

ORDERING INFORMATION

(PLUG-INS NOT INCLUDED)

7934 Storage Oscilloscope \$13,620
Includes: Installed gray CRT filter (378-0625-02); green CRT filter (378-0625-08); power cord (161-0066-00); operator's manual (070-5879-00).

OPTIONS

Option 02—X-Y Mode Phase Correction. Adds X-Y delay compensation network to equalize the signal delay between either vertical compartment and the B horizontal compartment. + \$260

Option 03—EMC capability. Adds special shielding for protection to the instrument when operated in severe EMC environments. + \$395

CONVERSION KITS

X-Y Mode Phase Correction—
Order 040-0942-01 \$210

EMC Capability—
Order 040-1195-00 \$375

INTERNATIONAL POWER PLUG OPTIONS
Option A1—Universal Euro 220 V, 50 Hz.
Option A2—UK 240 V, 50 Hz.
Option A3—Australian 240 V, 50 Hz.
Option A4—North American 240 V, 60 Hz.
Option A5—Switzerland 220 V, 50 Hz.

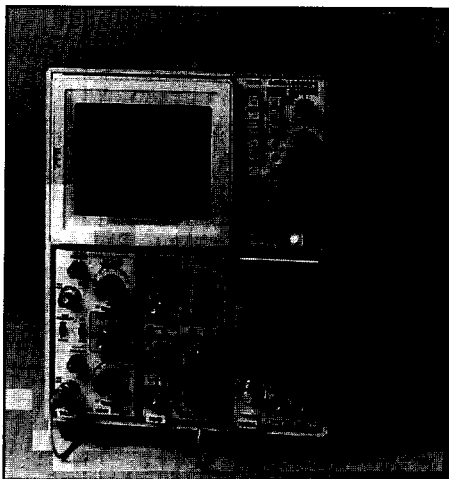
OPTIONAL ACCESSORIES

Service Manual—
Order 070-5880-00 \$30

Cradle Mount Adaptor—For rack-mounting. Order 040-0560-00 \$535

Recommended Plug-Ins, Probes, and Cameras—See 7000-Series Analog Reference section, page 201.

Recommended Cart—K213 Option 12, see Instrument/Cart Compatibility chart in Cart section.



7600 Series

FEATURES

- DC to 100-MHz Bandwidth
- 3.5-ns Rise Time
- 5-ns/Div Fastest Calibrated Sweep Rate
- 5.25-Inch Rackmount Height
- Long View Time

BENEFITS

- Large Selection of Plug-Ins
- Able to Capture and Store Fast Transients and Low Rep Rate Signals

7633/R7633 Features

TYPICAL APPLICATIONS

- Digital Design
- Destructive Testing
- Communications

FEATURES

- 1000-cm/ μ s Stored Writing Speed
- Multimode Storage

7623A/R7623A Features

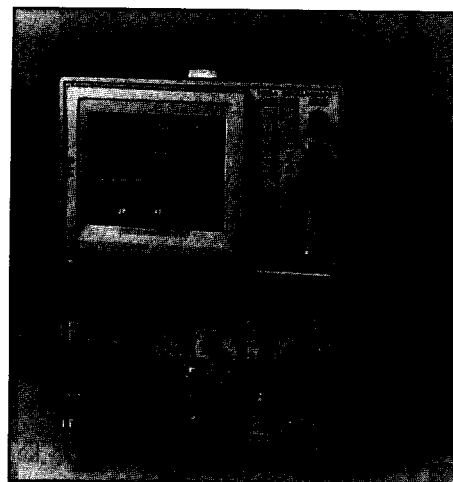
TYPICAL APPLICATIONS

- Ultrasonics
- Power-Supply Design
- Component Testing

FEATURES

- 135-cm/ μ s Stored Writing Speed
- Multimode Storage

The 7633 Storage Oscilloscope provides 2200-div/ μ s (1000 cm/ μ s) stored writing speed and 100-MHz bandwidth. The instrument has three display modes—store, non-store, and save—and four storage modes—bistable, variable persistence, fast bistable, and fast variable persistence. The maximum writing speed of 1000 cm/ μ s (using the center 8 \times 10 reduced-scan divisions, 0.45 cm/div) is achieved in reduced-scan mode.



