

7834

2500 cm/ μ s Stored Writing Speed

Stores Single-shot Rise Times as Fast as 1.4 ns

Dc-to-400 MHz Bandwidth

Multimode Storage

Long View Time

APPLICATIONS

Laser Fusion

Digital Design

Radar/Lidar

The 7834 Storage Oscilloscope has a stored writing speed of 2500 cm/ μ s, enabling storage of single-shot rise times to 1.45 ns, 3.6 cm high, at eight-divisions amplitude, reduced-scan mode. The 7834's mainframe bandwidth is 400 MHz (nonstore). The system bandwidth may vary from 160 MHz to 400 MHz depending on the plug-in selected.

This instrument has four storage modes: bistable and variable persistence, FAST bistable and FAST variable persistence.

FAST Variable Persistence provides the maximum stored writing rate of 2500 cm/ μ s (reduced scan). View time is at least 30 s.

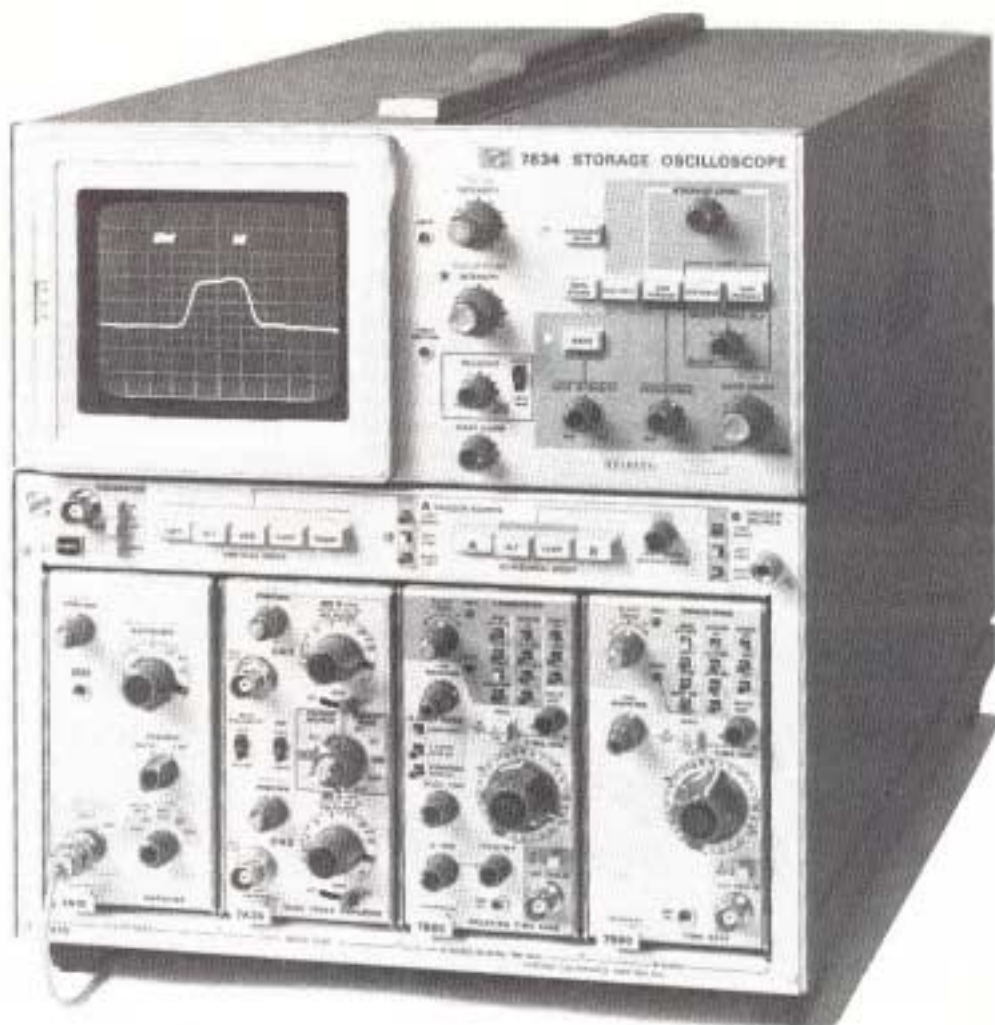
FAST Bistable increases bistable writing rates to 350 cm/ μ s (reduced scan).

