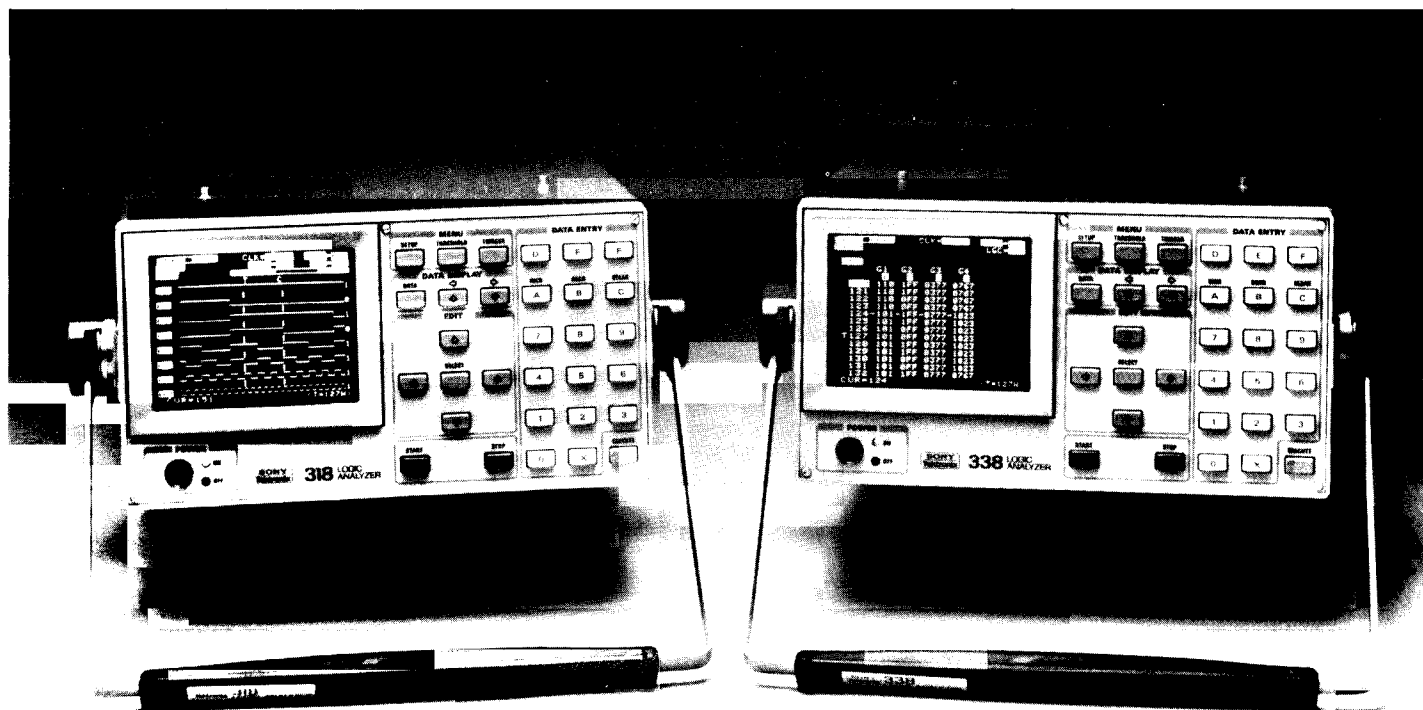


NEW

LOGIC ANALYZERS



318/338 Logic Analyzers

Superior Performance/Price Ratio

Both Parallel and Serial Data Acquisition in a Single Instrument

Data Widths to 32 Channels and Acquisition Speeds to 50 MHz

Menu-Driven User Interface for Easy Operation

Powerful Multilevel Triggering

Separate Glitch Trigger and Memory

RS-232 Interface Allows Remote Control

Nonvolatile Memory Retains Both Reference Data and Instrument Setups

Ultra-Lightweight for Maximum Portability Weighs Only 11.5 lbs (5.2 kg)

The Sony/Tek 318 and 338 Logic Analyzers bring an unprecedented combination of performance, portability and low price to the field of digital test instrumentation.

Weighing only 11.5 pounds each, these instruments incorporate proprietary LSI circuitry to provide an array of features usually associated with much larger logic analyzers. Both the 318 and 338 include parallel and serial data acquisition capabilities to cover the widest possible range of applications. For software work, there is powerful multilevel triggering to capture complex real-time code execution. Each instrument can also be remotely controlled through an RS-232 interface, an extremely useful feature in first-line service applications. Also, nonvolatile memory allows both setup information and reference data to be retained and transported from site to site.

