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# *ELPS-97*

## *ELINT Processing System*





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## General Description

The Signal Science ELPS-97 ELINT Processing System is a software-controlled signal analysis system, capable of processing signals from analog tape recording, and of producing the final output displays. The ELPS-97 interactively performs the functions of:

- Playback and digitization of analog signals, analogous to an analog disk, but with far greater control over the data.
- Detection and measurement of intrapulse and interpulse modulations.
- Production of report-quality displays of processed data.

In typical applications, the operator previews the analog tape using the analog equipment and immediately digitizes the recorded signal. The digitized data are examined directly, by playing the data back to an oscilloscope or spectrum analyzer; or indirectly, by routing the data to a receiver and then to an oscilloscope or spectrum analyzer. Additionally, the operator may choose to view the data using one of the ELPS-97 display routines. Interactive operation readily permits determination of signal type and data quality. Signal analysis is completed when the operator selects the appropriate processing and display routines and obtains the report-quality, hardcopy outputs.

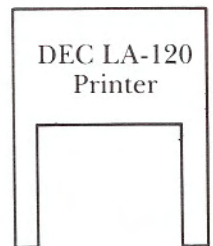
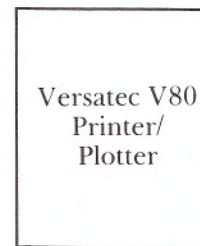
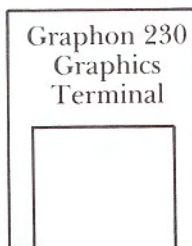
The digital capabilities of the ELPS-97 can be programmed to achieve the following performance capabilities:

- Dual channel 20-MHz (10 MHz per channel) maximum burst sample rate.
- True 8-bit samples in each channel.
- Maximum burst sample size of 128 kilobytes (64 kilobytes per channel).
- Maximum continuous sampling rate of 500 kHz (transfer to disk storage at 500 kHz accommodates roughly 6.6 minutes of operation).

## Operational Features

The interactive software for the ELPS-97 is based on a menu structure. All options which an operator may need are listed in a concise menu. For assistance, the operator may type "HELP" to obtain clarification of a computer subroutine or a menu entry. Although the computer programs in the ELPS-97 are independent, they all share information about the most recent file created or processed. Sharing the file information keeps the operator from having to adjust a large number of menu entries. This feature of ELPS-97 operation gives the operator an impression that the software package is one program offering options to try several different combinations of processing and displays.

Wideband Recorder (Optional)		Cipher 920 Tape Drive
	Time Code Reader	
	Bancomm Digitizer	
	Second Unibus	RA-60 Disk Drive
	VAX 751 Computer	RA-60 Disk Drive



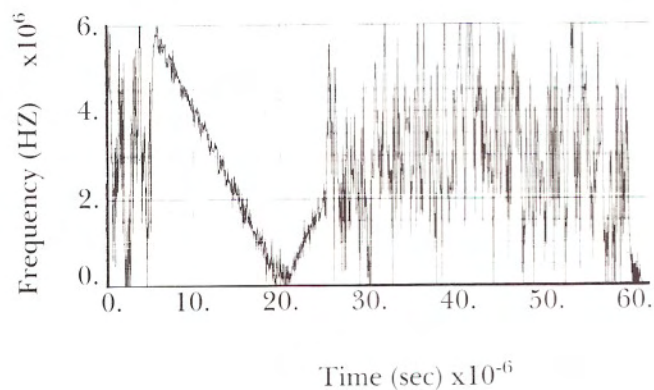


Software control of the ELPS-97 digitizer permits a wide variety of digitizing and playback configurations to meet the needs of the signal analyst. A powerful software digital receiver in the ELPS-97 provides the operator with such capabilities as:

- Bandpass filtering.
- Phase-locked loop and carrier tracking downconversion.
- Amplitude, frequency, and phase detection.
- Creation of various time and frequency domain displays.

A signal simulator routine capable of synthesizing a variety of phase-, frequency-, and amplitude-modulated signals complements the software digital receiver in the ELPS-97. Complex modulation formats of signals created by this routine are processed and displayed after passage through the digital receiver, or are converted into analog format to permit exercising analog signal processing modules.

Powerful software routines supplant three generic types of thermographic analog display devices. The ELPS-97 display software produces output displays superior in quality to those produced by thermographic analog devices, and features sorting capabilities unmatched by any analog equipment. Moreover, the ELPS-97 produces final output analysis and report displays in real time.



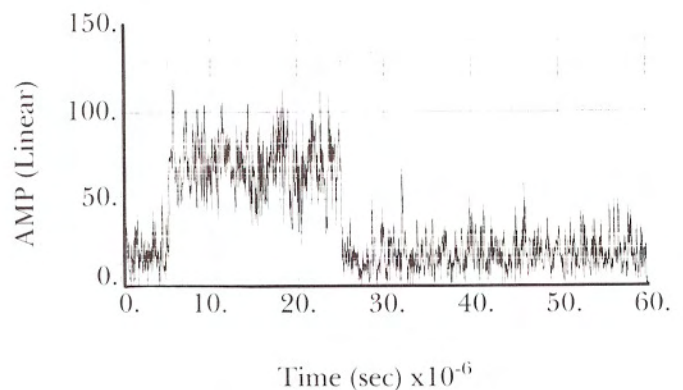
Processing routines of the ELPS-97 provide the user with analysis tools that can only be realized in a digital processing approach. These routines are proven analysis tools for successfully fulfilling ELINT analysis requirements.

### *Physical Description*

The ELPS-97 occupies two full racks of equipment plus a peripheral terminal and two printers, as illustrated in the elevation diagram. A printer/plotter and interactive graphics terminal are remote from the two equipment racks, to permit the operator to be situated in a more comfortable environment. Nine coaxial cables connect the remotely located workstation to the analog position.

An analog/digital position is created by collocating the terminal with the analog position. From the analog/digital position, the operator performs a complete analysis of a signal, beginning with playback and ending with the production of report-quality displays. With each data file created by the ELPS-97, there is an associated data description file, and the operator may compose an entire report to append to this data file using the "word processor" feature of the VAX screen editor.

The ELPS-97 requires approximately 5 kW of power and operates on either 110/220 VAC, 60 Hz, or 220 VAC, 50 Hz.





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