

# TDM/TDMA HUB

## MULTISERVICE VSAT NETWORK

TDM/TDMA STAR

TDM/TDMA MESH

TDM/SCPC

DUAL GATEWAY

VNO SUPPORT

1:1 REDUNDANCY

UHP TDM/TDMA 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 4 TDMA carriers, SCPC DAMA transmitter or receiver. UC may have no specific license installed, in which 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 its 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.

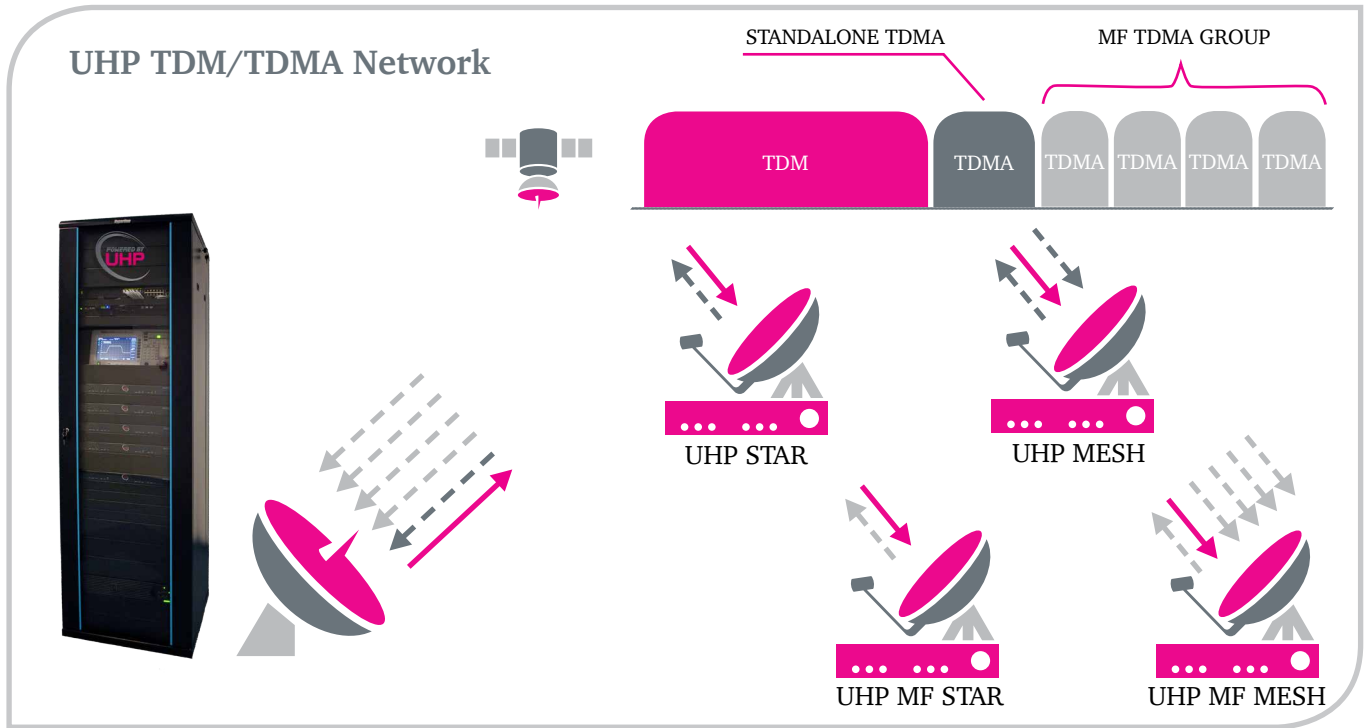


- Support of various topologies: ‘Hub and Spoke’, ‘Dual Gateway’, ‘Mesh’, ‘MF TDMA Mesh’
- Easy and cost-effective scalability up to 254 TDMA Inbound channels and 500 000 terminals per network
- Enhanced DVB-S2 QPSK, 8PSK, 16APSK and 32APSK modulations with 5% or 20% roll-off
- Multichannel MF-TDMA demodulator 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
- 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

### 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 TDM/TDMA Network



## UHP-2XX SERIES TDM/TDMA HUB SPECIFICATIONS

NETWORK		
Topology	Star, Dual-Gateway™, Mesh	
Modes of operation	TDM/TDMA Star, TDM/TDMA Mesh, TDM/SCPC, TDM/SCPC-DAMA	
Network role	HB - Hub controller with 1 TDM and up to 4 MF-TDMA; IC - Inroute controller with up to 4 MF-TDMA	
Network size	Up to 252 TDMA Inroute channels or MF groups and 500 000 terminals per network	
Frequency bands	C, X, Ku, Ka, including multi-beam HTS satellites	
FORWARD CHANNEL (Tx)		
Standard	DVB-S2 ACM	
Channels	One universal SCPC/TDMA modulator	
Modulation	QPSK, 8PSK, 16APSK, 32APSK; Roll-off: 5% or 20%;	
FEC	1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9	
Symbol Rate	300 kspss - 65 Msps; max 53.8 Msps for 32APSK; step 1 kspss;	
Data Rate	200 kbps - 225 Mbps	
QoS	8-level prioritization, traffic policies, CIR, MIR, group QoS, hierarchic traffic shaper, FAP	
RETURN CHANNEL (Rx)		
	<b>TDMA</b> <span style="float: right;"><b>SCPC</b></span>	
Standard	LDPC TDMA with Adaptive Code and Modulation <span style="float: right;">DVB-S2 ACM</span>	
Channels	One universal SCPC/TDMA modulator <span style="float: right;">Two demodulators with selectable IF inputs Rx1 and Rx2</span>	
Modulation	QPSK, 8PSK, 16PSK; Roll-off: 5%, 20% <span style="float: right;">QPSK, 8PSK, 16APSK, 32APSK</span>	
FEC	1/3, 2/3, 3/4, 4/5, 5/6 <span style="float: right;">1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9</span>	
Symbol Rate	100 kspss - 8 Msps; step 1 kspss <span style="float: right;">300 kspss - 65 Msps; max 53.8 Msps for 32APSK; In dual-demodulator mode 44.5 Msps (8PSK); 33.7 Msps (16APSK); 27.0 Msps (32APSK) max</span>	
Data Rate	67 kbps - 27 Mbps <span style="float: right;">200 kbps - 225 Mbps (225 Mbps aggregate for two demods)</span>	
Access Scheme	Frame 50 -1000 ms, 14 slot sizes, manageable minimal bandwidth; slot-to-slot fast MF-TDMA hopping <span style="float: right;">Dedicated or DAMA</span>	
QoS	8-level prioritization, traffic policies, CIR, MIR, group QoS, hierarchic traffic shaper, FAP	
ROUTER		
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 (LO 10 MHz/+8 dBm [RX2], 13.5/18 VDC 0.75A), F type	
IF Tx	950-1750 MHz (optionally up to 2150 MHz), - 45...-5 dBm, (LO 10 MHz/+8 dBm, 24V/2A), F type	

These specifications are subject to change without notice

\* Available in a future SW release



**UHP Networks Inc.**  
 6600 Trans-Canada Highway, Pointe-Claire (Montreal), Quebec, Canada H9R 4S2  
 T: +1-514-695-VSAT (8728) | F: +1-514-697-0186 | www.uhp.net | info@uhp.net