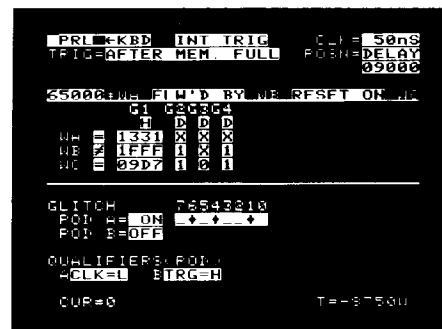
The 318 and 338 Logic Analyzers are both built around the same basic feature set. The difference between the two instruments is in maximum data width and acquisition speed. The 338, which is targeted more toward software applications, allows 32 channels of data acquisition at speeds up to 20 MHz. The 318, which is directed toward hardware applications, permits 16 channels of data acquisition at speeds up to 50 MHz.

Aside from these width/speed differences, the 318 and 338 pack the same powerful features into a highly portable instrument. The basic 318/338 includes parallel state and timing acquisition, with acquisition, reference and glitch memories.

The S1 configuration adds serial acquisition, an RS-232 interface, and nonvolatile memory.

Parallel State Acquisition

For either software or timing applications, the 318/338 contains a powerful 3-level trigger which allows the capture of complex event sequences as executed by the hardware under test.



A 3-level trigger lets you define up to three events (A,B,C) which are then combined by using various operators to form the trigger sequence.

This trigger allows three separate logic events to be defined and then combined through a series of operators to specify the actual trigger sequence. Up to 65,000 occurrences can be required for the first event to come true. The next two events can follow immediately (THEN) or later (FOLLOWED BY). Two or three events can also be ORed together. The third event can also be used to reset the trigger sequence.

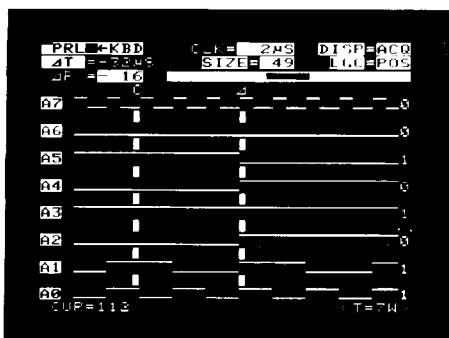
Once acquired, parallel state information can be displayed in binary, hex, octal or decimal radix. The data can be searched for each occurrence of a specified word, and can also be compared with data stored in the reference memory, with any differences highlighted on the display.



You can compare the data you have just acquired to a set of data in reference memory. All differences are displayed in reverse video.

Parallel Timing Acquisition

For timing applications data can be acquired either synchronously, using the clock of the system under test, or asynchronously, using the 318/338's own internal clock. Up to eight channels of timing data can be displayed at once, and each can be identified through a 2-character label entered by the user. For increased accuracy, there is a "delta" measurement feature which counts and displays the number of sample intervals between two movable cursors.

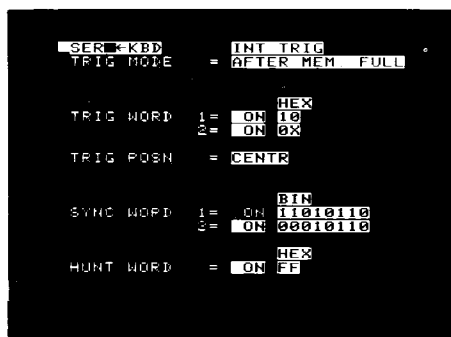


Timing displays include analysis tools such as measurements between cursors, variable grouping, memory search and glitch display.

There is also full glitch capture capability. Glitch information is automatically acquired and separately stored any time parallel data is acquired. A separate glitch trigger allows glitch occurrences to be specified on a channel-by-channel basis, with each channel of the glitch trigger ORed with its counter-part in the main trigger.

Serial Data Acquisition

A major part of the S1 configuration package is serial data acquisition, which adds considerable breadth to the instruments' application range. Serial acquisition can take place in either synchronous or asynchronous modes at up to 19200 bits/second, with either 5, 6, 7, 8 or 9 bits per character. For synchronous acquisition, the user can specify sync and hunt words as well as trigger words.



When defining a serial data acquisition trigger, you can specify sync and hunt words as well as trigger words.