This multimode storage instrument allows for retention and viewing of fast-rise, low-repetition-rate, single-shot, or slow-moving waveforms.

The 7623A/R7623A Storage Oscilloscopes have all the features and performance of the 7633/R7633 except the reduced-scan mode.

The R7633/R7623A require only 5.25 inches of rack height in a standard 19-inch rack. They are fan cooled and come complete with slide-out chassis tracks.

CHARACTERISTICS

Characteristics are common to the 7633/R7633 and 7623A/R7623A unless otherwise noted.

VERTICAL SYSTEM

Channels—Two left-hand plug-in compartments. Compatible with all 7000-Series plug-ins. See 7000-Series Reference section.

Bandwidth—Determined by mainframe and plug-in unit. See 7000-Series Reference section.

Rise Time—Determined by mainframe and plug-in unit. See 7000-Series Reference section.

Deflection Factor—Determined by plug-in unit. See 7000-Series Reference section.

Display Modes—Left, Alt, Add, Chop, Right. Chopped-mode repetition rate is \approx 1 MHz.

Delay Line—Permits viewing leading edge of displayed waveform.

HORIZONTAL SYSTEM

Channel—One right-hand plug-in compartment. Compatible with all 7000 Series plug-ins. See 7000-Series Reference section.

Bandwidth—DC to at least 2 MHz.

Fastest Calibrated Sweep Rate—5 ns/div.

X-Y Mode—Phase shift $< 2^\circ$ from dc to 35 kHz.

CRT AND DISPLAY FEATURES

CRT—Internal 8×10-division (0.9 cm/div) graticule with variable illumination. 7633/R7633 have additional (0.45 cm/div) graticule used in the reduced-scan mode. Accelerating potential is 8.5 kV (10 kV for 7633/R7633 in reduced-scan mode). GH (P31) phosphor is standard.

Autofocus—Reduces the need for additional manual focusing with changes in intensity after focus control has been set.

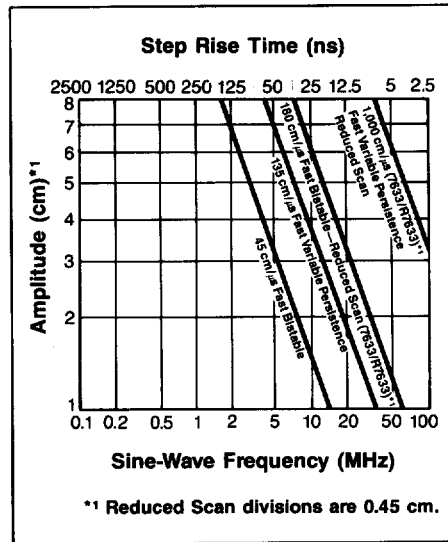
Beam Finder—Aids in locating an offscreen signal.

CRT Display Modes—Nonstore, Bistable, Variable Persistence, Fast Bistable, Fast Variable Persistence. Full or reduced scan may be selected on the 7633/R7633 in all display modes. Select normal scan to view the entire CRT; select reduced scan for the fastest writing rate.

Auto Erase—Continuously variable to >10s. **Save**—Prevents accidental erasure of display and extends view time up to 30 times longer in all modes.

Persistence—(Variable) Controls rate of continuous erasure of stored displays.

External Z-Axis Input—2 V p-p for useful intensity range from dc to 2 MHz. Intensity range diminishes to 20% of full range at 10 MHz. Positive signal blanks the trace. Maximum input voltage is 10 V (dc + peak ac) and p-p ac.



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

*1 Reduced Scan divisions are 0.45 cm.

CALIBRATOR

Voltage Output—Rectangular waveshape, positive going from ground (dc voltage available when selected by internal jumper).

Voltage Ranges—40 mV, 0.4 V, 4 V into 1 MΩ; 20 mV, 0.2 V, 0.4 V into 50 Ω. Amplitude accuracy is within 1% (15 to 35°C); within 2% (0 to 50°C). Repetition rate is ≈1 kHz.

