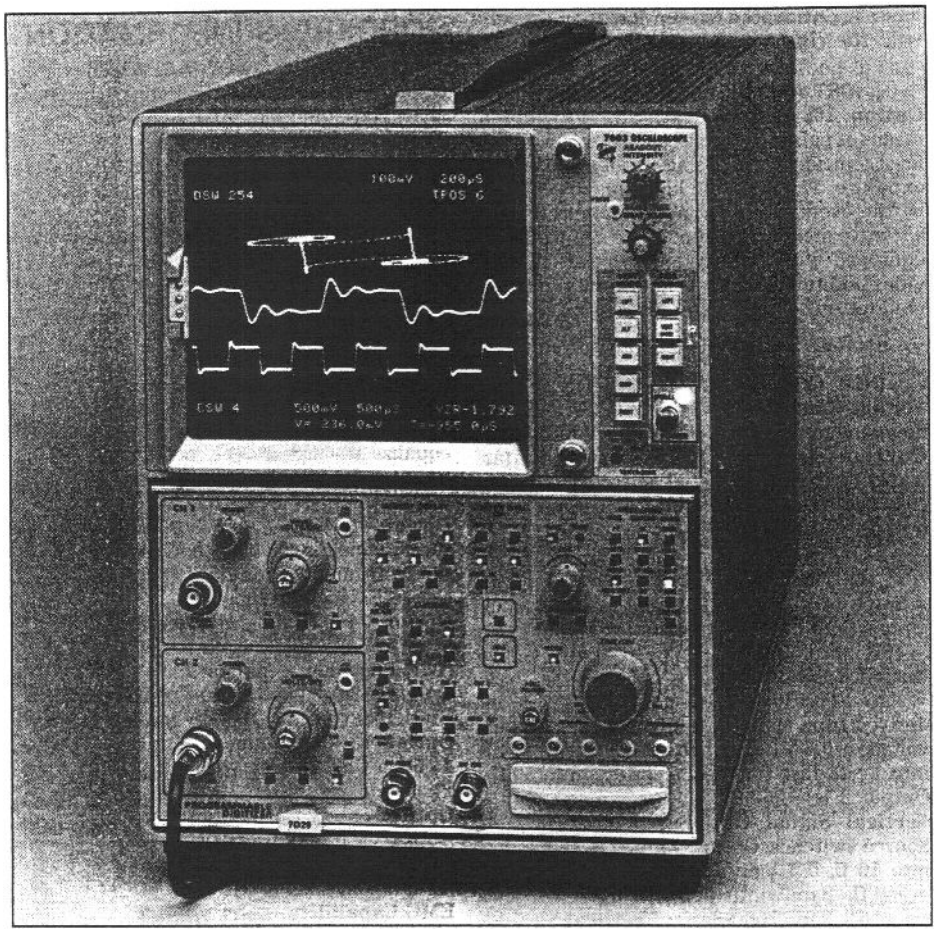


7603/R7603

- **DC to 100-MHz Bandwidth**
- **3.5-ns Rise Time**
- **5-ns/Div Fastest Calibrated Sweep Rate**
- **Greater Than 260-cm/μs Writing Speed With Optional CRT (Option 13)**
- **6.5-Inch CRT**
- **CRT Readout**
- **5.25-Inch Rackmount**

TYPICAL APPLICATIONS

Digital Design and Testing
Communications
Spectrum Analysis

See 7000-Series Reference section for available Application Notes.

The Tektronix 7603 and R7603 Oscilloscopes represent the best price/performance ratio available in the 100-MHz plug-in oscilloscope market today.

The CRT is large—8×10 divisions (1.22 cm/div)—and features an internal graticule with variable illumination and 15-kV accelerating potential. An optional high-brightness CRT with a smaller 8×10-cm display and 18-kV potential gives you greater visual brightness and higher photographic-writing speed. See Oscilloscope Reference section for 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 Modes—Left, Alt, Add, Chop, Right. Chopped-mode repetition rate is ≈1 MHz.
Delay Line—Permits viewing leading edge of displayed waveform.

