SPACEBRIDGE
ALL THINGS CONNECTED

U7720 – High-Performance Networking Satellite Modem/Router

The U7720 is a high-performance professional satellite modem designed for seamless operation on the ESTELLA VSAT platform. Fully compliant with the DVB-RCS2 open standard (EN 301 545-2 V1.2.1), it comes standard with SpaceBridge's innovative WaveSwitch™ technology, enabling dynamic switching between TDMA and SCPC return link waveforms. This ensures optimal return link efficiency, especially for today's High Throughput Satellites (HTS/VHTS). U7720 supports L2/L3 network making it ideal for a wide range of applications, including: basic Internet access, IoT, Cellular Backhaul (CBH), Homeland security and military

U7720 is a high performance networking satellite modem/router capable of supporting IP speeds of 100Mbps download and up to 20Mbps upload. All U7720 modems support industry standard OpenAMIP, which when coupled with SpaceBridge multi-beam mobility and beam switching technology, provides a very effective, robust and secure maritime/ mobility communication solution. The U7720 is available in the following formats :

- U7720-60: rackmount low power (<40W 24VDC power to BUC)
- U7720-120: rackmount mid power (<100W 24VDC power to BUC) + Quad GigE interface
- U7720-ODU: IP67 outdoor enclosure (<40W 24VDC power to BUC)
- U7720-SA: stand-alone board level for 3rd party integration

Key Features & Benefits

- DVB-S2X Forward Link. Highest spectral efficiency via highly granular MODCOD, low roll off rates and Adaptive Coding and Modulation (ACM)
- Dynamic Rate Assignment: Automatically generates the return carrier waveform every Superframe to optimally match user traffic with either 3D-TDMA or SCPC (via WaveSwitch™), while also adjusting block size and MODCOD for maximum efficiency.
- DVB-RCS2 return channels supporting from SS-BPSK to 64QAM and up to 5% roll offs/spacing
- WaveSwitch return link waveform offering highest Dynamic SCPC efficiency and performance.
- Hitless and dynamic switching between TDMA and WaveSwitch services.
- Internet-traffic optimization and QoS, enhancing user experience and conserving satellite bandwidth and power
- OpenAMIP support with major antenna manufacturers
- Operates with most COTS BUC/LNBs or transceivers

U7720-120

U7720-SA

U7720-ODU

FORWARD LINK (Rx)

Waveform Technology	DVB-S2/S2X ACM, QPSK to 256APSK, all modulations.
Encapsulation Modes	GSE Encapsulation
Receive frequency Range	950-2150 MHz
Symbol Rate	From 256Ksps to 125Msps
Link Variation Mitigation	Adaptive Coding Modulation and AULPC
Channel Roll-off and Spacing	5%, 10%, 15%, 20%, 25%
Terminal IF RX Interface	F-type 75 Ohm, 950-2150MHz satellite/band independent, LNB power OFF/13VDC/18VDC, 22KHz tone ON/OFF

FORWARD LINK TDMA (Tx)

Waveform Technology	3D-TDMA and WaveSwitch SS-BPSK, BPSK, QPSK, 8PSK, 16QAM, 32QAM, 64QAM
Encapsulation Modes	RLE Encapsulation
Symbol Rate	From 160Ksps to 20Msps (20Msps for QPSK to 16QAM, 11Msps for 32APSK to 64QAM)
Channel Roll-off and Spacing	5%, 10%, 15%, 20%, 25%, 35%
Link Variation Mitigation Dynamic Rate Assignment	• Terminal built-in Uplink Power Control (ULPC) • Adaptive return carrier sizing every 26.5msecs • Adaptive block size and MODCOD per timeslot/per carrier, every 26.5msec
Tx Power	-30dBm to 0dBm
Terminal IFL TX Interface	F-type 75 Ohm, 950~2400MHz satellite /band independent, BUC timing reference - OFF/10MHz/50MHz reference, BUC Power - OFF/24V DC selectable

Return Link dSCPC (Tx)

WaveSwitch	• SpaceBridge high efficiency proprietary TDMA block mode concatenation (i.e. eliminates TDMA overhead) to provide equivalent to SCPC grade service, sizing carrier symbol rate every frame • WaveSwitch carrier size and MODCOD selection every 20msec. • Hitless switching from regular TDMA to WaveSwitch and back
Upload Speed	Up to 20Mbps

QOS and PEP

QOS	Up to 8 flows QoS, based on ToS/DSCP, IP addresses, protocol and ports
Application Optimization	SpaceBridge proprietary L3 Performance Enhancement Protocol (PEP), compresses streams and significantly reduces return link TCP ACK (improves return link utilization and saves up to 50% return link ACK related bandwidth) DNS Caching
Security	Optional: IPSec encryption up to AES256

Traffic ports and performance

Interfaces	U7720-60/SA/ODU: 1 User 1000BaseT and 1 MGMT 1000BaseT Ethernet U7720-120: 4xUser 1000BaseT and 1 MGMT 1000BaseT Ethernet
Download speed	Up to 100Mbps
Upload Speed	Up to 25Mbps
Packet Processing	25kpps with full QoS and PEP enabled
Network Services	• Support Layer-2 and Layer-3 traffic modes at same time • Layer 2 VLAN and bridge support • Layer 3 NAT, DHCP server/relay, Access List, IP Routing

Environmental and Mechanical

Form factor/Dimensions (WxLxH)	U7720-60: 19 x 6 x 1.75 inches (482.6 x 153.4 x 44.4 mm) U7720-120: 19 x 12 x 1.75 inches (482.6 x 306.8 x 44.4 mm) Outdoor IP-67 enclosure: 5 x 9 x 7 inches (127 x 229 x 178 mm)
Weight	<7.5 lbs (3.4kg)
Power	• U7720-60 and ODU: 60W AC PS (90-260VAC), 40W max to power RF/BUC. • U7720-120: 120W AC PS (90-260VAC), 100W to RF/BUC • U7720-SA: external 24 VDC up to 60W (40W max to power RF/BUC)
Operating Conditions	Indoor rack mount: 32°F-122°F (0°C-50°C) 10% to 90% humidity, non-condensing Outdoor enclosure:-22°F-140°F (-30°-60°C)
Storage Conditions	-40° to +85°C (-40° to +185°F) 5 - 95% non-condensing
Altitude	< 3,000 meters/10,000 feet
Certifications	CE, FCC, RoHS