UHP HUB

TDM/TDMA Network

UHP TDM/TDMA HTS Hub has a high-availability modular design, based on principles of distributed computing. The Software-Defined Architecture pioneered by UHP Networks is at the core of the Hub design. The Hub is composed of Universal Controllers (UC), interconnected with Gigabit Ethernet links on the data side and with IF splitter/ combiner on the IF side. Each UC is implemented with a single UHP-200 module and has two IF interfaces and two Gigabit Ethernet interfaces. Depending on the software license installed, a specific UC can operate as Outroute Controller (OC) generating a single Outroute TDM (DVB) carrier, Multi-Carrier (MCD) Inroute Controller (IC) capable of receiving up to 8 TDMA carriers, SCPC DAMA transmitter or receiver. UC may have no specific license installed; in this case it serves as a standby resource in the UHP Smart Redundancy scheme.

A single 1RU unit UHP-240 houses two UC and can implement up to two OC and up to two MCD-IC. Extra Outroutes and Inroutes can be added by growing the number of UC with appropriate licenses. The Hub can support any redundancy scheme for any of its elements, and also geographical redundancy for multiples Hubs.

The Network Management System (NMS) runs on a Linux server. It is separate from the Hub, so it's failure would not bring down the VSAT network. While the NMS optional in a basic Hub, it is required in the high-end Hub designed to control a network operating over High-Throughput Satellite (HTS) with multiple spot beams.

Enterprise Networks

Satellite Backhaul

Maritime Broadband

Consumer Broadband

M2M and SCADA

Backup & Resilience

HTS Hub

- Multi-spot beam scalable Hub
- Universal hub controllers and dynamic license assignment
- Optional 200 Msps wideband modulator with HubMux slicing - multiple networks per carrier
- Local-/Geo- Smart Redundancy

Standard Hub

- Up to 64 Msps Outroute
- Up to 250 MF-TDMA Inroute
- Up to 500k terminals
- Optional 1:1 redundancy

Mini Hub

- Based on one UHP-2XX router
- Up to 2000 remotes
- Up to 30 Msps Outroute
- Up to 4 MF-TDMA Inroute

TECHNICAL SPECIFICATIONS: UHP-200 TDM/TDMA HUB

NETWORK	Mini Hub	Standard Hub	HTS Hub
Topology	TDM/TDMA Star, TDM/SCPC Star, Dual-Gateway, TDM/TDMA Mesh		
Hub Redundancy	1:1	1:1 OC; M:N IC	M:N Local-/Geo- Redundancy
Controller Licenses	Static	Static	Dynamically assigned
Outroute			
Standard	DVB-S2, DVB-S2X; Roll-off: 5%, 20%		
Channels	Single	Multiple	Multiple and HUBMUX slicing
MODCOD	QPSK, 8PSK, 16APSK, 32APSK, 64APSK, 128APSK, 256APSK / most of DVB-S2 & DVB-S2X FECs		
Symbol Rate	300 ksps – 30 Msps; step 1 ksps	300 ksps - 64 Msps; step 1 ksps	300 ksps - 200 Msps; step 1 ksps
Inroute			
Channels	Up to 8 MF-TDMA or 1 Standalone TDMA	Up to 250 MF-TDMA or Standalone TDMA	Up to 250 MF-TDMA or Standalone TDMA
MODCOD	BPSK, QPSK, 8PSK, 16APSK; Roll-off: 5%, 20%		
Symbol Rate	100 ksps - 11 Msps per carrier (aggregate for 1 MCD); step 1 ksps		
TDMA Protocol	Frame 50 -1000 ms, 14 slot sizes, manageable minimal bandwidth; fast MF-TDMA hopping Spectrum spreading with factors 2 and 4, maximum chip rate 11.7 Mcps		
Bandwidth allocation	Deterministic	Deterministic and Slotted Aloha for roaming/inactive remotes	
Protocols / QoS			
Protocols	IPv4/IPv6, IGMP, cRTP, SNMP, RIP, SNTP, TFTP, PPP, DHCP, DHCP Relay, OpenAMIP		
Support	DSCP, multiple IP/VLANs, PAT, proxy ARP, L2 Bridging, TCP Acceleration, Jumbo frames, AES-256, X.509		
QoS	8-level prioritization, traffic policies, CIR, MIR, group QoS, hierarchic traffic shaper, FAP		

- Support of various topologies: Hub and Spoke, Dual Gateway, Mesh, MF TDMA Mesh
- Easy and cost-effective scalability up to 254 TDMA Inroute channels and 500k remotes
- 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
- 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
- Fast network startup — network is ready for use in less than a minute upon power-up
- User-friendly Network Management System with multi-user web-interface and VNO support
- Support of 1:1 automatic redundancy without use of external controllers