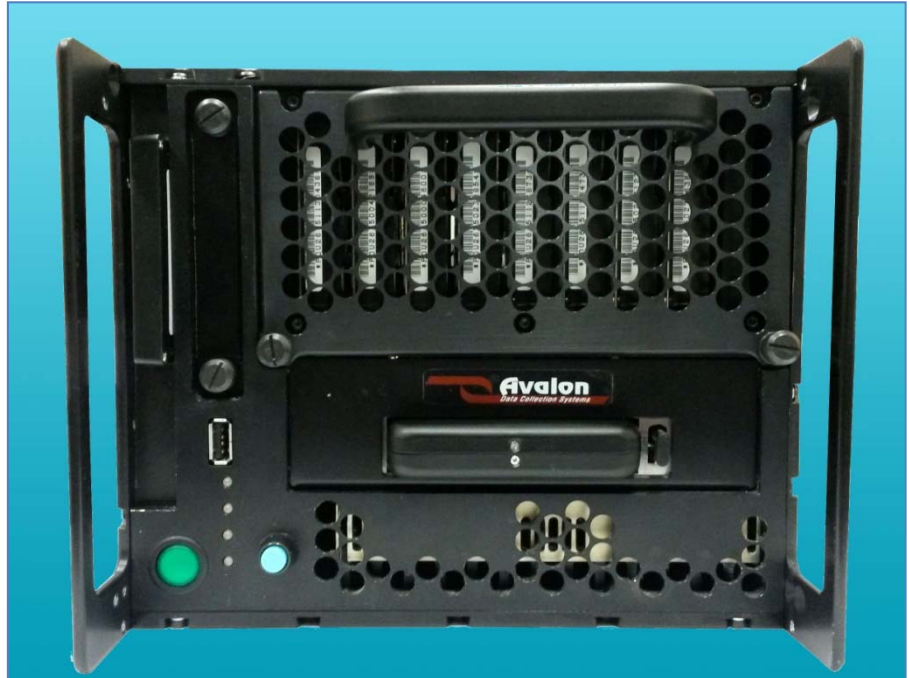


Rugged 2-channel 100 MHz IF Disk Recorder

- Two parallel wideband channels (IF and/or baseband)
- IFs: 160, 140, 70, 60 and 21.4 MHz (menu-selectable)
- Four menu-selectable recording bandwidths (100, 50, 25 and 12.5 MHz)
- 8- and 16-bit recording modes (menu-selectable)
- Optimised input/output filtering
- Built-in down- and up-conversion (IF paths)
- Real-time FFT Display
- Disk Crate (2 TB standard, expandable to 16 TB)
- Data extraction direct to workstation/network or (optional) built-in Audavi media pack or LTO-5 tape



Avalon AE9000-100/50/25/12 Two-channel 100 MHz SIGINT Disk Recorder with hot-swappable Disk Crate and (optional) built-in Audavi media pack.

Introduction

The compact, self-contained **Avalon AE9000-100/50/25/12 SIGINT Disk Recorder** is designed to record, reproduce and export two parallel channels of wideband signals at bandwidths of up to 100 MHz per channel. The two channel inputs can be configured to record IF and/or baseband (video) signals in any combination (2 x IF, 2 x baseband or one channel of each). Either channel can be disabled to provide longer record times and/or higher resolution for single channel applications. Two user-selectable recording resolutions are offered: 8-bit for routine data collection tasks and 16-bit for high-resolution applications. User-selectable IFs include 160, 140, 70 and 21.4 MHz. Four user-selectable recording bandwidths are supported: 100, 50, 25 and 12.5 MHz (per channel). The unit's hot-swappable 2 TB Disk Crate is able to store up to 40 minutes of mission data at the full 2-channel x 100 MHz (16-bit) recording rates. Record times are proportionately longer at lower channel counts, resolutions or bandwidths. The primary means of local control is by means of a monitor, mouse and keyboard attached to the recorder's rear panel. The unit can also be controlled remotely. The unit also supports snapshot recording.

As with all Avalon SIGINT recorders, AE9000-100/50/25/12 incorporates high-precision anti-alias input filtering and advanced, custom-designed analog-to-digital conversion techniques in order to provide the signal quality required by critical applications such as LPI (low probability of intercept) and SEI (specific emitter identification). IF signals are down-converted to the selected recording bandwidth using fast digital signal processing (DSP) techniques and recorded as IQ (complex) pairs of samples for easy up-conversion during replay. Baseband signals are recorded as 'real' samples.

