



Product Brochure

# SkyEdge IV Aquarius-e

## Ultra-High-Performance Multi-Orbit VSAT for Multiple Form Factors

### Ultra-High-Performance VSAT For Next-Generation Satellites

SkyEdge IV Aquarius-e is an ultra-high-performance VSAT available in multiple form factors designed for operation over next-generation Very High Throughput Satellites (VHTS) and GEO and Non-GEO (NGSO) constellations. The SkyEdge IV Aquarius-e was designed to support flexible satellites servicing multiple fixed and mobility applications such as broadband, 4G and 5G backhauling, commercial maritime and cruise ships, corporate enterprise services and heavy connectivity trunking links.

The SkyEdge IV Aquarius-e offers unmatched versatility with its two form factors: a standard 19" rackmount and a card-only version for seamless integration within terminals. This dual-option approach provides satellite operators with the flexibility to choose the best fit for their infrastructure, allowing for greater adaptability in various deployment scenarios. The rackmount version is ideal for traditional installations, while the card-only form factor enables innovative configurations that optimize space and operational efficiency.

The card-only version of the SkyEdge IV Aquarius-e stands out for its minimal footprint, designed to be integrated directly inside the antenna. This integration significantly reduces deployment complexity, eliminating the need for external housing and long cable runs. By embedding the modem within the antenna, it simplifies the overall setup and accelerates installation timelines.

The SkyEdge IV Aquarius-e VSAT is designed to provide uninterrupted service, supporting next-generation software-defined satellites. The Aquarius-e 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-e 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-e VSAT exhibits ultra-high processing capacity, achieving above 750Mbps aggregated throughput and high packets-per-second processing.

### Benefits

- Ultra-high throughput and high PPS VSAT
- Available in multiple form factors
- Designed for ultra-high data-intensive applications such as: 4G/5G and WiFi backhauling, oil and gas and high-end enterprise applications, land and maritime mobility, and high-end cruise ships
- Software-defined programmable VSAT for seamless operation over legacy and next-generation flexible satellites
- Multi-Orbit (GEO/NGSO) "make-before-break" 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-e



## 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-e VSAT 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-e 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 3/4  
(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:**  
Card  
Rack Mount  
**Throughputs:**  
300/100 Mbps  
**Lan Interfaces:**  
5 x 10/100/1000 BaseT  
**Operating Voltage:**  
100-240V AC  
24V (Card option)  
**Operating Temp:**  
-5°C – 50°C  
**Certifications:**  
CE, FCC, EMC