

# WP1310

# Tektronix

Signal Processing Systems

## Desktop Computer-Based Waveform Processing System

The WP1310 Waveform Processing System is based on the TEKTRONIX 7854 Oscilloscope and the TEKTRONIX 4052 Graphic Computing System. The WP1310 provides acquisition, processing, storage, and display of signals.

### Extended Waveform Processing.

The 4052 allows additional waveform processing beyond that available in the 7854. Examples are:

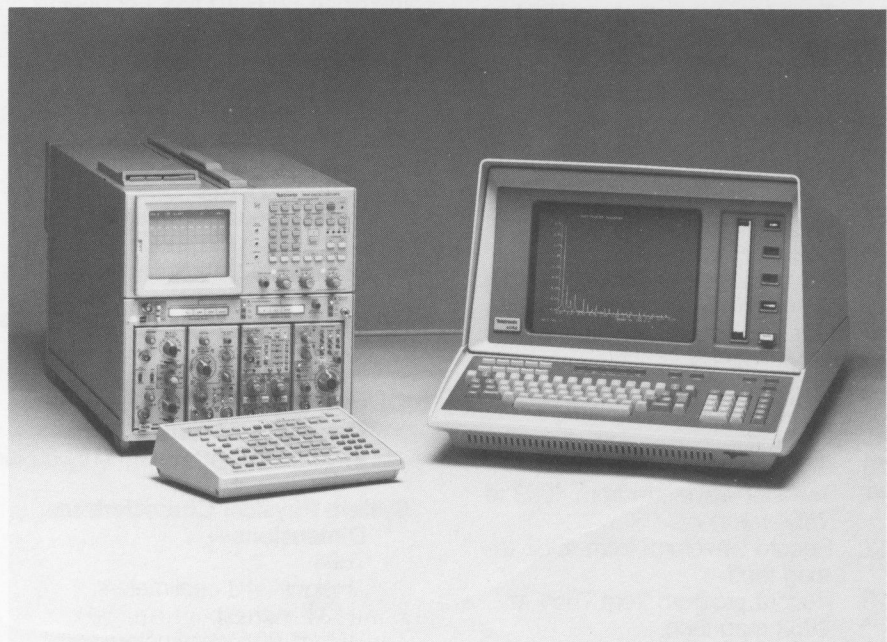
- Windowing data before performing FFT
- FFT—fast Fourier transform of frequency and phase information
- IFT—inverse Fourier transform
- Correlation—both auto and cross
- Convolution

### Complete Graphic Display

**Capability.** The graphic display capability of the 4052 allows display of data in a format tailored to the specific task being performed. For example:

- Bode plots
- Log and log-log displays
- Graphs with associated text
- Operating instructions
- Program listings
- High-resolution graphics

**Program Storage.** Programs generated with the 7854 Waveform Calculator keyboard can be stored on the 4052 mag tape for future use. Programs in the 7854 are volatile—they are lost when the power is interrupted. The 4052 mag tape allows permanent storage of long and involved programs and provides the capability of reusing previously stored programs. This is especially important for repetitive automatic test requirements.



**Data Storage.** Acquired and processed data such as waveforms and calculated results can be stored for future reference using the 4052 mag tape.

**Hard Copy.** An optional TEKTRONIX Hard Copy Unit connected to the 4052 provides permanent documentation of test results or program listings. It also proves very helpful in generating report documentation.

**GPIB Instrument Control.** The 4052 can control many other GPIB compatible instruments in addition to the 7854. This is important when considering the number of GPIB compatible instruments currently available with even more to come.

**Enhanced BASIC Language.** Resident 4052 BASIC with numerous extensions combined with bit-slice processor technology provides a fast, easy-to-use system. Dynamic range of  $10^{-308}$  to  $10^{+308}$  provides calculating precision.

### 4052R07 Signal Processing ROM

**Pack #1.** The Signal Processing ROM Pack #1 provides seven of the most frequently needed operations on arrays or sets of data. ROM Pack functions locate the maximum, minimum, threshold crossing, determine the derivative (slope), integral (area), or perform fast unlabeled screen graphing of data. A single 4050 BASIC statement calls each ROM Pack function.