In addition to normal analog replay, recorded data can be exported in digital form. For example, it is possible to BACKUP selected passages of data to an optional built-in Ultrium LTO-5 tape drive using software utilities running on the recorder itself. Data stored on LTO-5 tapes can be RESTORED to the same or another AE9000-100/50/25/12 for analog replay or transcribed to conventional storage media at a remote digital analysis facility. Alternatively, data can be exported directly to an analysis computer via a 1 GB LAN.

Technical Specifications (AE9000-100/50/25/12)

Number of Channels:	1 or 2 channel operation (user-selectable).		
Recording Modes:	2 channels of IF data, or) 2 channels of baseband (video) data, or) user-selectable. 1 channel of IF plus one channel of baseband (video)) IF Modes: 160, 140, 70 and 21.4 MHz (user-selectable).		
Bandwidth/Resolution:	Bandwidth	8-bit	16-bit
	100 MHz	1 or 2 ch.	1 or 2 ch.)
	50 MHz	1 or 2 ch.	1 or 2 ch.) user-selectable.
	25 MHz	1 or 2 ch.	1 or 2 ch.)
	12.5 MHz	1 or 2 ch.	1 or 2 ch.)
Frequency Response:	IF paths:	+/-1 dB (typical) with optimised (internal) anti-alias filters.	
	Baseband path:	DC to band-edge +/- 1 dB (typical).	
Recording Duration:	100 MHz mode:	40 minutes minimum (e.g. 2 ch. x 100 MHz x 16-bit) with 2 TB Disk Pack. Proportionately longer for other operating modes and larger Disk Packs.	
Recording Format:	IF sources:	IQ pairs, 2s complement.	
	Baseband:	Real samples, 2s complement.	
Backup / Transfer / Archive:	BACKUP/RESTORE to/from built-in Audavi media pack, Ultrium LTO-5 tape drive and/or DVD. EXTRACTION to any suitable storage device (local or networked hard disk drive, RAID, etc.) via USB, USB-2, eSATA or 1 Gbit LAN. Disk Crate can also be attached directly to 3 rd Party PC.		
Replay (analogue):	Same format and bandwidth as recording (with automatic detection of recording mode).		
Replay (digital):	Binary files for computer analysis.		
Input Levels for Full-scale Recording:	IF sources:	-30 to +10 dBm from 50 Ω source (AC coupled).	
	Baseband sources:	-30 to +10 dBm from 50 Ω source (DC coupled).	
Input & Output DC Offset:	+/- 0.5 x Full Scale Deviation (baseband path only).		
Output Levels from Full-scale Recording:	Normal IF:	0 dBm into 50 Ω load (AC coupled).	
	Baseband:	1 V pk/pk into 50 Ω load (DC coupled).	
Spur Free Dynamic Range:	>50 dB (8-bits), >70 dB (16-bits).		
Group Delay Variation:	2 nanoseconds pk/pk.		
Reference Frequency:	Stable internal 10 MHz clock, or external 10 MHz source.		
Local Control:	Attached monitor/mouse/keyboard.		
Remote Control:	Via Ethernet using stand-alone executable (Windows/Linux) or Remote Desktop application. APIs also available from Avalon.		
LOOP recording:	The recording media can be configured as a simulated 'endless loop' for record and play.		
SKIP mode:	Permits the user to tag selected passages of data with SKIP flags to avoid accidental overwriting. SKIP flags can be set either while recording or when the recorder is stopped.		
Real-time FFT:	Real-time calculation of FFT (waterfall/spectrogram) display of Input signal while recording.		
Data Extraction Ports:	LAN, USB, USB-2 and eSATA.		
Power:	85 –240 VAC, 50- 60 Hz (auto-ranging). 200 VA normal. 270 VA peak demand.		
Physical:	½ rack x 4u x 530 mm.		
Environmental:	Designed and tested to the applicable sections of MIL-STD-461E (EMC) and MIL-STD-810E (Shock and Vibration).		

These specifications are provisional and subject to change without notice. Please contact Avalon for full technical details.

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