

Telemetry Spectrum Analysis & Recorder

RINCON RESEARCH CORPORATION'S 3rd Generation Telemetry Spectrum Analysis Recorder (TSAR) distributed by Telspan Data is a radio frequency (RF) multi-channel recorder/analyzer with 2.4-GHz of bandwidth



Whether in flight test, telemetry ranges, or spacecraft downlinks, ensuring signal integrity and validating system performance is critical. Digital demodulators are typical for extracting telemetry data. However, they are susceptible to failure under adverse RF conditions such as interference, fading, or signal clipping. In such cases, troubleshooting the issue post-mission becomes challenging without raw RF evidence.

A **wideband analog recording system** addresses this gap by capturing the full RF environment in real time, providing a time-aligned, unprocessed reference. This enables **mission assurance**, improves **post-event analysis**, and complements existing digital telemetry systems.

Wideband + Coherent Multi-Channel Capture

- Record up to 4 time-aligned RF channels simultaneously
- Sub-band tuners allow targeting specific channels within a wide capture span
- From 10 MHz to 2.4 GHz, tunable to 1.2 GHz, with up to 480 MHz instantaneous bandwidth per channel

High-Fidelity Recording and Replay

- 5 GB/sec max recording throughput, suitable for real-time capture of high-speed events
 - Raw, unprocessed I/Q data preserved in RAW, BLUE, or PLATINUM formats
- Playback capable for looped or single-shot analysis through the analog output chain

Storage Capacity and Recording Duration

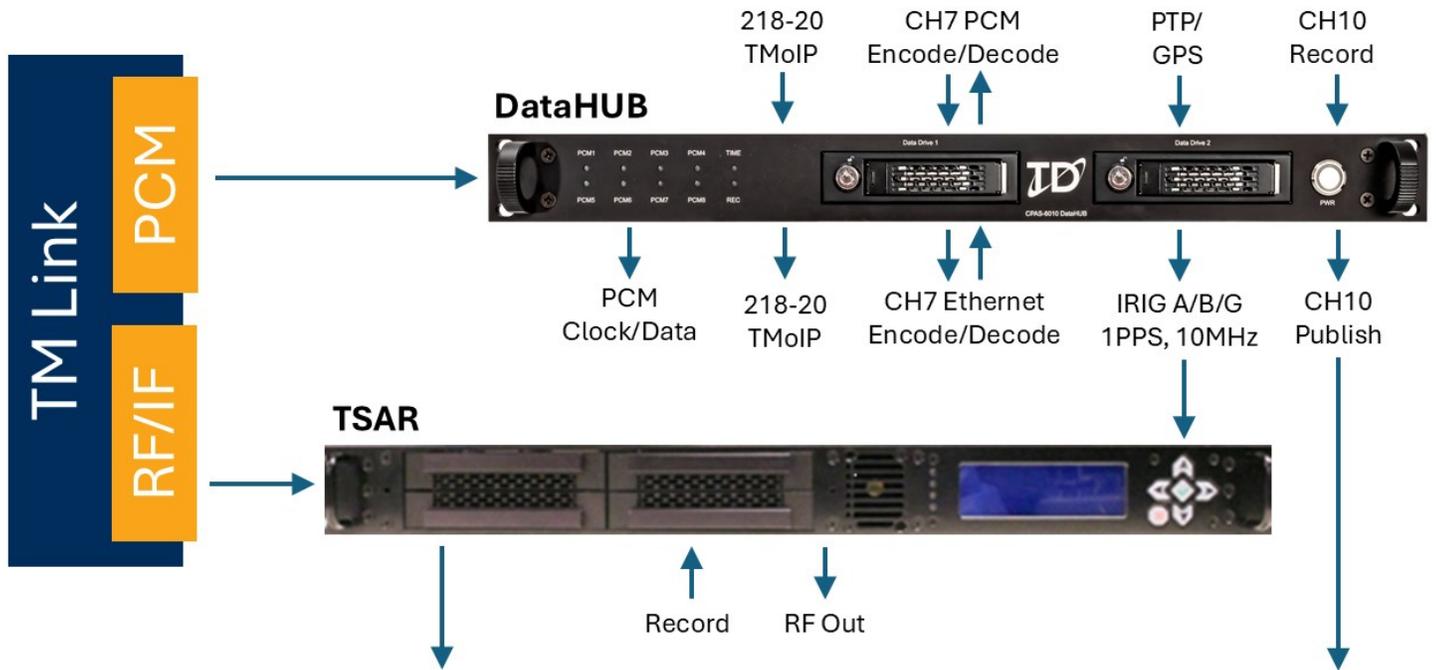
- Up to 4 × U.2 drives for a total of 60 TB of usable storage, enabling extended high-rate recording

Features

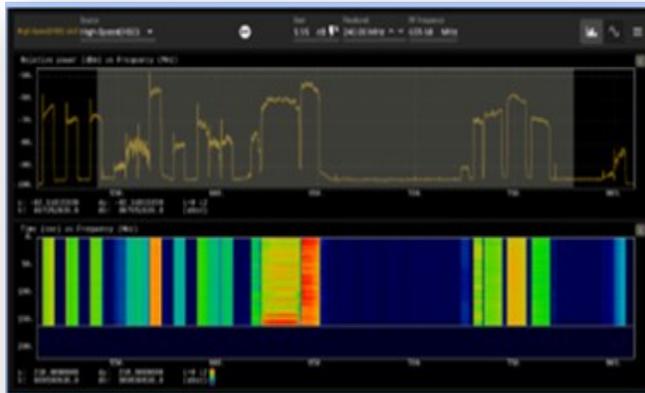
- 4 Channels available in **1U and Portable** form factors
- Recorded data is time-tagged using internal GPS or external timing signals
- Full analog replay to the output channels
- Web browser-based application runs record/replay & allows downloading of recording files as RAW, BLUE, PLATINUM or Chapter 10 files
- Network transfer data offload application allows moving data from the recorder to a server at 800 MB/s
- **FieldVision** provides browser-based spectral views and tuning,
- **FieldView** offers post-collection spectrum analysis w/sub-band selection



Telemetry Ground System



FieldVision
Spectrum Analysis, Control, Playback, Download



NetView
CH10 Record, Publish, Subscribe, Playback



Capability	Typical Recorder	TSAR
Bandwidth	20-100 MHz typical	Up to 480 MHz per channel
Number of Channels	1-2	Up to 4 (coherently time-aligned)
Recording Rate	1-2 GB/s typical	Up to 5 GB/s
Playback Support	Basic or not supported	Full analog replay, CH10 publishing
Control Interface	Local GUI	Web-based (FieldVision)
Data Access	Manual or USB copy	800 MB/s over network with offload