

LA354 Analog Storage Scope

Main Features

- 500 MHz bandwidth
- 5.5" Color TFT LCD display
- Trigger and display update rate of one million per second
- Writing speed 5 div/ns
- Variable persistence storage
- Timebase dual delay
- Four channels
- High-speed auto setup
- Cursor measurements
- Event and burst trigger modes
- Full TV trigger with clamping
- Save and recall panel settings
- Frequency counter
- Wide input offset range
- High-intensity CRT
- Power for FET probes



With four channels and 500 MHz bandwidth, these leading-edge oscilloscopes offer the highest level of analog performance available today.

Analog oscilloscopes offer unique benefits in solving specific measurement problems. The analog display provides important clues to relative frequency content of signals mixed together or the occurrence of low rep-rate events on repetitive signals. The LA354's scan-converter tube, combined with a color TFT-LCD screen, effectively displays and stores these "grey scaling" and "persistence" effects with up to 5 div/ns writing speed, and its ultrafast display update rate lets you see how the waveforms behave in real time.

The standard multipurpose trigger, wide input offset range, comprehensive cursors and counter make the LA354 a truly universal oscilloscope.

Typical applications include:

- HDTV Applications
- Data recording, finding servo anomalies, glitches and intermittent phenomena in disk-drive head signals
- Pulsed laser related measurements
- Radar/Lidar burst measurements
- Eye pattern measurements

Features

DC-500 MHz, 4 Ch

Four channels up to 500 MHz are available, with CH1 and CH2 boasting the widest frequency range and highest sensitivity (2 mV/div). The fastest sweep speed is 500 ps/div.

Ultra-High Writing Speed

With a visual writing speed of 5 div/ns and a display update of 1 million times per second, the LA354 is the fastest analog storage oscilloscope available, thanks to its unique scan converter tube technology.

Timebase Dual-Delay Function

Permits simultaneous "zoom" examination of two separate portions of a waveform in real time.

Input Offset Function

Suitable for the observation of small signals superimposed on large signals. The DC input offset function features an offset equivalent to ± 500 div. max, which can be applied to CH1 or CH2.

Counter Measurement Function

Built-in 5-digit counter for frequencies up to 500 MHz.

Save/Recall up to 256 Panel Settings

Just turn the FUNCTION knob to recall panel setups. Stores up to 256 settings in memory.

Power for FET Probe

Dedicated power supplies for 2 FET probes. Controls DC offset voltage of each probe as well.

TV/HDTV Synchronization

TV triggering is available for NTSC, PAL (SECAM), and HDTV. Field (EVEN, ODD, BOTH) and line select functions are included.

TV Clamp Function

Easy observation of TV video signals with fluctuating average voltage. Back porch level of composite signals is fixed to ground level for display.

Specifications

Display

Storage CRT: 5.5" color TFT LCD rectangular, internal graticule (8 x 10 div)

Accelerating voltage: Approximately 20 kV

Vertical Deflection System

Mode: CH1, CH2, CH3, CH4, ADD (CH1 + CH2), ALT, CHOP

Channel 1, 2

Sensitivity: 2 mV/div - 5 V/div $\pm 2\%$, 11 step (1-2-5)

Fine Adjuster: 2 mV/div - 12.5 V/div continuously variable

Bandwidth (-3 dB): 500 MHz (2 mV/div - 5 V/div)

BW limiter: 20 MHz and 100 MHz selectable

VSWR: Less than 1.35:1 over DC - 400 MHz (with 50 Ω input)

Risetime: Approx. 700 ps @ 20 mV/div

Input Coupling: AC, DC, GND

Input RC: Hi-Z input: 1 M Ω $\pm 1.5\%$ // 16 pF ± 2 pF; Lo-Z input: 50 Ω $\pm 1\%$

Maximum Input Voltage: 1 M Ω input: ± 400 V; 50 Ω input: 5 V RMS

Polarity Switching: CH2 only

Probe Sensors: 1:1, 1:10, 1:100 detection possible

Offset Voltage Variable Range:

Offset voltage / Vertical axis range ± 1 V / 2 mV/div - 50 mV/div ± 10 V / 0.1 V/div - 0.5 V/div ± 100 V / 1 V/div - 5 V/div

