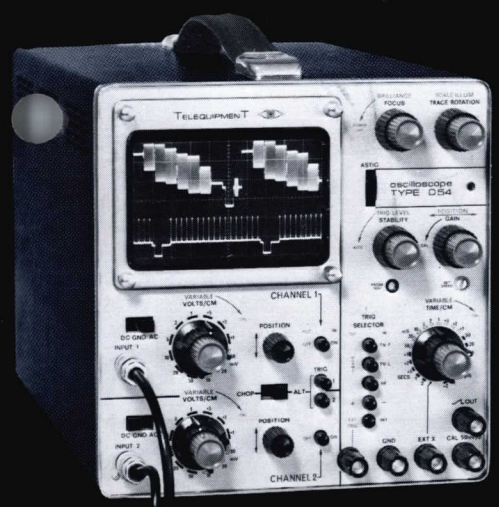


TELEQUIPMENT



oscilloscopes



CATALOG 4
DEC. 1969

General and Ordering Information

ORDERING

Telequipment products are manufactured in England. They are sold and serviced in the United States by Tektronix, Inc. Tektronix, Inc. maintains a warehouse inventory of Telequipment instruments, accessories and parts in Beaverton, Oregon. Orders should be placed with your Tektronix Field Engineering Office listed on the inside rear cover.

TERMS OF SALE

Tektronix, Inc. standard terms of sale are Net 30 days. Other credit terms are available for a customer's particular requirements. Credit accommodations and terms of sale are arranged through your Tektronix Field Engineer.

SHIPMENT

Normally all prices and quotations are FOB Beaverton, Oregon. Unless otherwise specified on your order, shipment will be made via most economical method. If a specific surface carrier is specified, shipment will be made at full valuation unless your order instructs differently. If air shipment is desired, air freight at full evaluation will be the method of shipment unless otherwise specified on the order.

MAINTENANCE

Sections of the manual provided with each Telequipment product describe circuit operation and adjustment. Your Tektronix Field Engineering Office will process all orders for Telequipment

parts. Tektronix has established Field Engineering Offices and service centers in cities listed on the inside rear cover. Please include instrument Type number, serial number, and all descriptive information contained in the manual when ordering spare parts. Please do not return instruments or parts before receiving instructions.

WARRANTY

All Telequipment instruments are warranted against defective materials and workmanship for one year. Any questions with respect to the warranty should be discussed with your Tektronix Field Engineer. Field Offices are listed on the inside rear cover.

Telequipment Ltd. is a wholly-owned subsidiary of Tektronix, Inc.

Home Office & Factory
Telequipment Limited
313 Chase Road
Southgate
London, N. 14

Information in this catalog supersedes all previously published material. Specification and price change privileges reserved.

© 1969, Tektronix, Inc. All Rights Reserved. Printed in U.S.A.

Brief Description of Non Plug-in Oscilloscopes

SINGLE-BEAM OSCILLOSCOPES

TYPE	Vertical Amplifier				Time Base		Horizontal Amplifier	CRT	Power Requirements	Price	Page
	Band-width	Min Defl Factor	Attenuation	RC	Range	Trigger					
S51B	DC-3 MHz	100 mV/cm	9 calibrated V/cm positions, freq compen attenuator, accuracy $\pm 5\%$	1 M Ω 47 pF	1 μ s/cm to 100 ms/cm in 6 calibrated steps, accuracy $\pm 5\%$, variable between steps	INT } \pm	DC-500 kHz, 100 mV/cm, 1 M Ω , 100 pF	8 cm x 10 cm 3 kV P31	Connected for 115 V, can be wired for operation at following voltages 90 120 220 100 130 225 105 200 230 110 210 240 115 215 50-400 Hz 58 VA	\$225	6
S51E Educa-tional version						EXT } TV } Auto or Trig Level					
S52 Equal XY	Equal X and Y Amplifiers				1 μ s/cm to 0.5 s/cm in 18 calibrated steps, accuracy $\pm 5\%$, variable between steps	INT } \pm	10 Hz to 400 kHz	10 cm x 10 cm 2.4 kV P31	Connected for 115 V, can be switched for operation at 100 to 125 V in 5-V steps or 200 to 250 V in 10-V steps, 50-400 Hz, 90 VA	\$490	7
	DC-3 MHz	100 mV/cm	9 calibrated V/cm positions, freq compen attenuator, accuracy $\pm 5\%$	1 M Ω 44 pF							
S54A*	DC-10 MHz	10 mV/cm	9 calibrated V/cm positions, freq compen attenuator, accuracy $\pm 5\%$, var atten	1 M Ω 47 pF	0.2 μ s/cm to 2 s/cm in 22 calibrated steps, accuracy $\pm 5\%$, variable between steps	INT } \pm	DC-1 MHz, 0.6-3 V/cm, 1 M Ω , 30 pF, 400 V max	6 cm x 10 cm 4 kV P31 Edge Lit Grati-cule	Connected for 115 V, can be switched for operation at 100 to 125 V in 5-V steps or 200-250-V in 10-V steps, 48-440 Hz, 24 VA†	\$435	8 & 9
				1 M Ω 40 pF							
S54U AC, DC Battery Powered				1 M Ω 47 pF					Will operate on 95 to 130 VAC or 190 to 260 VAC, 48 to 440 Hz, 34 VA. An external DC source of 11.5 to 30 V, 18 W, or internal recharge-able batteries	\$685	8 & 9