Current Output—40-mA rectangular waveshape with optional current-loop accessory (012-0259-00) connected between 4 V and ground-pin jacks. Output R is ≈450 Ω.

OUTPUTS/INPUTS

+ **Sawtooth**—Sawtooth starts 1 V or less from ground into 1 MΩ. Output voltage is 50 mV/div (±15%) into 50 Ω, 1 V/div (±10%) into 1 MΩ. Output R is 950 Ω within 2%.

+ **Gate**—Positive-going waveform of the same duration and coincident with sweep selectable from main, delay, or auxiliary gate. Output voltage is 0.5 V (±10%) into 50 Ω, 10 V (±10%,) into 1 MΩ. Rise time is 20 ns or less into 50 Ω. Output R is 950 Ω within 2%.

Vertical Signal Out—Selected by Trigger Source switch. Output voltage is 25 mV/div into 50 Ω, 0.5 V/div into 1 MΩ. Output R is 950 Ω within 2%. Bandwidth is determined by vertical plug-in. See 7000-Series Reference section.

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

External Single-Sweep Reset—Ground closure; rear panel BNC input to reset sweep. **Remote Erase**—Rear-panel BNC connector inputs, ground-closure activated.

POWER REQUIREMENTS

Line-Voltage Ranges—100, 110, 120, 200, 220, and 240 V ac ±10%; internally selectable with quick change jumpers.

Line Frequency—50 to 400 Hz.

Maximum Power Consumption—180 W, 2.0 A at 115-V line, 60 Hz. Fan cooling is provided for all models.

Storage Writing Speed

Display Mode	Full Scan			
	Fast Variable Persistence	Fast Bistable	Variable Persistence	Bistable
Stored Writing Speed	135 cm/μs	45 cm/μs	0.45 cm/μs	0.03 cm/μs
View Time	30 s*1	30 min minimum	30 s*1	30 min minimum
≈ Erase Time	1.4 s	1.4 s	0.9 s	0.9 s
Display Mode	Reduced Scan			
	Fast Variable Persistence	Fast Bistable	Variable Persistence	Bistable
Stored Writing Speed	1000 cm/μs	180 cm/μs	1.35 cm/μs	0.09 cm/μs
View Time*1	30 s*1	30 min minimum	30 s*1	30 min minimum
≈ Erase Time	1.4 s	1.4 s	0.9 s	0.9 s

*1 These times are at full stored-display intensity. They may be increased more than 30 times by using reduced intensity in the Save display mode.

Fast Variable Persistence Writing Speed

Scan Mode	Sweep Speed	Peak-to-Peak Sine Wave	Step Response
Reduced Scan 2200 div/μs (0.45 cm/div)	≥5 ns/div	7.1 div	7.7 div
		100 MHz	3.5 ns
		8 div	8 div
Full Scan 150 div/μs (0.9 cm/div)	≥50 ns/div	89 MHz	3.7 ns
		3.2 div	3 div
		15 MHz	20 ns
		6.4 div	5 div
		7.5 MHz	33 ns

ENVIRONMENTAL AND SAFETY

Ambient Temperature—Operating: 0 to +50 °C. Nonoperating: -55 to +75 °C.

Altitude—Operating: 5000 m (15,000 ft). Nonoperating: 15 000 m (50,000 ft).

Vibration—Operating: 15 minutes along each of the three major axes. 0.04 cm (0.015 in.) p-p displacement 10 to 55 to 10 Hz in one minute cycles. Held for three minutes at 55 Hz (MIL-T-28800B).

Humidity—Operating and Nonoperating: 95%, five cycles (120 hours), referenced to MIL-E-16400F.

Shock—Nonoperating: 30 g's, ½ sine, 11-ms duration in each direction along each major axis. Total of six shocks (MIL-T-28800C).

EMC Capability—Meets MIL-STD-461B requirements when tested in accordance with certain test methods of MIL-STD-462. Contact your Tektronix representative for more information.

Safety—UL listed (UL 1244) and CSA certified (CSA 556B).

