Gilat

Product Brochure

SkyEdge IV Aquarius Family

Ultra-High-Performance Multi-Orbit VSATs

Ultra - High - Performance VSATs For Next- Generation Satellites

SkyEdge IV Aquarius is an ultra-high-performance family of VSATs designed for operation over next-generation Very High Throughput Satellites (VHTS) and GEO and Non-GEO (NGSO) constellations. The Aquarius Family of VSATs 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 Aquarius VSAT Family is designed to provide uninterrupted service, supporting next-generation software-defined satellites. SkyEdge IV Aquarius VSATs enable 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, SkyEdge IV Aquarius VSATs are 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 VSATs exhibit ultra-high processing capacity, achieving above 2Gbps aggregated throughput and high packets-per-second processing.

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. SkyEdge IV Aquarius Pro also offers an SCPC mode.

Metro Ethernet Forum (Mef) Based Layer-2 Services

The SkyEdge IV Aquarius VSAT Family 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.

Benefits

- Ultra-high throughput and high PPS family of VSATs

- 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 Interfaces — SCPC, DVB-S2X, Gilat TDMA and Elastix-SCPC (eSCPC)

- Open standard interfaces for Antenna (OpenAMIP) and BUC (OpenBMIP)

Aquarius-e

Aquarius Pro

Aquarius Outdoor

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Enhanced Central Service Management

The SkyEdge IV Aquarius VSAT Family 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.

A VSAT For Every Business Need

To serve specific business needs, the Aquarius VSAT family is available in various form factors:

Aquarius Pro — a telco-grade, rack-mounted VSAT with SCPC modem ideal for high-end mobility and backhauling services

Aquarius-e — suited for backhauling, broadband and enterprise services

Aquarius Outdoor — a rugged, all-weather VSAT solution perfect for harsh, unattended environments for fixed sites and maritime mobility

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 and Mechanical Specifications

	Form Factor	Dimensions (LxWxH) mm	Throughputs	Lan Interfaces	Power Cons. W	Operating Voltage	Operating Temp.	Certifications
Aquarius Pro	Rack Mount	420x445.1x44.5	Star – 1500/750 Mbps SCPC – 750/750 Mbps	6 x 10/100/1000 BaseT + 2 x 10GbE SFP M&C Ethernet ports 5 x 10/100/1000 BaseT	135W	100-240V AC 48V DC Dual Power Supply	–5°C – 50°C	CE, FCC, EMC
Aquarius Outdoor	Outdoor	461x316x122	500 / 250 Mbps	5 x 10/100/1000 BaseT	85W	48V	–30°C – 60°C	CE, FCC, EMC ETSI EN 300 019 Part 1–4, Class 4.1 IP67
Aquarius-e	Card Rack Mount	210x230x35	300/100 Mbps	5 x 10/100/1000 BaseT	50W	100-240V AC 24V (Card option)	–5°C – 50°C	CE, FCC, EMC