DOUBLE-BEAM OSCILLOSCOPES

TYPE	Vertical Amplifiers				Time Base		Horizontal Amplifier	CRT	Power Requirements	Price	Page
	Band-width	Min Defl Factor	Attenuation	RC	Range	Trigger					
D51	DC-6 MHz DC-2 MHz DC-3 MHz	100 mV/cm 10 mV/cm 100 mV/cm	9 calibrated V/cm positions, freq compen attenuator, accuracy $\pm 5\%$	1 M Ω 47 pF	1 μ s/cm to 100 ms/cm in 6 calibrated steps, accuracy $\pm 5\%$, variable between steps	INT Y ₁ } \pm INT Y ₂ } EXT } TV } Auto or Trig Level	DC-500 kHz, 100 mV/cm 1 M Ω , 100 pF	6 x 10 cm 3.5 kV P31 Double Beam ¹	Connected for 115 V, can be wired for operation at 90 to 130 V or 200 to 240 V in 5-V steps 50-400 Hz, 70 VA	\$345	10
D52	DC-6 MHz DC-1 MHz	100 mV/cm 10 mV/cm	9 calibrated V/cm positions, freq compen attenuator, accuracy $\pm 5\%$	1 M Ω 44 pF	1 μ s/cm to 0.5 s/cm in 18 calibrated steps, accuracy $\pm 5\%$, variable between steps	INT Y ₁ } \pm INT Y ₂ } EXT } TV } HF } Auto or Trig Level	10 Hz-400 kHz	6 x 10 cm 3.6 kV P31 Double Beam ¹	Same as S52	\$450	11

¹Single cathode with beam splitter to provide two electron beams that pass through a common set of horizontal plates and separate vertical deflection plates.

*Rackmount version also available.
†32 VA for D54.



SINGLE-BEAM MAIN FRAMES (Complete Characteristics on Page 14)

TYPE	CRT			Power Requirements	Time Base		Horizontal Amplifier	Price
	Area	kV	Type		Range	Trigger		
S43	5 x 8 cm	3.5 kV	P31 Edge Lit Graticule	Connected for 115 V, can be switched for operation at following voltages 90 200 100 210 105 215 110 220 115 225 120 230 130 240 50 to 400 Hz 100 VA	1 μ s/cm to 0.5 s/cm in 18 calibrated steps, accuracy $\pm 5\%$, vari- able between steps	INT } EXT } \pm TV } HF } Auto or Trig Level	10 Hz - 350 kHz 250 mV/cm - 2.5 V/cm 170 k Ω 30 pF	\$350
S43T					0.5 μ s/cm to 5 s/cm in 22 calibrated steps, accuracy $\pm 5\%$, vari- able between steps	INT } EXT } \pm TV } HF } Auto or Trig Level Single Shot with Lock Out	DC - 500 kHz 100 mV/cm- 1 V/cm 1 M Ω 30 pF	\$385

DOUBLE-BEAM MAIN FRAMES (Complete Characteristics on Pages 15 & 16)

