Product Brochure

SkyEdge IV Aquarius Outdoor

Ultra-High-Performance Multi-Orbit VSAT for Harsh Environments

Ultra-High-Performance VSAT For Next-Generation Satellites

SkyEdge IV Aquarius Outdoor is a rugged, all-weather ultra-high-performance VSAT designed for operation over next-generation Very High Throughput Satellites (VHTS) and GEO and Non-GEO (NGSO) constellations. The Aquarius Outdoor VSAT was designed to support flexible satellites servicing multiple fixed applications such as broadband, 4G and 5G backhauling, corporate enterprise services and heavy connectivity trunking links.

The SkyEdge IV Aquarius IV Outdoor VSAT is purpose-built to thrive in the most demanding environments. Designed to operate in harsh outdoor conditions, this VSAT eliminates the need for an indoor shelter, making it an ideal solution for remote installations where infrastructure is limited or non-existent. Its robust design ensures reliability even in extreme temperatures, high humidity, or challenging weather, providing a durable and long-lasting satellite communication solution.

Another significant advantage is its proximity to the antenna, which reduces the complexity of wiring. By deploying the VSAT closer to the antenna, it minimizes the need for extensive cabling between the indoor and outdoor units, simplifying the installation process and improving signal quality. This feature reduces overall deployment time and enhances performance, making the SkyEdge IV Aquarius Outdoor an efficient choice for satellite operators.

The SkyEdge IV Aquarius Outdoor VSAT is designed to provide uninterrupted service, supporting next-generation software-defined satellites. The Aquarius Outdoor enables seamless operation, "make before break" NGSO satellites handover, switching between GEO and NGSO or between different GEO satellites. To provide continuity of service for these use cases, Aquarius Outdoor is equipped with dual transmit/receive interfaces and fast adaptive reconfiguration capabilities on both the forward and return channels supporting satellite on-the-fly changes.

The SkyEdge IV Aquarius Outdoor exhibits ultra-high processing capacity, achieving above 750Mbps aggregated throughput and high packets-per-second processing.

Benefits

- Ultra-high throughput and high PPS VSAT
- Designed for ultra-high data-intensive applications such as: 4G/5G and WiFi backhauling, oil and gas and high-end enterprise applications and trunking
- Software-defined programmable VSAT for seamless operation over legacy and next-generation flexible satellites
- Multi-Orbit (GEO/NGSO) "make-before-brake" satellite handover
- Integrated MEF-based Layer-2 services
- High-performance Air Interface - DVB-S2X and Gilat TDMA and Elastix-SCPC (eSCPC)
- Open standard interfaces for Antenna (OpenAMIP) and BUC (OpenBMIP)

Aquarius Outdoor

Maximum Spectral Efficiency

Gilat's innovative transmission technologies deliver exceptional performance and space segment efficiencies with the highest availability. The enhanced performance air interface includes in the forward direction Wideband DVB-S2X carriers up to 500Msps with seamless Adaptive Coding and Modulation (ACM) with very low SNR (VLSNR) ModCods. In the return direction, Gilat's Elastix- SCPC (eSCPC) and TDMA access incorporate Gilat's unique advanced FEC coding XDC , delivering the industry's highest spectral efficiency, widest dynamic range and highest granularity.

Metro Ethernet Forum (Mef) Based Layer-2 Services

The SkyEdge IV Aquarius Outdoor delivers Layer-2 based services utilizing MEF-based standards to enable extended standard terrestrial Layer-2 connectivity over satellite. Rich Layer-2 connectivity options include advanced Layer-2 QoS traffic prioritization enabling the support of multiple applications behind the VSAT.

Enhanced Central Service Management

The SkyEdge IV Aquarius Outdoor is part of a complete VSAT ground system that includes an advanced Network Management System (Elastix- TotalNMS) facilitating service management, monitoring and control, over-the-air software deployment and rich northbound interface for integration with external orchestrators and OSS.

Technical Specifications

General

Fixed and Mobility VSAT
Multi orbit operation NGSO/GEO
Frequency Bands: C, Ku, Ka

Forward Channel

Standard:
DVB-S2X ACM
Carrier Rate:
5 Msps-500 Msps
Roll-off: 0.05, 0.10, 0.2
MODCODs:
BPSK-S 1/5 – 256APSK ¾
(seamless MODCOD switching)
SNR range: -9.4dB-21dB
FEC: LDPC, BCH

Return Channel

Elastix-Access:
eSCPC (Elastix SCPC)
Carrier Rate: 512Ksps (GEO) 1 Msps (MEO) – 250Msps
Roll-off: 0.05, 0.10, 0.2
Modulation: BPSK, QPSK, 16QAM
SNR range: -14.9dB-15dB
FEC: XDC

Enhanced Features

Layer 2 Services Based Services:
Utilizing MEF based standards
Types of Services:
E-LINE ACCESS, E-LINE TRANSIT
(Based on MEF 51.1)
Interface types:
UNI/ENNI
(untagged, 802.1q, 802.1ad)
Operation & Maintenance:
End-to End OAM Transparent forwarding
OVC Management – based on MEF 7.3, MEF 60 and TMF640
IP Features:
IPv4/IPv6, DHCP, NAT/PAT, DNS Caching, IGPMv3, VLANs, VRFs, RIPv2, BGP, Static Routes
QoS
Per VSAT and Per Managed Group CIR, MIR, CBR, DiffServ and priority-based queueing
Embedded Application Acceleration & Protocol Optimization
TCP Acceleration, GTP Acceleration, Header Compression

Security

AES-256 bit link encryption, ACL Firewall, X.509, Terminal Authentication

Mobility

Seamless Make-Before-Break Beam/Satellite/Orbit switching
OpenAMIPv2, OpenBMIP

Modem Interfaces

RF Input / Output:
2xTX / 2xRx N-Type 50Ω
RF in frequency: 950-2150MHz
RF out frequency: 950-2400MHz DISEqC

Management Interface

Secured Web-based local management, remote software upgrades over the air, NMS remote management, SNMP

Environmental & Mechanical

Form Factor:
Outdoor
Throughputs:
500 / 250 Mbps
Lan Interfaces:
5 x 10/100/1000 BaseT
Operating Voltage:
48V
Operating Temp:
-30°C - 60°C
Certifications:
CE, FCC, EMC
ETSI EN 300 019 Part 1-4, Class 4.1
IP67

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