HORIZONTAL SYSTEM

Channels—One right-hand plug-in compartment. Compatible with all 7000-Series plug-ins.
Bandwidth—DC to 2 MHz.
Fastest Calibrated Sweep Rate—5 ns/div.
X-Y Mode—The phase shift is within 2° from dc to 35 kHz.

CRT AND DISPLAY FEATURES

CRT—Internal 8×10-division (1.22 cm/div) graticule with variable illumination. Accelerating potential is 15 kV. GH (P31) phosphor is standard.
Option 01, Without CRT Readout—(CRT readout may be added later with conversion kit 040-0654-04).
Option 04, High-Brightness CRT With Reduced Area—Internal 8×10-cm graticule with variable illumination. Accelerating potential is 18 kV. GH (P31) phosphor.
Option 06, Spectrum-Analyzer Graticule—Provides internal spectrum-analyzer graticule.
Option 13, Maximum-Brightness CRT With Reduced Area—Internal 8×10-cm graticule with BE (P11) phosphor. Accelerating potential 18 kV.
Optional Phosphors (Specify)—GM (P7), BE (P11), or GM (P7)/SA (phosphor/spectrum-analyzer graticule combination).

Typical Photographic Writing Speed*1

CRT	Camera	Lens	Writing Speed cm/μs
Standard 8×10 div	C-53	f/1.9 1:0.85	122
Opt 13 8×10 cm			260
Opt 78 8×10 cm			180

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

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

CALIBRATOR

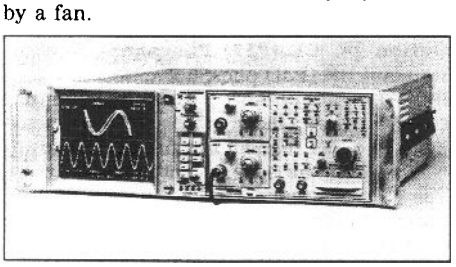
Voltage Output—Rectangular waveshape, positive going from ground (dc voltage available when selected by internal jumper).
Voltage Ranges—40 mV, 0.4 V, 4 V into 1 MΩ; 20 mV, 0.2 V, 0.4 V into 50 Ω. Amplitude accuracy is within 1% (+15 to +35°C); within 2% (0 to +50°C). Repetition rate is ≈1 kHz.
Current Output—40-mA rectangular waveshape (dc current available when selected by internal jumper) with optional current-loop accessory (012-0259-00) connected between 4-V and ground pin jacks. Output R is 950 Ω.

OUTPUTS/INPUTS

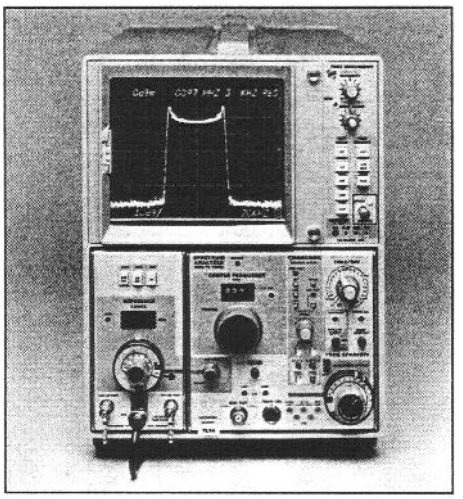
+Sawtooth Out (Rear Panel)—Sawtooth starts 1 V or less from ground (into 1 MΩ). Output voltage is 1 V/div (±10%) into 1 MΩ, 50 mV/div (±15%) into 50 Ω. Output R is 950 Ω.
+Gate Out (Rear Panel)—Positive gate of the same duration and coincident with sweep. Selectable from Main, Delay, or Auxiliary Gate. Output voltage is 10 V (±10%) into 1 MΩ, 0.5 V (±10%) into 50 Ω. Rise time is 20 ns or less into 50 Ω. Output R is 950 Ω.
Vertical Signal Out (Rear Panel)—Selected by Trigger Source switch. Output voltage is 0.5 V/div into 1 MΩ, 25 mV/div into 50 Ω. Output R is 950 Ω. Bandwidth determined by vertical plug-in. See 7000-Series Reference section.
Camera Power—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 provides input to reset sweep.
Single-Sweep Ready Output—Rear-panel BNC provides 5 V out to indicate single-sweep ready condition.