TYPE	CRT			Power Requirements	Time Base		Horizontal Amplifier	Price				
	Area	kV	Type		Range	Trigger						
D43	6 x 8 cm 4 cm overlap	4 kV	P31 Edge Lit Graticule	Connected for 115 V, can be switched for operation at following voltages 90 200 100 210 105 215 110 220 115 225 120 230 130 240 50 to 400 Hz 132 VA	1 μ s/cm to 0.5 s/cm in 18 calibrated steps, accuracy $\pm 5\%$, vari- able between steps	Int Y ₁ } Int Y ₂ } \pm Ext } TV } HF } Auto or Trig Level	10 Hz - 350 kHz 250 mV/cm- 2.5 V/cm 170 k Ω 30 pF	\$390				
D43R 7" Rack- mount 19" Wide										\$410		
D43T									0.5 μ s/cm to 5 s/cm in 22 calibrated steps, accuracy $\pm 5\%$, vari- able between steps	Int Y ₁ } Int Y ₂ } \pm Ext } TV } HF } Auto or Trig Level Single Shot with Sweep Lockout	DC - 500 kHz 100 mV/cm - 1 V/cm 1 M Ω 30 pF	\$425
D43RT 7" Rack- mount 19" Wide										\$445		
D53A	8 x 10 cm	9 kV	Double- beam ² P31 Edge Lit Graticule	Connected for 115 V, can be switched for operation at 100 to 125 V in 5-V steps or 200 to 250 V in 10-V steps, 50- 400 Hz, 200 VA	0.5 μ s/cm to 5 s/cm in 22 calibrated steps, accuracy $\pm 5\%$, vari- able between steps, sweep delay ranges 250 μ s to 5 ms and 2.5 ms to 50 ms	Int Y ₁ } Int Y ₂ } \pm Ext } TV } HF } DC } Line } Auto or Trig Level Single Shot	DC - 1 MHz 500 mV/cm - 5 V/cm 1 M Ω 30 pF	\$775				

¹Dual cathode with common horizontal deflection plates and separate vertical deflection plates.

²Single cathode with beam splitter to provide two electron beams that pass through a common set of horizontal plates and separate vertical deflection plates.

PLUG-IN OSCILLOSCOPES

PLUG-IN VERTICAL AMPLIFIERS

One Plug-In Vertical Amplifier used in Single-Beam Main Frames

Type A General Purpose	Type B Differential	Type C-2 High Gain	Type G Differential	Type J Wide Band	Type JD Wide Band
↑	↑	↑	↑	↑	↑ Use only with Type D53A

Two Plug-In Vertical Amplifiers used in Double-Beam Main Frames

<p>DC to 15 MHz at 100 mV/cm, DC to 800 kHz at 10 mV/cm, 9 calibrated V/cm positions, accuracy $\pm 5\%$, 1 MΩ, 40 pF. \$85 See page 17</p> <p style="text-align: center;">↓</p>	<p>DC to 75 kHz at 1 mV/cm, Max CMRR is 10,000:1 at 1 kHz 12 calibrated V/cm positions, accuracy $\pm 5\%$, 1 MΩ, 40 pF. \$135 See page 17</p> <p style="text-align: center;">↓</p>	<p>DC to 15 MHz at 100 mV/cm, DC to 800 kHz at 10 mV/cm, 3 Hz to 100 kHz at 100 μV/cm, approx 30-μV hum & noise, 9 calibrated V/cm positions, accuracy $\pm 5\%$, 1 MΩ, 40 pF. \$125 See page 17</p> <p style="text-align: center;">↓</p>	<p>DC to 10 MHz at 20 mV/cm, DC to 500 kHz at 2 mV/cm, Max CMRR is 1,000:1 at 1 MHz 9 calibrated V/cm positions, accuracy $\pm 5\%$, 1 MΩ, 40 pF. \$125 See page 18</p> <p style="text-align: center;">↓</p>	<p>DC to 25 MHz (100 mV to 50 V/cm), DC to 5 MHz (10 mV to 5 V/cm), 3 Hz to 100 kHz (100 μV to 500 mV/cm), 9 calibrated V/cm positions ($\pm 5\%$), plus X10 and AC X100 gain increase, high (1 MΩ) and low (100 Ω) impedance inputs. \$135 See page 18</p> <p style="text-align: center;">↓</p>	<p style="text-align: center;">↓</p>
					<p>Similar to J Unit except it has 0.2- μs signal delay included in plug-in unit and is DC to 10 MHz at 10 mV/cm. \$140</p>



S51B

DC-3 MHz Bandwidth

**Versatile Triggering
Including TV Field**

8 cm x 10 cm Viewing Area

Flat-Face CRT

Small Size & Light Weight

DC Coupled Horizontal Amplifier

General Description and Characteristics

Vertical Amplifier

Bandwidth—DC to 3 MHz (approx 3-dB down) with DC coupling, 2 Hz to 3 MHz with AC coupling.
Deflection Factor—100 mV/cm to 50 V/cm in 9 calibrated steps (1-2-5 sequence), accurate within 5%.
Overshoot—Less than 2%.
Input RC—1 megohm paralleled by approx 47 pF.
Maximum Deflection—8 cm.