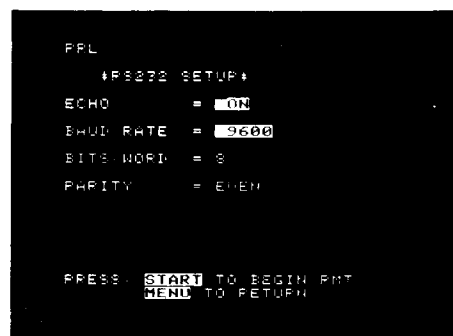
Acquired serial data can be displayed in either state table or character formats. The state table format gives a wide range of radices, including hex, binary, octal, ASCII and EBCDIC. The character format provides 256-character stream displays in either ASCII or EBCDIC. In addition, acquired serial data may be searched for occurrences of a specific word and compared with data stored in reference memory.



Captured serial data can be displayed in state or character format. Data can also be searched for occurrences of a specified word.

RS-232 Interface for Remote Control

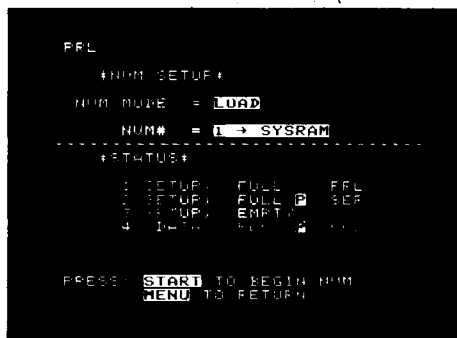
The S1 configuration package includes an RS-232 interface. This allows complete control of the instrument by a remote terminal which can be connected through either a modem or local lines. Consequently, a remote operator can define triggers, acquire data and analyze the results. In addition, the operator can input a reference pattern via a remote terminal. All aspects of the remote connection, such as baud rate, local/remote echo and bits/character, are easily set up through menu prompts supplied by the 318/338.



Setting up the RS-232 interface is simplified by easy to use menu prompts.

Nonvolatile Memory

Also included in the S1 configuration is a non-volatile memory which allows both instrument setups and data to be preserved past power down and retained indefinitely. This memory will hold up to three setups (channel configurations, triggers and thresholds) and one set of memory data.



3 Setups and acquisition or reference memory can all be easily stored and protected in the nonvolatile memory.

NEW

LOGIC ANALYZERS

PARALLEL ANALYZER FUNCTION DATA INPUT

Channels

318: 16 channels; glitch data is detected on all 16 channels.
338: 32 channels; glitch data is detected on 8 channels (POD A).

Minimum Logic Swing — 500 mV p-p; centered on threshold voltage.

Maximum Logic Swing — Threshold voltage plus 10 V to threshold voltage minus 15 V.

Glitch Data Width — 5 ns minimum with 350 mV overdrive from threshold.

Threshold Voltage — TTL +1.4 V; V1 -10 V to +10 V (0.1 V step); V2 -10 V to +10 V (0.1 V step); V3 = (V1 + V2)/2.

SAMPLING

External Clock Mode	318	338
Data setup time	13 ns max	14 ns max
Data hold time	0 ns max	0 ns max
Clock period	20 ns min	50 ns min

Clock Pulse Width — High-Logic level: 15 ns min. Low-Logic Level: 15 ns.

Clock Polarity — + or - edge.

INTERNAL CLOCK MODE

Sample Interval

318: 20 ns to 500 ms/sample in 1.2.5 sequence.
338: 50 ns to 500 ms/sample in 1.2.5 sequence.

Data Memory Depth	318	338
Acquisition Memory	16 x 256 bits	32 x 256 bits
Reference Memory	16 x 256 bits	32 x 256 bits
Glitch Memory	16 x 256 bits	8 x 256 bits

TRIGGERING

Internal Trigger

Word Recognizer — Three words: A, B, and C; selected channels are AND'd together.

Input — All data input channels from P6451 data acquisition probes.

Glitch Trigger — Selected channels are OR'd together.

Trigger Position — Begin, Center, End, Delay up to 65,000 clock cycles.

External Trigger

Input — Mini-jack connector on side panel, TTL compatible.

Threshold — 1.4 V nominal (TTL level).

Polarity — + or - edge.

Pulse Width — 20 ns minimum.

Trigger Output — Initiated high when an internal trigger sequence, glitch trigger or external trigger is detected. Reset on next acquisition start.

Output Level — TTL.

Current Max — High-Logic Level: 1 mA.

Low-Logic Level: 2 mA.

DATA DISPLAY

Timing Diagram Mode — Maximum of 8 channels (one page) present on screen at one time. The 318 has two pages; the 338 has four pages.

Glitch Display: Displays glitches on timing diagram as a bit width transition edge.

Search: Searches for glitches or user defined word.

ΔT — Movable cursor for calculating the number of clocks and temporal distance between two events.

State Table Mode — Hex, decimal, octal, or binary radix format.

Search: Searches for glitches or user defined word.

Compare: Compares acquisition memory to reference memory and displays mismatched characters in reverse video.