Channel 3, 4

Sensitivity: 100 mV, 500 mV/div

Accuracy: $\pm 3\%$ (+10° C - +35° C)

Bandwidth (-3 dB): 500 MHz

Risetime: Approx. 700 ps

Input Coupling: AC, DC

Input RC: Direct: 1 M Ω $\pm 1.5\%$ // 16 pF + 2 pF

Maximum Input Voltage: ± 400 V

Probe Sensors: 1:1, 1:10, 1:100 detection possible

Triggering

A Triggering

Sources: CH1, CH2, CH3, CH4, Line

Coupling: AC, DC, HFREJ, LFREJ

Polarity: Positive (dark)/negative (bright)

TV Sync - Line Selection:

NTSC: 1 - 525H

PAL (SECAM): 1 - 625H

HDTV: 1 - 1125H

B Triggering

Sources: CH1, CH2, CH3, CH4

Coupling: AC, DC, HFREJ, LFREJ

Polarity: Positive/Negative

Event Delay:

Count: Setting range: 1 - 65535 (maximum count freq.: 50 MHz)

Burst: Time setting range: 0.15 μ s - 9.99 s

Auto Setup: Input channels: CH1, CH2

Freq. Range: 50 Hz - 100 MHz

Horizontal Deflection System

Horizontal Display A, ALT, B, X-Y

A sweep

Mode: AUTO, NORM, SINGLE

Sweep Time: 5 ns/div - 500 ms/div $\pm 2\%$, 25-step (1-2-5)

Fastest Sweep Time: 500 ps/div

Fine Adjuster: 5 ns/div - 1.5 s/div

B sweep

Triggered Delay: CH1, CH2, CH3, CH4

Continuous Delay: B delayed by A

Sweep Time: 5 ns/div - 20 ms/div $\pm 2\%$, 21 step (1-2-5)

Delay Time Range: 0.2 div - 10.2 div;

Accuracy: + (setting value x 0.005);
+ (sweep time x 0.1) -55 ns

Magnifier (MAG): 10 times

Accuracy: ±5% (+10° C - +35° C)

X-Y Operation

X Axis: CH1

Y Axis: CH1, CH2, CH3, CH4, ADD

Accuracy: ±2% (+10° C - +35° C)

CH2 Out

Output Voltage: 20 mV/div ±30%

Frequency Output:

DC 200 MHz (50 Ω load)

Output Resistance: 50 Ω ±20%

Utilities

Save/Recall Function

Number of Panel Setups: 256 max

Comments: 12 characters max

Modulation (Z-axis)

Minimum Modulation Voltage:

0.5 V_{p-p}

Polarity: Positive (dark)/negative
(bright)

Frequency Range: DC - 5 MHz

Max Input Voltage: 40 V

Calibrator

Waveform: Square

Repetitive Frequency: 1 kHz ±0.1%

Output Voltage: 0.6 V ±1%

Power for FET probes

Voltage: Two each +12 V outlets for two
FET probes, offset control available

Counter

Display Digits: Five digits shown at all
times

Accuracy: ±0.01%

Frequency Measurement Range:

2 Hz - 500 MHz

Cursor Measurement

Voltage Axis: 2

Time Axis: 2

Time Difference: ΔT

Voltage Difference: ΔV; ΔT and ΔV can
be measured simultaneously

Power

Voltage Range: AC 90 V - 250 V

Frequency Range: 48 Hz - 440 Hz

Power Consumption: 150 VA max.

Dimensions and Weight

Approx. (WDH) 320 mm x 160 mm x
420 mm

Weight: Approx. 8.5 kg (19.8 lbs)

Warranty: Three years

Ordering Information

Analog Oscilloscopes

500 MHz, 4-Channel Color Storage

Product Code

LA354

Included with Standard Configuration

Two each 10:1 10 MΩ Passive Probes

PP05

Operators Manual

Panel Cover

Accessory Pouch

Power Cable

2 Fuses

Accessories

800 MHz FET Probe

SFP-4A

1 GHz FET Probe

SFP-5A

NIST Calibration

LAXXX-CCNIST

MIL Standard Calibration

LAXXX-CCMIL