UHP-220

OUTDOOR SATELLITE ROUTER

| SCPC | TDM/TDMA | Hubless TDMA |

UHP-220 Outdoor Satellite Router 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-220 is complex remote SCPC, TDM/TDMA, or Hubless TDMA terminal with high throughput and multi-mode operation. This universal satellite router can also be used as a compact outdoor TDM/TDMA Hub.
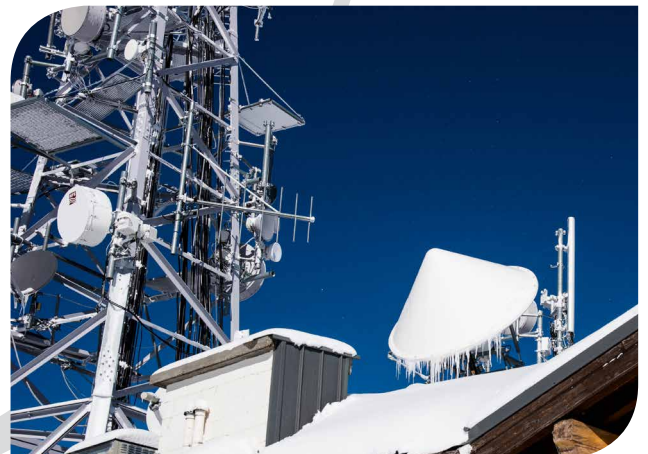
Innovative algorithms for network access, resource allocation and data encapsulation as well as advanced modulation and coding, implemented in the UHP routers, ensure efficient utilization of satellite resource.

- Rugged, weatherproof, IP67-class design with wide-range operating temperatures
- The world's fastest VSAT router with aggregate through-put 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 reach set of supported protocols, multi-level QoS
- Support of Layer 3 routing architecture and Layer 2 bridging mode with IPV6 transport
- Ultra-low latency VSAT system with round-trip delay about 570 ms for TDMA mode of operations
- Low power consumption allows using satellite terminals with alternative power sources
- Compatible with majority of C, Ku and Ka-band RF Systems, supplies power and reference signals

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

Rugged weatherproof satellite router UHP-220 is designed for outdoor installation, for example, directly on the antenna. IP67 compliant enclosure guarantees quick start and operating performance over a wide range of temperatures and a harsh environment. Possible customization of the LAN and power supply connectors in accordance with specific customer's requirements.

UHP-220 OUTDOOR SATELLITE ROUTER SPECIFICATIONS

NETWORK

Topology	'point-to-point', 'hub and spoke', 'multilevel tree', 'mesh'
Modes of operation	SCPC, SCPC DAMA, TDM/SCPC, TDM/TDMA, TDM/TDMA Mesh, Hubless 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
BER $<10^{-8}$
20% roll-off
(+0.1 dB for 5% RO)

FEC	1/3	2/5	1/2	3/5	2/3	3/4	4/5	5/6	8/9
QPSK	-0.9	0.0	1.1	2.7	3.6	4.4	5.0	5.5	6.5
8PSK	-	-	-	6.1	7.1	8.4	-	9.7	11.3
16APSK	-	-	-	-	9.4	10.8	11.5	12.2	13.4
32APSK	-	-	-	-		14.6	15.8	16.9	18.4

QoS	4-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/MF-TDMA or up to 4 MF-TDMA with common IF input*
Modulation	BPSK*, QPSK, 8PSK; ACM; TLC; roll-off 20% or 5%*
Symbol rate	100 ksps - 5 Msps (8 Msps*) LDPC ACM; 10 Msps of aggregate rate for all TDMA demodulators
TDMA Protocol	Frame 50-1000 ms, 8 slot sizes, manageable minimal bandwidth; slot-to-slot fast MF-TDMA hopping

C/N threshold levels, dB
BER $<10^{-7}$
20% roll-off

FEC	2/3	5/6
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 220'000 packets per second
Support	DSCP, multiple IP/VLANs, NAT, proxy ARP, L2 Bridging, TCP Acceleration, AES-256 encryption
Protocols	DHCP, IGMP, SNMP, RIP, SNTP, TFTP, cRTP
Management	HTTP interface, SNMP, Telnet, NMS with VNO support

INTERFACES

User LAN	Gigabit Ethernet, RJ-45
Maintenance console	MiniUSB
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	24VDC, 10W
Operating temperature	$-40^0…+50^0$ C, humidity up to 90%
Size / Weight	155x70x316 mm / 2.3 kg

CE FC ✓ RoHS

UHP NETWORKS

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