Bistable provides stored displays with long (30 minute) view time.

Variable Persistence gives high contrast displays of both single-shot and repetitive phenomena. When viewing changing waveshapes, variable persistence provides continuous bright displays of new information as old information fades from the CRT.

The 4 compartment flexibility means that more than one measurement can be performed at the same time without switching plug-ins. The 7834 also offers auto-erase for automatic display updating, a save control for 30 times longer viewing, gated readout which prevents the blooming that tends to occur between sweeps with nongated readout, and an adjustable multitrace delay for varying the viewing time prior to the next sweep in the FAST transfer mode.

The multimode storage unit is designed for single shot, low-rep-rate or fast pulse analysis.



VERTICAL SYSTEM

Channels — Two left-hand plug-in compartments; compatible with all 7000 Series Plug-ins.

Modes of Operation — LEFT, ALT, ADD, CHOP, RIGHT.

Mainframe Bandwidth — 400 MHz with 7A29 Amplifier plug-in.

Mainframe Step Response — 0.9 ns or less with 7A29 Amplifier plug-in.

Chopped Mode — Repetition rate is ~1 MHz.

Delay Line — Permits viewing leading edge of displayed waveform (not recommended for use with 7B50 Series Time Bases).

Trace Separation Range — In dual-sweep modes, B trace can be positioned 4 divisions above or below the A trace.

HORIZONTAL SYSTEM

Input — Two right-hand plug-in compartments; compatible with all 7000 Series Plug-ins. 7000 Series Vertical Amplifiers and specialized plug-ins may also be used.

Modes of Operation — A, ALT, CHOP, B.

Fastest Calibrated Sweep Rate — 1 ns/div.

Chopped Mode — Repetition rate is ~200 kHz.

X-Y Mode — Phase shift between vertical and horizontal channels is within 2° from dc to 35 kHz without phase correction (dc to 1 MHz with phase correction, B horizontal only, Option 02). Bandwidth is dc to at least 1 MHz.

CRT AND DISPLAY FEATURES

Graticule — Internal variable illuminated graticule: 8 x 10 division (0.9 cm/div) graticule in full scan and 8 x 10 division (0.45 cm/div) in reduced scan.

Option 01, without CRT Readout and Probe Power — Deletes CRT readout and probe power.

Accelerating Potential — ~10 kV full scan mode; and 12 kV in reduced scan mode.

Phosphor — P31.

CRT Display Modes — Nonstore, Bistable, Variable Persistence, FAST Bistable and FAST Variable Persistence (full and reduced scan).

Persistence — (Variable Persistence mode only) controls rate of continuous erasure of the variable persistence and fast variable persistence stored displays.

Auto Erase — Continuously variable from ~1 s to ~10 s.

Multitrace Delay — Adjusts the transfer cycle time in the FAST transfer modes. Continuously variable from ~1 s to ~4 s.

Save — Prevents display from being accidentally erased, and provides up to 30 times longer viewing times in all modes.

Integral Z-Axis Input — 2 V p-p for full intensity range from dc to 1 MHz. Positive signal blanks the trace. Maximum input voltage is 15 V (dc plus peak ac).

Auto-Focus — Maintains CRT focus following changes in display intensity after focus control has been initially set.

Beam Finder — Limits display within graticule.

