



1 mV/div Sensitivity at 10 MHz

Stored Viewing Time to 4 Hours

Integrate Mode for Intensifying Fast Rise Time, Low Repetition Rate Signals

Operates from Ac Line, 12 V Dc, or 24 V Dc

Small Size, Light Weight

The 10.5-pound, bistable storage 314 provides **1 mV/div sensitivity at 10 MHz**, with a 4-hour viewing time. With **long-term storage**, you can use the 314 to monitor signal lines where undesired transients are suspected. For fast rise time, low repetition rate signals, an **integrate mode** increases the intensity of the stored trace.

Compact size and operation from ac, dc, or external dc source mean that the 314 will easily go wherever you need a storage oscilloscope.

Combined function controls, color coding, and functional front-panel layout make the 314 **easy to use**. Probes mount on the side, permitting an uncrowded front panel and large crt.

The 1 mV/div sensitivity is particularly useful for measurement of transducer signals such as those from magnetic recording heads. An **autoerase mode**, with variable erase period from 1 to 5 seconds, enhances the ability of the 314 to make measurements on slowly changing analog signals such as those from a pressure transducer. Other applications for the 314 occur in industrial control systems, biophysical instrumentation, communication terminals, POS terminals, computer peripherals, and communication systems.

VERTICAL DEFLECTION

Bandwidth and Rise Time — Dc to at least 10 MHz. Rise time, 36 ns or less for a 4 div step input. For ac coupling, the lower 3 dB point is 10 Hz or less.

Deflection Factor — 1 mV/div to 10 V/div (1-2-5 sequence), accurate $\pm 3\%$. Continuously variable between steps and to at least 25 V/div (uncalibrated).

Display Modes — Ch 1, Ch 2 (normal or inverted), chopped, alternate, added, and X-Y.

Input R and C — 1 M Ω paralleled by approx 47 pF.

Max Input Voltage — ac or dc coupled, 500 V (dc + peak ac).

Delay Line — Permits viewing leading edge of displayed waveform.

HORIZONTAL DEFLECTION

Time Base — 1 μ s/div to 5 s/div. X10 mag extends sweep rate to 100 ns/div.

Variable Time Control — Uncalibrated, continuously variable between steps and to at least 12.5 s/div.

Time Base Accuracy, center 8 div

Unmagnified		
1 μ s/div to 0.2 s/div		$\pm 3\%$
0.5 s/div to 5 s/div		$\pm 4\%$
Magnified		
50 ms/div to 0.5 s/div		$\pm 5\%$
0.5 μ s/div to 20 ms/div		$\pm 4\%$
0.1 μ s/div and 0.2 μ s/div		$\pm 5\%$

TRIGGER

Modes — Normal (sweep generator requires a trigger to generate a sweep). Automatic (minimizes trigger adjustment. Sweep generator free-runs in the absence of a trigger). Normal (sweep generator requires a trigger to generate a sweep). Single sweep (one sweep is initiated by the first trigger after a reset).

Trigger Sources — Internal: Ch 1, Ch 2 or composite, external.

Trigger Sensitivity and Coupling

Coupling		To 1 MHz	At 10 MHz
Dc	Internal	0.3 div deflection	1 div deflection
	External	150 mV	500 mV
Ac	requirements increase below 30 Hz		
Ac Lf Reject	requirements increase below 50 kHz		

X-Y OPERATION

Input — X axis input is via the external horizontal input connection. Both Ch 1 and Ch 2 provide vertical inputs. Using chopped mode, two simultaneous X-Y displays can be obtained.

X-axis Deflection Factors — Continuously variable from 20 mV/div to 2 V/div. Bandwidth, dc to at least 200 kHz.

Input Impedance — 1 M Ω $\pm 2\%$ paralleled by approx 62 pF.

DISPLAY

Crt — 8 x 10 div (0.6 cm/div) display. P44 phosphor. 2 kV accelerating potential.

Graticule — Internal, non-illuminated. Vertical and horizontal centerlines marked in 5 minor div per major 0.6 cm/div.

Z-axis input — Range +5 V to +20 V (dc coupled) with a 100 kHz or greater usable frequency range. Max input voltage, 50 V (dc + peak ac).

STORAGE FEATURES

Display Modes — Direct view, bistable storage, and non-store modes. Enhance mode to increase stored writing rate in the single sweep mode. Auto erase mode to automatically erase stored display after each sweep. Viewing time before auto erase can be varied from 1 sec or less to at least 5 sec. Integrate mode increases stored brightness of very fast repetitive signals.

Stored Writing Speed — Normal, at least 80 div/ms. Enhanced increases to at least 400 div/ms (250 cm/ms) in enhanced mode.

Erase Time — 300 ms.

ENVIRONMENTAL CAPABILITIES

Ambient Temperature — Operating: -15°C to $+55^{\circ}\text{C}$. Nonoperating: -40°C to $+75^{\circ}\text{C}$.

Altitude — Operating: to 20,000 ft max, decrease max temperature by $1^{\circ}\text{C}/1000$ ft from 5000 ft to 20,000 ft. Nonoperating: 50,000 ft max.

Vibration — Operating: 15 minutes along each of the three major axes. .06 cm (0.025 in) p-p displacement (4 g's at 55 Hz) 10 to 55 to 10 Hz in 1 minute cycles.

Humidity — Nonoperating: 5 cycles (120 hours) of MIL-Std-202D, Method 106C. Omit freezing and vibration and allow a post-test drying period at 25°C $\pm 5^{\circ}\text{C}$ and 20% to 80% relative humidity.

Shock — Operating and nonoperating: 30 g's, $\frac{1}{2}$ sine, 11 ms duration each direction along each major axis. Total of 12 shocks.

OTHER CHARACTERISTICS

Amplitude Calibrator — 0.5 V accurate $\pm 1\%$ from 20°C to 30°C , $\pm 2\%$ from -15°C to $+55^{\circ}\text{C}$.

Power Sources — External ac source, 90 V to 132 V or 180 V to 264 V with a line frequency of 48 Hz to 440 Hz. Max power dissipation 29 W at 115 V. External dc source, +11 V to +14 V or +22 V to +28 V with a max current drain of 1.6 A at +12 V or 0.8 A at +24 V.

Dimensions	in	cm
Height	4.4	11.2
Width (with handle)	9.3	23.6
Depth (handle not extended)	13.6	34.7
Depth (handle extended)	17.6	44.8
Weights (approx)	lb	kg
Net (without accessories)	10.5	4.7
Shipping	17.0	7.6

INCLUDED ACCESSORIES

Two P6149 10X probes (010-6149-03), carrying case (016-0612-00), external dc cable assembly (012-0406-00); strap (346-0131-00), two 1.6-A fuses (159-0098-00), two 0.8-A fuses (159-0132-00), two 0.15-A fuses (159-0130-00), three 0.16-A fuses (159-0131-00).

ORDERING INFORMATION

314 Storage Oscilloscope **\$2385**

The SONY®/TEKTRONIX® 314 is manufactured and marketed in Japan by Sony/Tektronix Corporation, Tokyo, Japan. Outside of Japan the 314 is available from Tektronix, Inc., its marketing subsidiaries and distributors.

RECOMMENDED CAMERA

C-30AP General Purpose Camera **\$690**

Camera Adapter-Mounts C-30AP to 314.

Order 016-0327-00 **\$42**

For further information see camera section.