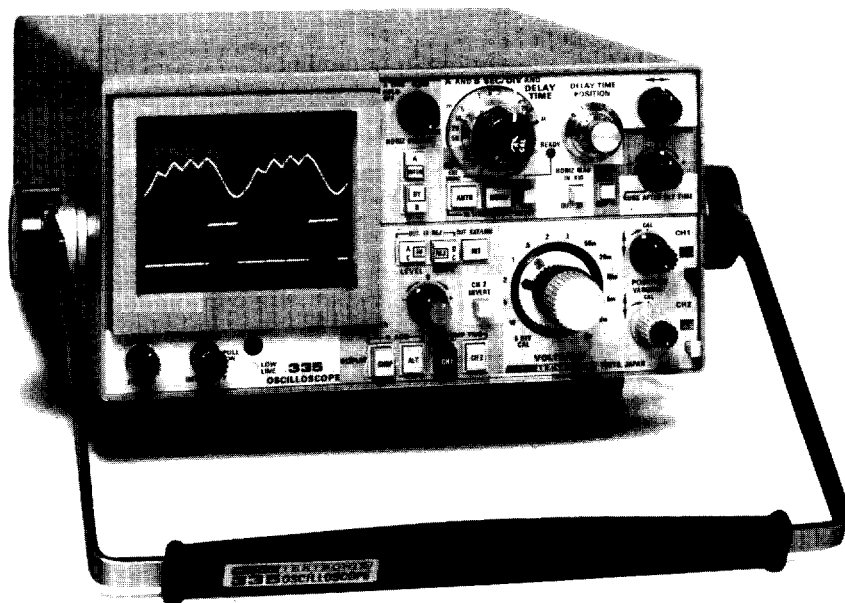


35 MHz Dual Trace Oscilloscope



335

35 MHz at 10 mV/div

Small Size, Weighs ≈10.5

1 mV/div Vertical Sensitivity at 25 MHz

Delay Lines Input

Rugged Construction

The portability of the 335 is a big plus in many digital and analog trouble-shooting applications. And it weighs only 10.5 pounds. 1 mV/div (at 25 MHz) vertical sensitivity insures that low level signals from magnetic recording heads, optical read heads, or industrial control transducers can be accurately and easily measured. Delay lines at the inputs let you view the leading edge of the triggering signal. By using a composite of channels 1 and 2 as a trigger source, stable displays of non-time-related signals can be obtained.

Operation from either ac (90 to 132 V, or 180 to 264 V, 48 to 440 Hz) or dc (+11 to +14 V or +22 to +28 V) assures that power can be obtained at nearly any location.

VERTICAL DEFLECTION (2 Identical Channels)

Bandwidth and Rise Time — Dc to at least 35 MHz, rise time 10 ns or less. For 1 mV/div to 5 mV/div bandwidth is at least 25 MHz, rise time 14 ns or less. For ac coupling, the lower 3 dB point is 10 Hz or less with a 1X probe and 1 Hz or less with a 10X probe.

Deflection Factor — 1 mV/div to 10 V/div (1-2-5 sequence) accurate ±3%. Uncalibrated, continuously variable between steps and to at least 25 V/div.

Display Modes — Ch 1, Ch 2 (normal or inverted) alternate, chopped (approximately 300 kHz rate) added, X-Y.

CMRR — Common-mode rejection ratio at least 20 dB at 10 MHz for common-mode signals of 6 div or less.

Input R and C — 1 MΩ ±2% paralleled by approx 24 pF.

Max Input Voltage, ac or dc coupled, 300 V (dc + peak ac). 300 V p-p ac at 1 kHz or less.

Delay Line — Permits viewing leading edge of displayed waveform.

HORIZONTAL DEFLECTION

Time Base A — 0.2 μs/div to 0.5 s/div (1-2-5 sequence). X10 magnifier extends fastest sweep rate to 20 ns/div.

Time Base B — 0.2 μs/div to 50 ms/div (1-2-5 sequence). X10 magnifier extends fastest sweep rate to 20 ns/div.

Variable Time Control — Time Base A provides uncalibrated, continuously variable sweep rates between steps and to at least 1.25 s/div. Warning light indicates uncalibrated settings.

Time Base A and B Accuracy, center 8 div —

	+20°C to +30°C	-15°C to +55°C
Unmagnified	±3%	±4%
Magnified	±5%	±6%

Horizontal Display Modes — A only. A intensified by B. B delayed by A, B triggerable after A.