STORAGE WRITING SPEED

FULL SCAN (Center 8 x 8 div at 0.9 cm/div)

Display Mode	Fast Variable Persistence	Fast Bistable	Variable Persistence	Bistable
Stored Writing Speed	270 cm/ μ s (300 div/ μ s)	45 cm/ μ s (50 div/ μ s)	1.8 cm/ μ s (2 div/ μ s)	0.027 cm/ μ s (.03 div/ μ s)
Rev Time	30 s*	30 min	30 s*	30 min
Base Time (Approx)	1.4 s	1.4 s	0.9 s	0.9 s

*REDUCED SCAN Center 8 x 10 div at 0.45 cm/div

Display Mode	Fast Variable Persistence	Fast Bistable	Variable Persistence	Bistable
Stored Writing Speed	2500 cm/ μ s (5,500 div/ μ s)	350 cm/ μ s (776 div/ μ s)	5.4 cm/ μ s (12 div/ μ s)	0.09 cm/ μ s (0.2 div/ μ s)
Rev Time*	30 s	30 min	30 s	30 min
Base Time* (Approx)	1.4 s	1.4 s	0.9 s	0.9 s

*Rev times are at full stored display intensity; they may be increased more than 30 times by using reduced intensity in the SWE display mode.

Fast Variable Persistence Writing Speed

Scan Mode	Sweep Speed	Peak-to-Peak Sine wave	Step Response
Reduced Scan (500 div/ μ s 1.45 cm/div)	≥ 1 ns/div	7.1 div 250 MHz	7.7 div 1.4 ns
		8 div 221 MHz	8 div 1.45 ns
Full Scan (80 div/ μ s 18 cm/div)	≥ 10 ns/div	3.2 div 30 MHz	3 div 10 ns
		6.4 div 15 MHz	5 div 16.0 ns

OUTPUTS/INPUTS

Sweep — Positive going with baseline at 0 V \pm 1 V into 1 Ω . Voltage is 1 V/div (\pm 10%) into 1 M Ω , 50 mV/div (\pm 15%) into 50 Ω . Output R is \sim 950 Ω .

Gate — Positive pulse of the same duration and coincident with sweep. Output voltage is 10 V (\pm 10%) into 1 M Ω , 0.5 V (\pm 10%) into 50 Ω . Output R is \sim 950 Ω . Source is selectable from A Gate, B Gate or A Delayed Gate.

Vertical Signal Out — Selected by A TRIGGER SOURCE with. Output voltage is 0.5 V into 1 M Ω , 25 mV into 50 Ω . Output R is \sim 950 Ω . Bandwidth depends upon vertical plug-in.

Remote Single Sweep Reset, Remote Save and Remote Base — Rear panel BNC connector inputs, ground closure activated.

Remote FAST Transfer Gate — TTL compatible. Low to high transition enables high speed target to receive information to be stored; high to low transition initiates transfer from high speed target to storage target.

Camera Power Output — Three-prong connector to the left of its CRT provides power, ground, and remote single-sweep reset access for the C-50 Series Cameras.

Probe Power — Two rear-panel connectors provide operating voltage for two active probes such as P6201.

CALIBRATOR

Voltage Output — Sinewave, positive-going from ground. Ranges are 40 mV, 0.4 V, and 4 V into 100 Ω ; 4 mV, 40 mV, and 0.4 V into 50 Ω . Amplitude accuracy is within 1%; repetition rate is 1 kHz within 0.25%.

Current Output — 40 mA available through CALIBRATOR output with optional BNC to current loop adapter.

Dimensions and Weight — See page 153.

For Recommended Cameras — See page 154.

For Recommended Plug-ins — See page 152.

POWER REQUIREMENTS

Line Voltage Ranges — 90 V-132 V, 180 V-250 V.

Line Frequency — 48-440 Hz.

Max Power Consumption — 215 Watts.

Included Accessories — Gray CRT filter (included) (378-0625-02) green CRT filter (378-0625-08) power cord (151-0066-00).

