UHP-8000

DUAL SATELLITE ROUTER

SCPC	TDM/TDMA	Hubless TDMA

UHP-8000 is a rack-mountable chassis with two integrated UHP-1000 routers, power supplies and IF subsystem. UHP-8000 satellite router is a universal component of highly-efficient satellite networks of any operation mode or topology. Its primary application is in large Hub stations, where multiple UHP routers are cascaded.

UHP-8000 dual router is also a good fit for redundancy solutions with hot standby. Additionally, it can be used in complex remote terminals, where each of the two routers housed in UHP-8000 can operate in its own distinct mode. For example, one of the routers can support SCPC high-speed channel for video or high-speed data application, while the other one can be used for managing the SCPC channel or transporting voice and medium-speed data via TDMA carrier under control from the central station.

Each of the two integrated routers can work independently in any of the supported operation modes and has an individual power supply unit. Various commutation schemes between the integrated routers and the IF subsystem allow UHP-8000 to be used as a universal component of highly-efficient satellite networks of any operation mode or topology.

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. Universal modulator can instantaneously switch from TDMA burst mode to SCPC mode, thus assuring high data throughout and efficiency.

UHP-8000 router is supplied in a compact 1U chassis for installation in a standard 19 inch rack. Built-in IF subsystem, two AC power supplies 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.

- Various modes of operation and topologies: SCPC, TDM/TDMA, TDM/TDMA Mesh, Hubless TDMA

- Two built-in, field-replaceable UHP-1000 satellite routers within a compact 1U chassis

- Independent power supplies of each built-in router and passive IF subsystem for use in redundant configurations

- Superior productivity up to 60'000 pps and 150 Mbps aggregate throughput and 150 voice calls compressed

- Innovative TDMA protocol with LDPC coding and proven efficiency of 96% vs SCPC

- Adaptive coding and modulation (ACM) in forward and return channels, including SCPC mode

- Ultra-low latency VSAT system with round-trip delay about 570 ms for TDMA mode of operations

- Support of VLAN, multi-level QoS, codec-independent handling of real-time traffic, TCP acceleration

- Adaptive hierarchic traffic shaper and traffic policy manager specially designed for VSAT applications

- Built-in web-based management interface, user-friendly software configuration

- Fast network startup — network is ready for use in less than a minute upon power-up

- Compatible with majority of C, Ku and Ka-band RF Systems, supplies power and reference signals

- Support of 1:1 or 1:N automatic redundancy schemes without use of external controllers

UHP-8000 SATELLITE ROUTER SPECIFICATIONS
(applicable for each of two built-in routers)

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

SCPC (TDM) CHANNEL									
Modulation	DVB-S2 ACM: QPSK, 8PSK, 16APSK, 32APSK (Rx-only); TLC; roll-off 20%								
Symbol rate	300 kSps - 32 MSps with 1 kSps step								

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	
Modulation	BPSK, QPSK, 8PSK; LDPC; ACM; TLC; roll-off 20%
Symbol rate	100 kSps - 4 MSps with 1 kSps step
TDMA Protocol	frame 30-1000 ms, 8 slot sizes, manageable minimal bandwidth; slot-to-slot fast MF-TDMA hopping

Demodulator Performance C/N, BER <10^{-7}	FEC	2/3	5/6
	BPSK (LDPC ACM)*	2.9	3.8
	QPSK (LDPC ACM)	5.4	6.9
	8PSK (LDPC ACM)	9.6	12.0

QoS	CIR, MIR, group QoS, FAP, RT traffic support, day/night, hierarchic manager of TDMA bandwidth

ROUTER	
Performance	up to 60'000 packets per second; 150 Mbps aggregate throughput
Support	DSCP, multiple IP/VLANs, NAT, proxy ARP, L2 Bridging, TCP Acceleration and header compression
Protocols	DHCP, IGMP, SNMP, RIP, SNTP, TFTP, cRTP
Management	HTTP interface, SNMP, Telnet, NMS with VNO support

INTERFACES	
User LAN port	Ethernet 10/100Base-T, RJ-45
Maintenance console	USB, B female
IF Rx	950-2050 MHz (LNB DC – 13.5V/18V 0.75A), F type
IF Tx	950-1750 MHz, -37 … -12 dBm, (LO 10 MHz / +5 dBm, BUC DC – 24V / 2A), F type

MECHANICAL / ENVIRONMENTAL (IDU)	
Power	90-264 VAC, 20 W
Operating temperature	$0^{0}…+50^{0}$C, humidity up to 90%
Size / Weight	438x44x402 (front panel: 487 mm) / 6.2 kg

Available with future SW releases