

**digital**

# Software Product Description

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SPD 5.15.1

PRODUCT NAME: OS/8 LAB-8/E Version 1 Software System

DESCRIPTION:

The LAB-8/E software is a versatile, PDP-8/E based, applications system that provides powerful laboratory data acquisition, manipulation and display capabilities at a cost less than that of most special purpose laboratory instruments.

It is the integration of the LAB-8/E Paper Tape System under the OS/8 system. The specific programs include: the Basic Averager, the Advanced Averager, the Time Interval Histogram, Post Stimulus Time Histogram, Latency Histogram, Auto-Correlation, Cross-Correlation, and DAQUAN. The result is the wide range of specific tools described below.

The Basic Averager and the Advanced Averager digitize, display and average analog input signals. Sampling rate, number of sweeps and delay may be adjusted on-line. Prestimulus averaging, dual resolution, confidence limits and trend, and signal sorting may be performed.

The Histogram programs acquire and display in histogram form, time between events, where an event is defined as a signal crossing the threshold. Events may be detected on the same input channel (Time Interval) or on different channels with all responses detected (Post-Stimulus Time) or on only a set number of channels (Latency). Variation of response over the course of the experiment may also be measured.

The Correlation programs can be used to detect periodic signals buried in noise or provide a measure of similarity between two waveforms. Auto-Correlation measures the similarity of a signal to a time-delayed version of itself, whereas Cross-Correlation measures the degree of similarity of one source or input to a second source. No synchronizing events, such as the trigger required in signal averaging, need be available for the application of correlation techniques.

The DAQUAN program is used to acquire data by boxcar, multi-sweep time averaging, from one instrument at a time and to display the results. A wide variety of subsequent processing techniques such as smoothing, differentiation, curve simulation, etc., are then used to reduce the data.

DAQUAN is intended for the following applications:

- Spectra comparison, stripping and simulation
- Gaussian and/or Lorentzian fitting
- Deconvolution of fused peaks (by Gaussian, Lorentzian or mixed technique)
- Integration
- Differentiation
- Multiplication
- Scaling
- Plotting (standard X-Y recorder)
- Peak detection and summary reporting of positions and percent areas

DRAFFT and PAFFT overlays to DAQUAN provide Fourier Transform capability and power averaging in systems with the Extended Arithmetic Element.

The NMR Signal Averager (Advanced System only) is specifically designed to solve the problems of signal averaging encountered during NMR or ESR spectroscopy. It was written to provide an easily-used averager for situations in which the computer could control the sweep of the spectrometer. However, it actually represents a versatile averaging package that can be used in any situation requiring application of a -3 to +3-volt sweep voltage. When this sweep voltage is acceptable, the NMR averager offers three distinct advantages: the necessity for a sync pulse is eliminated; multiple sampling of each point is possible; and a sophisticated calibration routine permits determination of the exact frequency of any line in the accumulated spectrum.

MINIMUM HARDWARE REQUIRED:

8K words of memory, LAB-8/E with mass storage suitable to OS/8

OPTIONAL HARDWARE SUPPORTED:

KE8 Extended Arithmetic Element (for DRAFFT and PAFFT)

PREREQUISITE SOFTWARE:

OS/8 Operating System Version 3 or later

OPTIONAL SOFTWARE SUPPORTED:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

C, Software Support will be provided as listed in the Software Support Categories Addendum to this SPD.

UPDATE POLICY:

No updates are planned for this product.

ORDERING INFORMATION:

This software is furnished under a license for use on a single CPU and can be copied and modified (with inclusion of Digital's copyright notice) only for use on such CPU, except as may otherwise be provided in writing by Digital.

Source and/or listing options are available only after the purchase of a binary license and after a source license agreement is in effect.

The following key (B,C,Y) represents the distribution media available for the product and must be specified at end of "Q" number i.e., QF009-CB = binaries on Paper Tape.

B - Paper Tape

C - DECTape

Y - Floppy Disk

Standard Options

QF009-C\_ Single-use license, binaries, documentation, no Support Services (media: B,C,Y).

Source/Listing Options

QF009-E\_ Sources (media: C,Y).