

TDM/TDMA VSAT HUB

UHP-1000 SATELLITE ROUTER

SCPC

TDM/TDMA

Hubless TDMA

VSAT NETWORK

UHP broadband VSAT networks provide a variety of modern telecommunications services to different customer groups - small and large businesses, governmental and individual users. Satellite network ensures global coverage and its services are available virtually everywhere.

It is the fastest and most efficient way to connect a number of remote users into a single global network with service quality comparable or exceeding performance of terrestrial infrastructure in large cities.

UHP network uses efficient TDM/TDMA bandwidth on-demand multiple access to a satellite capacity. The typical UHP network consists of one Hub and number of associated remote terminals. UHP terminals may operate in hub-and-spoke (star) topology or in mesh mode, when terminals are connected via a single satellite hop bypassing the Hub. UHP terminals require no local management and are fully managed by the Hub.

- TDM/TDMA technology with on-demand dynamic bandwidth allocation
- Support of any topologies: “hub and spoke”, “multilevel tree”, “mesh”
- High throughput in forward channel (up to 86 Mbps) and in return channels (up to 6.5 Mbps per channel)
- DVB-S2 VSAT technology with bandwidth-efficient LDPC coding in TDMA channel
- Innovative TDMA protocol with proven efficiency of 96% in comparison with SCPC channels
- 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
- Built-in adaptive 500-channel traffic manager specially designed for VSAT applications
- Web-based Network Management System allowing operating the network from everywhere
- 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
- Easy to install and operate hardware, user-friendly software configuration
- Upgradable by just a software key to support other modes of operations: SCPC, Full Mesh TDMA



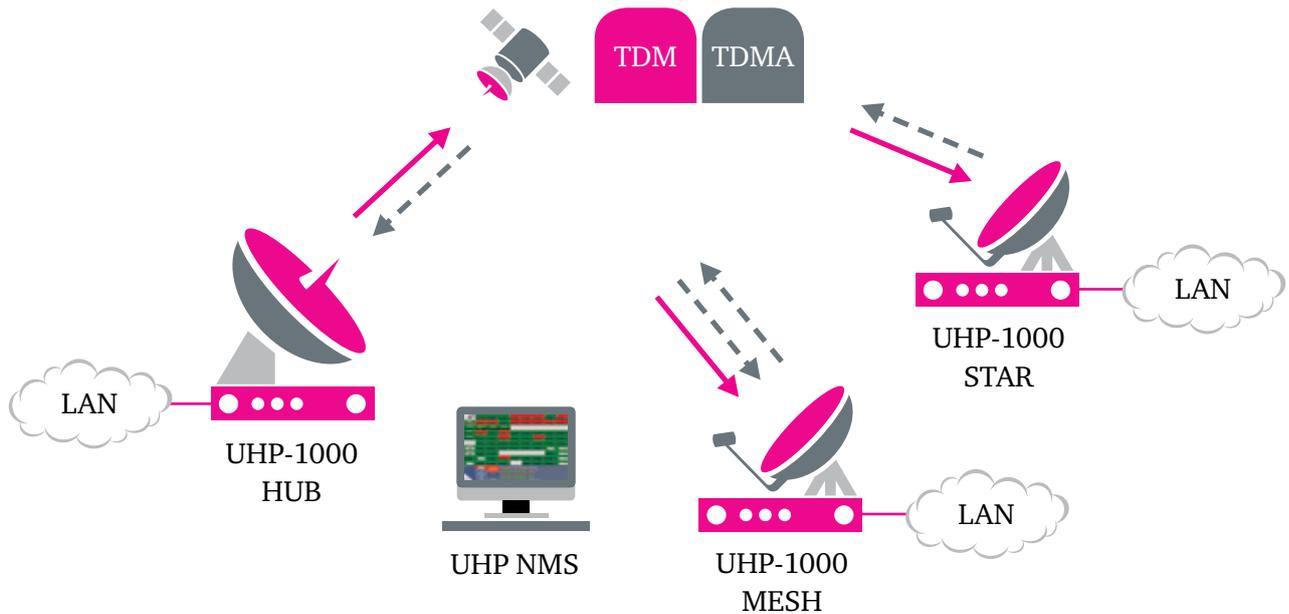
UHP TDM/TDMA HUB

The Hub consists of one or more UHP-1000 satellite routers. In its basic configuration, it has a single UHP-1000 router which transmits one outbound TDM carrier towards all the remote terminals and receives one inbound TDMA carrier shared between all the remotes. Additional satellite routers are required in order to support more inbound carriers and/or to create 1:1 redundant configuration in the Hub. TDM/TDMA Mesh feature allows single-hop connectivity between the remotes via the TDMA carrier also used in the inbound. The Hub is typically installed in one or more 19” rack mounted chassis.

The outbound TDM channel makes use of the most efficient modulation and coding technologies based on DVB-S2 (or DVB-S) industry standard. The design of the outbound channel, in combination with an innovative, bandwidth-saving TDMA protocol and LDPC FEC coding in the inbound channel, ensures industry-lowest operating costs and delivery of highest-quality services. UHP technology has unparalleled versatility and minimizes both CAPEX and OPEX, thus guaranteeing the lowest total cost of ownership for satellite network of any configuration.



Typical Network Diagram of UHP TDM/TDMA Network



UHP-1000 TDM/TDMA HUB SPECIFICATIONS

NETWORK	
Mode of operation	TDM/TDMA, TDM/TDMA Mesh
Number of channels	Up to 31 return (TDMA) channels per one forward (TDM) channel
Number of remotes	Up to 7812 terminals per network (252 per return channel)
TDM CHANNEL	
Data Rate	From 250 kbps (250kSps @ QPSK 1/2) up to 86 Mbps (32MSps @ 8PSK 9/10)
Modulation / Coding	DVB-S (QPSK, Viterbi+RS); 1/2, 2/3, 3/4, 5/6, 7/8; DVB-S2 (QPSK, LDPC&BCH); 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10; DVB-S2 (8PSK, LDPC&BCH); 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 DVB-S2 (16APSK, LDPC&BCH); 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
QoS	3-level traffic prioritization, adaptive 500-channels-Traffic Shaper
TDMA CHANNEL	
Data Rate	From 133 kbps (100 kSps @ QPSK 2/3) up to 6,5 Mbps (4 Msps @ QPSK 5/6)
Modulation / Coding	QPSK, LDPC
Demodulator Performance	FEC 2/3 5/6
E_b/N_0 , BER $<10^{-7}$	E_b/N_0 4.2 4.8
QoS	3-level traffic prioritization, Committed Information Rate (CIR)
ROUTER	
Performance	96 Mbps or 28000 pps
Support	DSCP, end-to-end VLAN, RIP, L2 Bridging, CRTP, IGMP, TCP Acceleration
Management	WWW, Telnet, SNMP, NMS Configuration Manager
INTERFACES	
IF Rx	950-2050 MHz (LNB DC – 13.5V/18V 0.75A), F type
IF Tx	950-1550 MHz, –30...– 5 dBm, (LO 10 MHz / +5 dBm, BUC DC – 24V / 2A), F type
MECHANICAL / ENVIRONMENTAL (IDU)	
Power	176-283 VAC, 10 W
Operating temperature	0°... +40°C, humidity up to 90%