



Digitizer Solutions: Eliminate Distance Limits and Enable Virtual Operations

The Challenge

Satellite ground systems are evolving, yet many still rely on analog RF transport that limits distance, flexibility and the ability to scale. To support virtualized operations and prepare for new architectures, operators need a reliable way to convert RF into IP. Digitizers address this challenge by converting RF signals to IP streams that enable centralized processing, greater scalability, and an on ramp to virtual and cloud ready ground systems—capabilities that support technologies like 5G NTN and software defined satellites.

These challenges are not just technical — they impact mission assurance, costs, and the ability to grow efficiently. That’s why choosing the right digitizer matters. Each model in the digitizer family is purpose built to address these hurdles, enabling reliable RF over IP transport, seamless integration with virtualized environments, and enhanced resiliency and flexibility.

Powering the Digital Ground Revolution

Kratos is a recognized leader in digitizing RF for IP transport, driving the industry’s transition to virtualized ground infrastructure. With decades of satellite ground expertise, leadership in supporting the DIFI interoperability standard, and a broad portfolio of solutions, Kratos delivers advanced technology that ensures mission success with flexibility and scale modern networks demand.



Capabilities

- **Built for assured transport:** Deterministic latency profiles with nanosecond-level accuracy to maintain coherence and timing integrity across diverse networks.
- **Standards-based interoperability:** VITA-49 across all models, plus DIFI support on SpectralNet wideband and Edge 6500R, ensuring seamless signal processing for virtual environments.
- **OpenSpace native:** Purpose-built to deliver digitized RF into OpenSpace virtual network functions (VNFs) for on prem or cloud signal processing with unified orchestration and management.
- **Deploy anywhere:** From small-form-factor narrowband units at the edge to carrier-grade wideband systems in the rack, the Kratos family of digitizers offers the right size, weight, and power profile for each deployment.

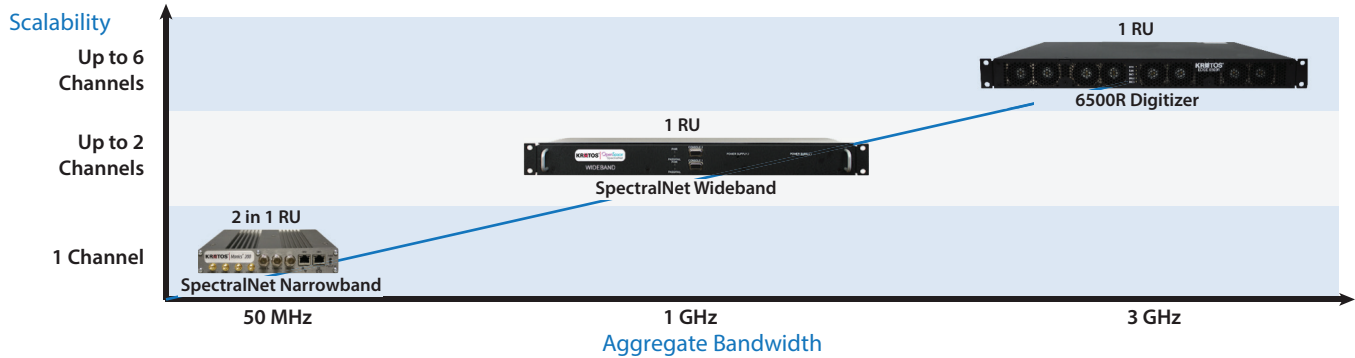
Kratos’ digitizer family converts RF into standards based, packetized IP streams (VITA 49 and DIFI/IEEE ISTO 4900 2021) for deterministic, reliable transport across private or public IP networks—enabling operators to centralize and scale signal processing in data centers or cloud environments.

Digitizers at a Glance

Kratos' family of digitizers includes three digitizers that support narrowband to wideband operations.

- **OpenSpace SpectralNet Narrowband:** Ideal for TT&C and narrowband payloads, offering up to 54 MHz IBW in a compact form factor for low-SWaP deployments.
- **OpenSpace SpectralNet Wideband:** Designed for high throughput and scalable environments from 500 MHz to 1 GHz aggregate bandwidth.
- **OpenSpace Edge 6500R Series:** Optimized for high-throughput and virtualized operations, delivering up to 3 GHz aggregate bandwidth with DIFI/VITA-49 support and pay-as-you-grow scalability.

Digitizer Scalability: Channels vs. Aggregate Bandwidth



Find Your Fit: Digitizer Comparison

	SpectralNet Narrowband	SpectralNet Wideband	Edge 6501R	Edge 6502R	Edge 6503R
Form Factor	Small Form Factor or 1RU	1RU	1RU	1RU	1RU
Frequency Range	50–2,500 MHz	900–2,450 MHz	950–2,450 MHz	950–2,450 MHz	950–2,450 MHz
Channels	1 Channel	Up to 2 Channels	Up to 2* Channels	Up to 4* Channels	Up to 6* Channels
Instantaneous Bandwidth	Up to 54 MHz	Up to 500MHz per card	Up to 500MHz per RF Channel	Up to 500MHz per RF Channel	Up to 500MHz per RF Channel
ADC Resolution / Sample Rate	4–12 bits; 44.4 Msps	4–16 bits; 2 × 750 Msps	Up to 12 bits	Up to 12 bits	Up to 12 bits
Transport & Packetization	1 GbE RJ-45; VITA-49; PFEC	3 × 10 GbE SFP+; DIFI or VITA-49	1 × 40GbE QSFP+; DIFI or VITA-49	2 × 40GbE QSFP+; DIFI or VITA-49	3 × 40GbE QSFP+; DIFI or VITA-49 Deterministic Latency
Deterministic Latency	Up to 750 ms; ±8 ns	Up to 750 ms; ±4 ns	Protocol-based	Protocol-based	Protocol-based

*Total number of channels determined by licenses enabled

Ready to take the next step? Explore the full digitizer family and discover how Kratos is transforming RF transport and virtualized ground systems.

Website: www.kratospace.com/products/digitizers

Webinar: www.kratospace.com/webinars/7-problems-solved-with-digital-ground

Videos: www.youtube.com/@DiscoverVirtualGround