PHYSICAL CHARACTERISTICS

	Cabinet		Rackmount	
	mm	in.	mm	in.
Dimensions				
Width	221	8.7	483	19.0
Height	305	12.0	135	5.3
Depth	597	23.5	566	22.3
Weights ≈	kg	lb	kg	lb
Net	13.6	30.0	14.5	32.0
Shipping	19.0	42.0	28.2	62.0

ORDERING INFORMATION

(PLUG-INS NOT INCLUDED)

7633 Storage Oscilloscope \$9,950
Includes: 20-in. two-pin-to-BNC cable (175-1178-00); green CRT filter (378-0625-08); power cord (161-0066-00); instruction manual (070-1767-00).

R7633 Storage Oscilloscope \$10,550
Includes: Same as 7633 plus rackmounting hardware.

7623A Storage Oscilloscope \$8,055
Includes: Same as 7633, instruction manual replaced with 070-1685-00.

R7623A Storage Oscilloscope \$8,550
Includes: Same as 7633 plus rackmounting hardware, instruction manual replaced with 070-1685-00.

OPTIONS

Option 03—EMC capability. Adds special shielding for protection to the instrument when operated in severe EMI environments.

(7633/7623A) + \$395

(R7633/R7623A) + \$375

Option 08—(7633/7623A only)

Protective Panel Cover. + \$115

Option 23—(7633/7623A only)

VDE RPM Mark. + \$50

CONVERSION KITS

CRT Readout—

(7633/7623A) Order 040-0748-06 \$585

(R7633/R7623A) Order 040-0759-06.*1

EMC Capability—

(7633/7623A) Order 040-0663-01 \$485

(R7633/R7623A) Order 040-0678-01 \$395

Power Supply—To light plug-in

pushbuttons. Order 040-0686-01 \$90

INTERNATIONAL POWER PLUG OPTIONS

Option A1—Universal Euro 220 V, 50 Hz.

Option A2—UK 240 V, 50 Hz.

Option A3—Australian 240 V, 50 Hz.

Option A4—North American 240 V, 60 Hz.

Option A5—Switzerland 220 V, 50 Hz.

*1 Contact your local sales office.

OPTIONAL ACCESSORIES

Recommended Plug-Ins—See Oscilloscope Plug-in section, page 277.

Recommended Probes—See Signal Acquisition section.

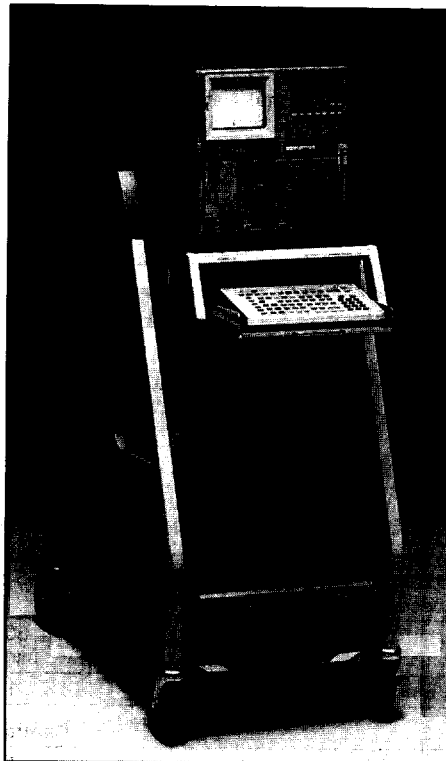
RECOMMENDED CARTS

K213 Opt 12—(7633/7623A) See Instrument/Cart Compatibility chart in Cart section.

\$625

K217—(R7633/R7623A) See Instrument/Cart Compatibility chart in Cart section.

\$510



K213 cart shown with optional plug-in storage and keyboard drawer (Option 22).

RECOMMENDED CAMERAS

C-53P—General purpose. See 7000 Series Analog Reference section and Instrumentation Documentation Devices Reference section.

\$2,090

C-5C—Option 01—Low cost. See 7000-Series Analog Reference section and Instrumentation Documentation Devices Reference section.

\$495

A6902B—

Allows high CMRR differential, floating, and high-voltage measurements safely. See Accessories section.

\$1,980