ORDERING INFORMATION

(Plug-ins not included)

7834 Storage Oscilloscope

OPTIONS

Option 01 without CRT Readout and Probe Power

Option 02 X-Y Mode Phase Correction

Option 03 Emc Modification

For Rackmounting, Cradle Mount Adapter 040-0560-00

CONVERSION KITS

CRT Readout, 040-0811-00

Emc Modification, 040-0860-00

INTERNATIONAL POWER CORD AND PLUG OPTIONS

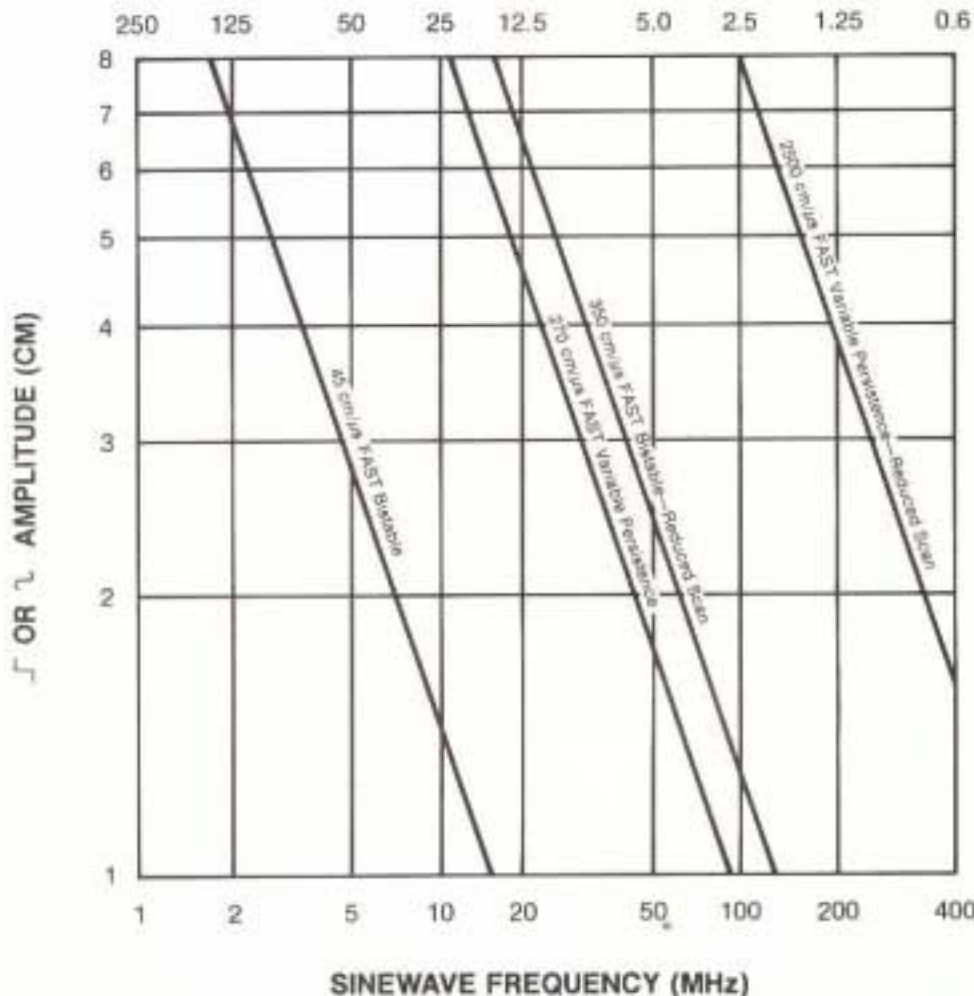
Option A1 Universal Euro 220 V/16A

Option A2 UK 240 V/13A

Option A3 Australian 240 V/10A

Option A4 North American 240 V/15A

STEP RISE TIME (ns)



Graph showing the stored writing speed needed to display a given sine wave or step rise time at a given amplitude.