LA314/LA314H 400 MHz/470 MHz

With four channels and wide 470 MHz bandwidth, these leading-edge analog oscilloscopes offer the highest level of performance available today.

Analog oscilloscopes offer unique benefits in solving specific measurement problems. The analog display provides important clues on relative frequency content of signals mixed together or the occurrence of low rep-rate events on repetitive signals. The LA314's meshless CRT effectively displays these "grey scaling" and "persistence" effects; and the LA314's ultra fast 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 LA314s truly universal oscilloscopes.

View Dimension Drawings

Main Features

- 4 Channels
- Up to 500ps/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
- High-Input Offset Range
- High Intensity CRT
- Power for FET Probes

Specifications

DC - 470 MHz, 4-CH, 10 traces

Four channels up to 470 MHz are available, with CH1 and CH2 boasting the widest frequency range with highest sensitivity (2mV/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 470 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.

Typical Applications

- Video, especially VCRs and TVs.
- Data recording, finding servo anomalies, glitches and intermittent phenomena in the 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.

Display

CRT: 6-inch rectangular, internal graticule (8 x 10 div) meshless CRT
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 ±2%, 11 step (1-2-5)
Fine Adjuster: 2 mV/div - 12.5 V/div continuously variable

Bandwidth (-3dB):

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 ohm input)

Rise time:
Model LA314H
Approx. 745 ps @ 20 mV/div
Model LA314
Approx. 875 ps

Input coupling: AC, DC, GND
Input RC: Hi-Z input: 1 Mohm ±1.5%//16 pf ±2pf, Lo-Z input: 50 ohm ±1%.
Maximum input voltage: 1 Mohm
input: ±400 V max., 50 ohm 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 / 2mV/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: ±3% (+10°C - +35°C)
Bandwidth (-3dB): 400 MHz
Rise time: Approx. 875 ps
(bandwidth x rise time = 0.35)
Input coupling: AC, DC
Input RC: Direct: 1 Mohm ±1.5%// 16 pF+3pF,
when using the probe (SS-082R): 10 Mohm ±2%//13pF ±2pF
Maximum input voltage: ±400 V max
Probe sensors: 1:1, 1:10, 1:100 detection possible

Triggering

A Triggering
Sources: CH1, CH2, CH3, CH4
Coupling: AC, DC, HF-REJ, LF-REJ
Polarity: ±
TV sync - Line selection:
NTSC: 1 - 525H
PAL (SECAM): 1 - 625H
HDTV: 1 - 1125H

B Triggering
Sources: CH1, CH2, CH3, CH4, LINE
Coupling: AC, DC, HF-REJ, LF-REJ
Polarity: ±
Event Delay:
Count: Setting range: 1 - 65535 maximum count freq.: 50 MHz
Burst: Time setting range: 0.15 µs - 9.99s
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 ±2%, 25-step (1-2-5),
Fastest sweep time: 500 ps/div, Fine adjuster: 5 ns/div - 1.5 s/div

B sweep
Delay:
Triggered delay: CH1, CH2, CH3, CH4
Continuous delay: B delayed by A
Sweep time: 5 ns/div - 20 ms/div ±2%, 21 step (1, 2, 5)
Delay time range: 0.2 div - 10.2 div;
Accuracy: + (setting value x 0.005) + (sweeptime 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 ohm load)
Output resistance: 50 ohm ±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
Accuracy: ±0.1%
Output voltage: 0.6 V
Accuracy: ±1%

Power for FET probes
Voltage: 2 each +12 V outlets for 2 FET probes, offset control available

Counter

Display digits: 5 digits shown at all times
Accuracy: ±0.01%

Frequency measurement range: 2 Hz - 400 MHz

Cursor Measurement

Voltage axis: 2
Time axis: 2
Time difference: deltaT
Voltage difference: deltaV
deltaT & deltaV can be simultaneously measured

Power

Voltage range: AC 90 V - 250 V
Frequency range: 48 Hz - 440 Hz
Power consumption: 120 VA max

Dimensions and Weight

Approx. 320W x 160H x 420L mm
Weight: approx. 8.5 kg (19.8 lbs)

Approvals

EMC: Comforms to EN55011 and EN50082-2.
Low Voltage: Conforms to EN61010-1 Installation Category II, Pollution Degree 2.

Safety

UL and cUL Approved: Comfirms to UL3111-1 Confirms to Canadian Standard CSA-22.2, No. 1010.1-92