



R7844

TYPICAL APPLICATIONS

- Radar/Lidar
- Destructive Testing
- SCR Switching

BENEFITS

- View Two Simultaneous Events at Two Different Time Bases
- View the Same Event at Two Time Bases
- Plug-in Versatility

FEATURES

- 400-MHz Bandwidth
- 900-ps Rise Time
- 1 ns/Div Fastest Calibrated Sweep Rate
- Greater Than 1.5-cm/ns Writing Speed
- 8×10-cm Display
- CRT Readout
- True Dual Beam (Dual-Gun)
- Full Vertical Crossover Switching

See 7000-Series Reference section for available Application Notes.

The seven-inch rackmount R7844 is a wide-bandwidth, dual-beam oscilloscope designed primarily for fast, single-shot events. Unique features such as pulsed graticule and pulsed CRT readout allow you to photograph vertical and horizontal scale factors, test date, test number, and other pertinent data before or after an event. Vertical-signal crossover switching permits you to view a single event from a single probe at two sweep speeds. See Oscilloscope Reference section for photographic writing-speed specifications.

CHARACTERISTICS

VERTICAL SYSTEM

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

Bandwidth, Rise Time, and Deflection Factor—Determined by mainframe/plug-in. See 7000-Series Vertical-System Specifications.

Display Logic

	Beam 1	Beam 2
Vertical Compartment	Left	Left
Controlling Beam	Left	Right
	Right	Left
	Right	Right

Crossover—Permits viewing the same signal on two time bases.

Trace Separation—Beam 1 can be positioned ± 4 cm with respect to Beam 2.

Delay Line—Permits viewing leading edge of displayed waveform when using 7B80 and 7B90 Series time bases. Not compatible with 7B50 Series.

HORIZONTAL SYSTEM

Channels—Two right-hand plug-in compartments. Compatible with 7B80 Series, 7B90 Series, 7000-Series vertical amplifiers, and specialized plug-ins.

Bandwidth—DC to at least 1 MHz.

Fastest Calibrated Sweep Rate—1 ns/div.

X-Y Mode—Phase shift is within 2° from dc to 50 kHz.

Horizontal Separation—Beam 1 can be positioned at least 0.25 cm to the right and at least 0.25 cm to the left of Beam 2 with a total 2 cm range.

Display Logic

Beam 1	Beam 2
A Horizontal	A Horizontal
A Horizontal	B Horizontal
B Horizontal	A Horizontal
B Horizontal	B Horizontal

CRT AND DISPLAY FEATURES

CRT—Dual beam, full overlap. 8×10-cm graticule with variable illumination. CRT readout intensity is adjustable with front-panel control. Accelerating potential is 24 kV. GH (P31) phosphor.

Option 78, BE (P11) Phosphor—Replaces standard GH (P31) phosphor.

Pulsed Readout and Graticule Illumination—Provides a means of pulsing the graticule lights and CRT readout at a preset level, coincident with a single-shot event in one exposure. The graticule lights and CRT readout can be pulsed by the event, an external ground closure, or front-panel pushbutton.

Typical Photographic Writing Speed**

CRT	Camera	Lens	Writing Speed cm/ns
Standard 8x10 cm	C-51	f/1.2	0.75
Opt 78 8x10 cm		1:0.5	1.5

** Using Polaroid Type 107 3,000 ASA film without film fogging.

The photographic writing-speed enhancer, Option 22, provides a preset automatic method of film fogging for the R7844. Option 22 is recommended for writing-speed enhancement when a camera with a writing-speed enhancer is not available.

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

Beam Finder (Beam 1 and Beam 2, Independent Controls)—Aids in locating off-screen signal.

External Z-Axis Input (Beam 1 and Beam 2)—2 V p-p for full intensity range. A positive signal blanks the trace. Maximum input voltage is 15 V (dc + peak ac), p-p ac, dc coupled.

CALIBRATOR

Voltage Output—Rectangular waveform positive going from ground, 1 kHz ($\pm 0.25\%$).

Voltage Ranges—4 mV, 40 mV, 0.4 V, 4 V ($\pm 1\%$) into an open circuit; 0.4 mV, 4 mV, 40 mV, 0.4 V ($\pm 1\%$) into 50 Ω .

Current Output—40-mA ($\pm 1\%$) rectangular waveshape. Optional current-loop adaptor (012-0341-00) required for R7844. Output R is 450 Ω .

OUTPUTS/INPUTS

A and B + Sawtooth—Sawtooth starts 1 V or less from ground (into 1 M Ω). Output voltage is 50 mV/div ($\pm 15\%$) into 50 Ω , 1 V/div ($\pm 10\%$) into 1 M Ω . Output R is $\approx 950 \Omega$.

A and B + Gate—Positive-going rectangular waveform derived from Main or Delayed Gate. Output voltage 0.5 V ($\pm 10\%$) into 50 Ω . 10 V ($\pm 10\%$) into 1 M Ω . Rise time is 5 ns or less into 50 Ω . Output R is $\approx 950 \Omega$.

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

Probe Power—Two connectors provide correct operating voltages for two active probes.

External Single-Sweep Reset—Ground closure, rear-panel BNC, provides input to reset sweeps.

Single-Sweep Ready Output—+5 V, rear-panel BNC output, for single-sweep ready indication.

POWER REQUIREMENTS

Line Voltage Ranges—Selectable 115 V nominal (90 to 132 V), 230 V nominal (180 to 264 V).

Line Frequency—48 to 440 Hz.

Maximum Power Consumption—235 W, 2.9 A at 60-Hz 115-V line.

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 50 to 10 Hz in one-minute cycles. Held for three minutes at 50 Hz.

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

Shock—Nonoperating: 30 g's, $\frac{1}{2}$ sine, 11-ms duration in each direction along each major axis. Total of six shocks.

EMC Capability—(Option 03) Meets MIL-STD-461B requirements when tested in accordance with certain test methods of MIL-STD-462. Contact your Tektronix representative for more information.

PHYSICAL CHARACTERISTICS

Dimensions	mm	in.
Width	483	19.0
Height	178	7.0
Depth	630	24.8
Weight \approx	kg	lb
Net	15.0	33.0
Shipping	28.6	63.0

ORDERING INFORMATION

(PLUG-INS NOT INCLUDED)

R7844 Rackmount Oscilloscope **\$18,335**
Includes: Power cord (161-0066-00); instruction manual (070-1676-02); hardware rackmount kit (016-0099-00); slide guide (351-0314-01).

OPTIONS

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

Option 22—Writing-Speed Enhancer. **+ \$400**

Option 78—BE (P11) Phosphor. **+ \$100**

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

Recommended Plug-Ins, Probes, and Cameras—See 7000-Series Reference section on pages 200-202.

Recommended Carts—K217 **\$510**
See Instrument/Cart Compatibility chart in the Cart section.