UHP-280 Series

Universal Satellite Router

STEP ELECTRONICS
A Division of Av-Comm

UHP NETWORKS

UHP-280 is a universal VSAT router with Software-Defined Architecture. The device packs industry-highest processing capability into a very compact size with power consumption under 12W. It can process up to 650 Mbps of aggregate traffic. UHP-280 comprises two DVB demodulators, multichannel TDMA burst demodulators, a universal wideband TDMA/SCPC modulator and a powerful IP router. The high processing capability allows implementation of uniquely efficient protocols for network access, resource allocation and data encapsulation as well as support for advanced MODCODs.

UHP-280 is a truly universal router which can operate as a star or mesh TDM/TDMA remote or as a Tx/Rx SCPC IP modem, or as a node in a Hubless TDMA (full mesh) network, or as a building block (Universal Controller) in a large TDM/TDMA Hub.

UHP TDM/TDMA Hub has a high-availability modular design, based on principles of distributed computing. 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-280 router. Depending on the software license activated, 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 multiple 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.

The Network Management System runs on a Linux server. It is separate from the Hub, so it's failure wouldn't bring down the network.

Key Features:

- World's fastest VSAT router with aggregate throughput up to 650 Mbps and powerful UHP-RTOS
- 200 Msps wideband modulator with HubMux slicing
- Two independent DVB demodulators with separate software-switchable IF inputs and rate up to 500 Msps
- 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 operation
- Various modes of operation and topologies: SCPC, TDM/ TDMA, TDM/TDMA Mesh, Hubless TDMA
- HTS-ready VSAT with support of multiple beams, bands, satellites reception with traffic balancing
- Superior IP router productivity up to 190 000 PPS and rich set of supported protocols, multi-level QoS
- Layer 3 IPv4/IPv6 routing architecture and Layer 2 bridging mode
- 1:1 automatic redundancy without external controllers or Local/Geo M:N Smart Redundancy
- Highest reliability with over 200 000 hours MTBF.

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TECHNICAL SPECIFICATIONS: UHP-280 SERIES UNIVERSAL SATELLITE ROUTER

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NETWORK		
Topology	Point-to-Point, Star, Mesh, Dual-Gateway, Hubless	
Modes of operation	Software-defined router: SCPC, SCPC DAMA, TDM/SCPC, TDM/TDMA Star/Mesh, Hubless TDMA	
Network role	SCPC Modem, TDM/TDMA Terminal or Hub, Universal Controller of HTS Hub, Hubless Slave or Master	
TDM (SCPC) CHANNEL	MODULATOR	DEMODULATOR
Standard	DVB-S2 / DVB-S2X with Adaptive Coding and Modulation	
Channels	One universal SCPC/TDMA modulator	Two demodulators with selectable IF inputs
Modulation	QPSK, 8PSK, 16APSK, 32APSK, 64APSK, 128APSK, 256APSK; **Roll-off: 5% or 20%;**	
FEC	1/4, 14/45, 1/3, 2/5, 9/20, 7/15, 1/2, 8/15, 11/20, 26/45, 3/5, 23/36, 2/3, 25/36, 32/45, 13/18, 3/4, 7/9, 4/5, 5/6, 77/90, 8/9, 13/45	All DVB-S2 & DVB-S2X MODCODs
Symbol Rate	300 ksps - 200 Msps; step 1 ksps	300 ksps - 500 Msps
QoS	8-level prioritization, traffic policies, CIR, MIR, group QoS, hierarchic traffic shaper, FAP	
TDMA CHANNEL	MODULATOR	DEMODULATOR
Standard	LDPC TDMA with Adaptive Coding and Modulation	
Channels	One universal SCPC/TDMA modulator	8-channel MF-TDMA demodulator
Modulation	QPSK, 8PSK, 16APSK; Roll-off: 5%, 20%	
FEC	1/2, 2/3, 3/4, 5/6	
Symbol Rate	100 ksps - 12 Msps; step 1 ksps	
TDMA Protocol	Frame 50 -1000 ms, 14 slot sizes, manageable minimal bandwidth; fast MF-TDMA hopping	
QoS	8-level prioritization, traffic policies, CIR, MIR, group QoS, hierarchic traffic shaper, FAP	
ROUTER		
Performance	Up to 190 000 packets per second	
Support	DSCP, multiple IP/VLANs, PAT, proxy ARP, L2 Bridging, TCP Acceleration, Jumbo frames	
Protocols	IPv4/IPv6, IGMP, cRTP, SNMP, RIP, SNTP, TFTP, PPP, DHCP, DHCP Relay, OpenAMIP	
Management	HTTP interface, SNMP, Telnet, NMS with VNO support	
Transmission Security	AES-256 encryption for user data and control channel; X.509 Hub and Remote authentication	
INTERFACES		
User LAN	2 x Gigabit 10/100/1000 Base-T	
Maintenance console	miniUSB, B female	
IF Rx (both inputs)	950-2150 MHz; Ref. 10 MHz/+5 dBm [RX2]; 13.5/18 VDC 0.75A; F type	
IF Tx	950-2150 MHz, -1...-46 dBm; Ref. 10 MHz/+5 dBm; 24V/2A; F type	
MECHANICAL/ENVIRONMENTAL		
Power	100-240 VAC, 12W	
Operating temperature	0...+50 °C	
Size/ Weight	Rackmount 440x44x172 mm / 1.7 kg	

Enterprise Networks

Satellite Backhaul

Maritime Broadband

Consumer Broadband

M2M and SCADA

Backup & Resilience

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