

# TDM/TDMA VSAT HUB

## UHP-1000 SATELLITE ROUTER



SCPC

**TDM/TDMA**

TDMA FULL MESH

### VSAT NETWORK

UHP broadband VSAT networks allow providing variety of modern telecommunications services to different customer groups - small and large businesses, governmental and individual users. A satellite network ensures global coverage and its services are virtually available everywhere. It is the fastest and most efficient way to connect a number of remote users into one, global network with speeds and service quality comparable or exceeding the actual proposal 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-like) topology or in mesh mode, when terminals exchange its information in-between directly in one satellite hop and without any transit via the Hub. UHP terminals require no any 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 just in dozens of seconds 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



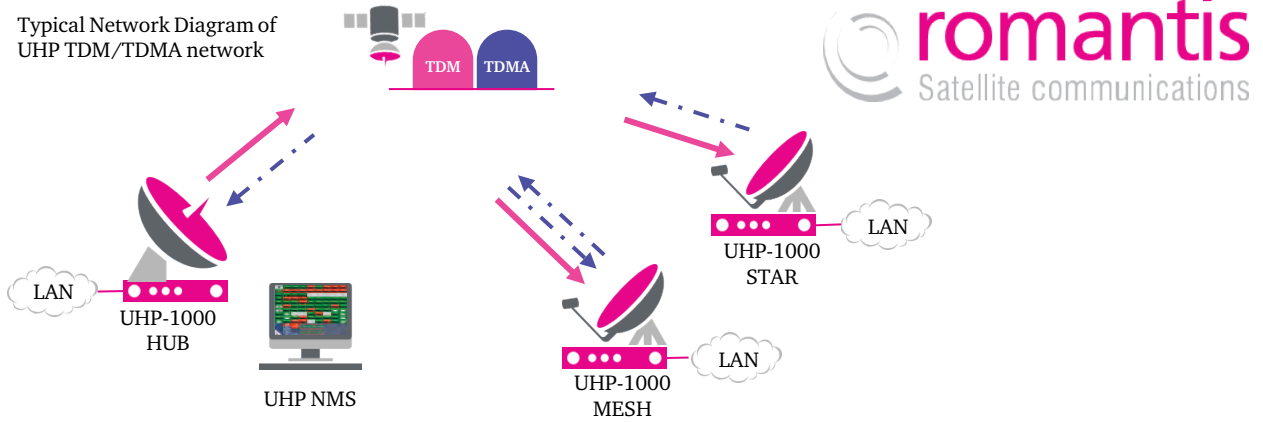
### UHP TDM/TDMA HUB

UHP TDM/TDMA Hub is based on one or several UHP-1000 satellite routers. In its minimal configuration (single router) Hub transmits one TDM channel that delivering data to all remote terminals and receives one common TDMA channel with bursts from the terminals. Additional routers that can be cascaded on a special 19” rack chassis at the Hub may increase the number of supported TDMA return channels or to enrich the Hub by automatic redundancy.

UHP Hub transmits TDM channel with the most efficient methods of modulation and coding based on DVB-S or DVB-S2 industry standards, that in combination with an innovative, bandwidth-saving TDMA protocol and LDPC coding in return channels ensures the industry-lowest operating costs and high quality services. UHP technology guaranties the minimal cost of the network’s ownership.



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
QoS	3-level traffic prioritization, adaptive 500-channels-Traffic Shaper

### TDMA CHANNEL

Data Rate	From 133 kbps (100 kpsps @ QPSK 2/3) up to 6,5 Mbps (4 Msps @ QPSK 5/6)
Modulation / Coding	QPSK, LDPC
Demodulator Performance Eb/No, BER <math>10^{-7}</math>	FEC                      2/3                      5/6 Eb/N <sub>0</sub> 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%

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