CALIBRATED SWEEP DELAY

Delay Time Range — Continuously variable from 1 μs to at least 5 s after the start of the delaying (A) sweep.

Differential Time Measurement Accuracy —

Delay Time Settings between 1.0 and 9.0	+15°C to +35°C
one or more major dial divisions	±2%
less than one major dial divisions	±0.02%

Jitter — 1 Part or less in 20,000 (0.005%) of X10 the A time/div setting.

TRIGGERING A AND B

A Trigger Modes — Normal (sweep runs when triggered). Automatic (sweep free-runs in absence of a triggering signal and for signals below 20 Hz). Single sweep (sweep runs once on the first trigger signal after the reset button is pushed).

Variable Trigger Holdoff — For the A sweep an adjustable holdoff control permits a stable display of complex waveforms. Sweep holdoff time can be increased at least X10.

B Trigger Modes — B runs after delay time (starts automatically at the end of the delay time). B triggerable after delay time (runs when triggered). The B (delayed) sweep runs once in each of these modes, following the A sweep delay time.

Trigger Sensitivity and Coupling —

Coupling	Internal	To 10 MHz	At 35 MHz
		Dc	0.35 div 70 mV 700 mV
Ac	above requirements	increase below 60 Hz	
Ac Hf Rej		requirements increase above 20 kHz	
Ac Lf Rej		requirements increase below 40 kHz	

Trigger Sources — Internal Ch 1, internal Ch 2, internal composite (uses a composite of Ch 1 and Ch 2 signals to produce trigger), external, external +10, and line. The B sweep can also be started automatically at the end of the time base A delay.

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 — Variable from approx 20 mV/div to approx 20 V/div. Dc to at least 500 kHz.

Input Impedance — Approx 1 MΩ paralleled by 24 pF.

DISPLAY

CRT — 8 x 10 div (0.6 cm/div) display. P31 Phosphor. 12 kV accelerating potential.

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

Z-axis Input — +5 V signal causes noticeable modulation at normal intensity. Useful bandwidth dc to 600 kHz.

ENVIRONMENTAL CAPABILITIES

Ambient Temperature — Operating: -15°C to +55°C. Non-operating: -40°C to +75°C.

Altitude — Operating: to 15,000 ft max, decrease max temperature by 1°C/1000 ft from 5000 ft to 15,000 ft. Nonoperating: to 50,000 ft max.

Vibration — Operating and nonoperating: 15 minutes along each of the three major axes, 0.06 cm (0.025 in) p-p displacement (4 g's at 55 Hz) 10 to 55 to 10 Hz in 1-minute cycles.

Humidity — 5 cycles (120 hours) referenced to MIL-E-16400 F.

Shock — Operating and nonoperating: 30 g's, ½ sine, 11 ms duration each direction along each major axis. Total of 12 shocks.

OTHER CHARACTERISTICS

Amplitude Calibrator — 0.5 V (±1%) approx 1 kHz from 20°C to 30°C.

Power Source — 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 24 W at 115 V. External dc source: +11 V to +14 V or +22 V to +28 V with a max current drain of 2 A at +12 V or 1.0 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 and pouch (016-0485-00), external dc cable assembly (012-0406-00), strap assembly (346-0131-00), two 1-A fuses (159-0064-00), two 0.4-A fuses (159-0139-00), two 2-A fuses (159-0107-00), three 0.2-A fuses (159-0080-00).

ORDERING INFORMATION

335 Portable Oscilloscope \$2565

OPTIONAL ACCESSORIES

Viewing Hood — Order 016-0297-00 \$6.50

CRT Filter — Light blue. Order 378-2016-01 . . . \$1.80

CRT Filter — Light amber. Order 378-0843-01 . . \$1.80

CRT Mesh Filter — With frame and holder. Order 378-0063-00 \$27

The SONY®/TEKTRONIX® 335 is manufactured and marketed in Japan by Sony/Tektronix Corporation, Tokyo, Japan. Outside of Japan, the 335 is available from Tektronix, Inc., its marketing subsidiaries and distributors.

RECOMMENDED CAMERA

C-30BP General Purpose Camera \$1050

Camera Adapter — mounts C-30B to 335.

Order 016-0327-01 \$150

For further information see Camera section.