**4052R08 Signal Processing ROM Pack #2 (FFT).** The Signal Processing ROM Pack #2 provides eight advanced signal processing functions. ROM Pack functions include convolution, correlation, fast Fourier transform, inverse Fourier transform, rectangular to polar conversion of interleaved data, separation of interleaved data, interleaving of data, and cosine windowing of data. A single 4050 BASIC statement calls each ROM Pack function.

**WP1310 Utility Software.** The WP1310 Utility Software provides 4050 BASIC routines to facilitate waveform acquisition, transfer, and processing. These routines allow operation of the WP1310 with limited programming experience. Each routine is called by a single key stroke using the 4052 user-definable keys. Routines provided include:

1. Transfer waveform from 7854 to 4052 memory.
2. Read waveform from mag tape to 4052 memory.
3. Read program from 4052 mag tape and transfer to 7854.
4. Read log tape files into 4052 memory.
5. Graph waveform stored in 4052 memory.
6. Pulse parameter analysis based on min, max.
7. Pulse parameter analysis based on histogram.
8. Pulse parameter analysis based on linear curve fit.
9. Integration.
10. Restart.
11. Transfer waveform from 4052 to 7854 memory.
12. Record waveform from 4052 to mag tape.
13. Record program from 7854 to 4052 mag tape.
14. Enter keyboard commands from 4052 to 7854.
15. Transfer message from 4052 to 7854 display.
16. Cosine window.
17. FFT.
18. Correlation/convolution.
19. Two or three point derivative.
20. Not used.

**System Components.**

- 1 ea TEKTRONIX 7854 Option 2D (8K words memory) Oscilloscope (Plug-ins not included.)
- 1 ea TEKTRONIX 4052 Option 24 (64K bytes memory) Graphic Computing System
- 1 ea TEKTRONIX 4052R07 Signal Processing ROM Pack #1
- 1 ea TEKTRONIX 4052R08 Signal Processing ROM Pack #2 (FFT)

**System Accessories.**

- 1 ea WP1310 Utility Software
- 1 ea 2 Meter GPIB Cable
- 1 ea Blank 4052 Tape Cartridge
- 1 ea WP1310 System Manual

**WP1310 Options.**

- 17 Delete 7854 Oscilloscope (allows customer-owned 7854 to be integrated into WP1310; 7854 must be checked and upgraded by Tektronix Field Service at customer's expense before integration)
- 26 Add TEKTRONIX 4631 Hard Copy Unit

**SYSTEM DATA**

**Power Requirements.** This system is designed for operation from a 115 volt (nominal), 60 Hertz line. For operation from other line voltages or frequencies, contact your local Tektronix Field Office or representative.

**Line Voltage Range—**

90 to 132 volts ac.

**Line Frequency—**

48 to 66 Hertz.

**Power Consumption—**

470 watts maximum (6 amps at 90 volts ac).

**System Environmental Characteristics.**

**Operating Temperature—**

+10 to +40 degrees C (+50 to +104 degrees F).

**Operating Altitude—**

4500 meters maximum (15,000 feet).

**System Physical Characteristics.**

**Dimensions—**

7854:  
 Height, 34.8 centimeters (13.7 inches).  
 Width, 30.5 centimeters (12.0 inches).  
 Length, 62.7 centimeters (24.7 inches).  
 Waveform Calculator:  
 Height, 8.1 centimeters (3.2 inches).  
 Width, 27.7 centimeters (10.9 inches).  
 Length, 15.2 centimeters (6.0 inches).

4052:  
 Height, 36.2 centimeters (14.3 inches).  
 Width, 46.5 centimeters (18.3 inches).  
 Length, 81.4 centimeters (32.1 inches).

**ORDER:** WP1310 Desktop Computer-Based Waveform Processing System and appropriate 7000 Series plug-ins, such as 7A16, 7B80, and 7B87.

**WP-System Installation, Warranty, and Service.** Tektronix WP-systems which include a controller are installed and checked out by Tektronix Field Service personnel—contact your local Tektronix Service Center for assistance. This system is warranted for ninety (90) days on site after installation (but not more than 120 days from date of shipment). Individual system components are warranted at the service center as stated in their respective manuals. On-site service after the warranty expires is available on a service contract through your local Tektronix Service Center.


For the address of your nearest Tektronix Field Office, contact:

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