. 10 MHz/+5 dBm [RX1]; 13.5/18 VDC 0.75A; F type
IF Tx	950-2150 MHz; - 46...-1 dBm; Ref. 10 MHz/+5 dBm; 24V/3A; F type

### MECHANICAL / ENVIRONMENTAL (IDU)

Power	90-264 VAC; 24 VDC or 48 VDC options; 12 W
Operating temperature	0°...+50° C, humidity up to 90%
Size / Weight	440x44x172 mm / 1.7 kg

These specifications are subject to change without notice

\* Available in a future SW release



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