

LA314 & LA314H Analog Scopes

Main Features

- 400 & 470 MHz
- Four channels, 10 traces
- Up to 500 ps/div time resolution
- 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



The LA314 and LA314H analog oscilloscopes offer four channels and up to 470 MHz bandwidth.

The scopes' displays provide important clues that digital scopes cannot. And the LA314's meshless CRT displays "grey scaling" and "persistence" effects, with an ultrafast display update rate to let you see how waveforms behave in real time.

Typical Applications

- Video, especially VCRs and TVs
- Data recording, finding servo anomalies, glitches and intermittent phenomena in disk-drive head signals
- Eye patterns (for DVDs) in optical disk measurements
- Wide-bandwidth noise measurements on magneto-optical disks
- Radar/Lidar burst measurements
- Eye pattern measurements on ATM 155 Mbps signals

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Features

DC-470 MHz, 4 Ch

Four channels up to 470 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.

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 two 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

CRT: 6" 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):

Model LA314H

470 MHz (5 mV/div - 50 mV/div)

440 MHz (2 mV/div, 100 mV/div

- 5 V/div)

Model LA314:

400 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:

Model LA314H: Approx. 745 ps @

20 mV/div

Model LA314: Approx. 875 ps

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:

$\pm 3\%$ ($+10^\circ\text{C}$ - $+35^\circ\text{C}$)

Bandwidth (-3 dB):

400 MHz

Risetime:

Approx. 875 ps (bandwidth x

risetime = 0.35)

Input Coupling:

AC, DC

Input RC:

Direct: 1 M Ω $\pm 1.5\%$ //

16 pF + 3 pF

Maximum Input Voltage:

± 400 V max

Probe Sensors:

1:1, 1:10, 1:100

detection possible

A Triggering

Sources:

CH1, CH2, CH3, CH4

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 (max

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

Mod 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);

+ (sweptime x 0.1) - 55 ns

Magnifier (MAG):

10 times

Accuracy:

$\pm 5\%$ ($+10^\circ\text{C}$ - $+35^\circ\text{C}$)

X-Y Operation

X Axis:

CH1

Y Axis:

CH1, CH2, CH3, CH4, ADD

Accuracy:

$\pm 2\%$ ($+10^\circ\text{C}$ - $+35^\circ\text{C}$)

CH2 Out

Output Voltage: 20 mV/div $\pm 30\%$

Frequency Output: DC – 200 MHz
(50 Ω load)

Output Resistance: 50 $\Omega \pm 20\%$

Utilities

Save/Recall Function

Number of Panel Setups: 256 max

Comments: 12 characters max

Modulation (Z-axis)

Minimum Modulation Voltage:
0.5 Vp-p

Polarity: Positive (dark)/negative
(bright)

Frequency Range: DC - 5 MHz

Max Input Voltage: 40 V

Calibrator

Waveform: Square

Repetitive Frequency: 1 kHz $\pm 0.1\%$

Output Voltage: 0.6 V $\pm 1\%$

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: $\pm 0.01\%$

Frequency Measurement Range:

2 Hz - 400 MHz on LA314

2 Hz - 470 MHz on LA314H

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

470 MHz, 4-Channel

Product Code

LA314H

400 MHz, 4-Channel

LA314

Included with Standard Configuration:

Two each 10:1 10 M Ω Passive Probes

PP005

Operator's Manual

Panel Cover

Accessory Pouch

Power Cable

Two Fuses

Accessories

800 MHz FET Probe

SFP-4A

1 GHz FET Probe

SFP-5A

Calibrator

IE-1066

NIST Calibration

LAXXX-CCNIST

MIL Standard Calibration

LAXXX-CCMIL