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 60 Hz.
Option 05, Line-Frequency Change (50 to 400 Hz)—Converts the R7603 and 7603 from 50 to 400 Hz operation.
Maximum Power Consumption—180 W, 2.0 A at 115-V line, 60 Hz. Cooling is provided by a fan.



The R7603 requires only 5.25 inches of rack height in a standard 19-inch rack. It is fan-cooled and comes complete with slideout chassis tracks.



The 7L14 converts the 7603 Oscilloscope to a 1.8-GHz Spectrum Analyzer.

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, 0 to 55 to 9 Hz in one-minute cycles. Held for three minutes at 55 Hz.
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.
EMC Capability—(Option 03) Meets MIL-STD-1-A-6181B. Contact your Tektronix representative for more information.
Safety—UL listed (UL1244) and CSA certified (CSA 556B).

PHYSICAL CHARACTERISTICS

	Cabinet		Rackmount	
Dimensions	mm	in.	mm	in.
Width	221	8.7	483	19.0
Height	290	11.4	127	5.2
Depth	610	24.0	627	24.7
Weights ≈	**kg**	**lb**	**kg**	**lb**
Net	13.6	30.0	13.6	30.0
Shipping	20.8	46.0	19.1	42.0

ORDERING INFORMATION

(PLUG-INS NOT INCLUDED)

Ordering information is common to the 7603 and R7603 unless otherwise noted.
7603 Oscilloscope
Includes: Clear CRT filter (337-1700-04); blue CRT filter (337-1700-01); 20-in. two-pin-to-BNC cable (175-1178-00); instruction manual (070-1310-00).
R7603 Rackmount Oscilloscope
Includes: In addition to the above, a rack-mounting hardware kit (016-0099-00).

OPTIONS

Option 01—Without CRT Readout.
Option 03—EMC Capability. Adds special shielding for protection to the instrument when operated in severe EMC environments.
Option 04—High-Brightness 8×10-cm CRT Display. GH (P31) Phosphor.
Option 05—Line-Frequency Change (50 to 400 Hz).
Option 06—With Internal Spectrum Analyzer Graticule.
Option 08 (7603)—Protective Panel Cover.
Option 13—Maximum Brightness 8×10-cm CRT Display with BE (P11) Phosphor.
Option 20—(R7603) IEEE Standard 488 Interface for the 7D20 only. (Deletes rear panel + sawtooth out, + gate out, and vert sig out.)
Option 76—GM (P7) Phosphor.
Option 77—GM (P7) Phosphor with Internal Spectrum Analyzer Graticule.
Option 78—BE (P11) Phosphor.

CONVERSION KITS

CRT Readout—
(7603) Order 040-0654-05
(R7603) Order 040-0674-05
EMC Capability—
(7603) Order 040-1000-00
(R7603) Order 040-0955-00
Power Supply—To Light Plug-in Pushbuttons. Order 040-0686-01
X-Y Horizontal Comp—
Order 040-0718-00

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.

FIELD-INSTALLED KITS

Field-Installable Option 20—
(R7603 only) Intended for use with a previously purchased R7603. This kit provides parts to connect the 7D20's IEEE Standard 488 Interface to the R7603 mainframe. Order 040-1093-01
International Power Plug Options—Five field installed kits are available. Contact your local Tektronix Sales Office for information.
A1—Universal Euro. Order 040-1094-01
A2—UK. Order 040-1095-01
A3—Australian. Order 040-1096-01
A4—North American. Order 040-1097-01
A5—Switzerland. Order 040-1098-01

OPTIONAL ACCESSORIES

Recommended Plug-Ins, Probes, and Cameras—See 7000-Series Reference section.
Recommended Carts—
K213 Option 12 (7603), K217 (R7603), see Instrument/Cart Compatibility chart in Accessories section.