SERIAL STATE ANALYZER FUNCTION

DATA INPUT

Data Timing — Synchronous or asynchronous.

Bits/Character — 5, 6, 7, 8 or 9 bits (includes parity bit if parity is active).

SAMPLING

Internal Clock for Asynchronous Mode — 50, 75, 110, 134.5, 150, 200, 300, 600, 1200, 1800, 2400, 4800, 9600, and 19,200 bits/second.

External Clock for Both Synchronous and Asynchronous Modes — Up to 19,200 bits/second.

Parity Control — Odd, even, or none.

TRIGGER SOURCE

Internal or external.

DATA DISPLAY

State Table Mode — Hex, binary, octal, ASCII, EBCDIC radix.

Search: Searches for parity errors or user defined word.

Compare: Compares acquisition memory to reference memory and displays mismatched characters in reverse video.

Character Table Mode — All 256 bits of memory displayed in either ASCII or EBCDIC radix.

Search: Searches for parity errors or user defined word.

Compare: Compares acquisition memory to reference memory and displays mismatched characters in reverse video.

RS-232 INTERFACE

Data Transmission Type — Asynchronous only.

Communication Mode — Full Duplex.

Bits/Character — 8 bits with parity.

Parity — Even.

Data Transfer Rate — 110, 150, 300, 600, 1200, 2400, 4800, 9600 BPS.

Signal Characteristics — Meets RS-232C standard.

I/O Connector — 25 pin standard connector.

NONVOLATILE MEMORY

Memory Size — 3 setups (serial or parallel and one memory acquisition or reference).

Nonvolatile Period — Approximately 5 years at room temperature.

POWER REQUIREMENTS

Line Voltage Range — 90 V to 132 V ac, 180 V to 250 V ac.

Line Frequency — 48 Hz to 440 Hz.

INCLUDED ACCESSORIES

Power cord (161-0104-00); accessory pouch (016-0697-00); P6107 Probe (1 additional with the S1 configuration) (010-6107-03); 2 with the 318, 4 with the 338, P6451 probe (010-6451-07); workbook, reference guide, manual.

ORDERING INFORMATION

318 Logic Analyzer \$5,300

318S1 Logic Analyzer with Serial Analysis, RS-232 and Nonvolatile Memory \$6,500

318F1 Field Installed Serial Analysis, RS-232 and Nonvolatile Memory \$1,500

338 Logic Analyzer \$5,800

338S1 Logic Analyzer with Serial Analysis, RS-232 and Nonvolatile Memory \$7,000

338F1 Field Installed Serial Analysis, RS-232 and Nonvolatile Memory \$1,500

INTERNATIONAL POWER CORD AND PLUG OPTIONS

Option A1 — Universal Euro 220 V/16 A, 50 Hz
Option A2 — UK 240 V/13 A, 50 Hz
Option A3 — Australian 240 V/10 A, 50 Hz
Option A4 — North American 240 V/15 A, 60 Hz
Option A5 — Switzerland 220 V/10 A, 50 Hz

OPTIONAL ACCESSORIES

Service Manual

RS-232 Cable — Order 012-0757-00 \$140

Service Maintenance Kit — Order 067-1159-01 \$600

Null Modem Cable — Order 012-0530-00 \$75

The SONY®/TEKTRONIX® 300 Series is manufactured and marketed in Japan by Sony/Tektronix Corporation, Tokyo Japan. Outside of Japan the 300 Series is available from Tektronix, Inc., its marketing subsidiaries and distributors.

300 SERIES COMPARISON CHART

Characteristics	308	318	318S1	338	338S1
No. Parallel Data Channels	8	16	16	32	32
Maximum Asynchronous Sample Rate	20 MHz	50 MHz	50 MHz	20 MHz	20 MHz
Maximum Synchronous Sample Rate	20 MHz	50 MHz	50 MHz	20 MHz	20 MHz
No Trigger Levels	1	3	3	3	3
Acquisition Memory Depth (Bits/Channel)	252	256	256	256	256
Reference Memory Depth (Bits/Channel)	252	256	256	256	256
Glitch Capture (Channels)	8	16	16	8	8
Signature Analysis	Yes	No	No	No	No
Serial Data Acquisition	Yes	No	Yes	No	Yes
RS-232 Interface	No	No	Yes	No	Yes
Nonvolatile Memory	No	No	Yes	No	Yes
Video Output	No	Yes	Yes	Yes	Yes
Weight	8 lb	11.5 lb	11.5 lb	11.5 lb	11.5 lb
Price	\$3,950	\$5,300	\$6,500	\$5,800	\$7,000