Horizontal Amplifier

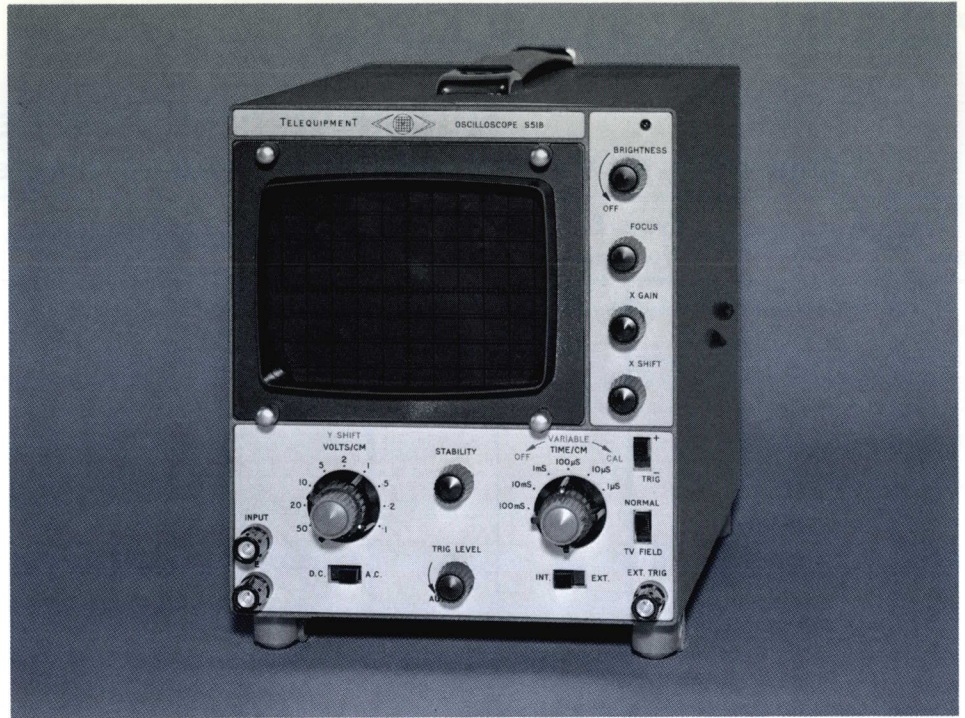
Deflection Factor—Uncalibrated, continuously variable, approx 100 mV/cm at mid-position, range approx 2:1.
Bandwidth—DC to 500 kHz (approx 3-dB down).
Input RC—1 megohm paralleled by approx 100 pF.
Horizontal Positioning—Positions any portion of expanded trace on screen.

Time Base

Sweep Rates—1 μ s/cm to 100 ms/cm in 6 calibrated steps (1-10 sequence).
Uncalibrated, continuously variable between steps and to approx 1 s/cm.
Horizontal Expansion—Approx X2, continuously variable.
Time Measurement Accuracy—Within $\pm 5\%$ over center 8 cm ($\pm 10\%$ over first and last 2 cm in 1 μ s/cm range).
DC Coupled Unblinking.

Triggering

Automatic—Sweep free runs at a slow speed but triggers on any signal up to approx 1 MHz.
Trigger level selection—Triggering occurs at any level on the input waveform.



TV Field—Triggering occurs from the field pulses of a composite television signal.
Slope—Plus or minus.
Source—Internal or external.
Sensitivity—5 mm of signal internally, 3 V peak to peak externally.
External Trigger Input Impedance—1 megohm paralleled by approx 30 pF.

Cathode-Ray Tube

5-inch flat-faced CRT operating at 3-kV accelerating potential. Viewing area 8 cm vertical by 10 cm horizontal. P31 phosphor normally supplied, P7 optional. A detachable green filter improves contrast under high ambient light conditions.

Rear Connectors

Sweep Output—Approx 20 V peak to peak at a DC level of approx 30 V.
Horizontal Amplifier Input.
Z-axis Modulation to Cathode of CRT (0.01 μ F and 1 megohm).

Power Requirements

Wired for 115 V or 240-V operation. For best performance, transformer taps should be soldered to the voltage terminals most nearly corresponding to line voltage. Voltage terminals are 90, 100, 105, 110, 115, 120, 130, 200, 210, 215, 220, 225, 230, 240 V. 50 to 400 Hz line frequency range, 58 VA.

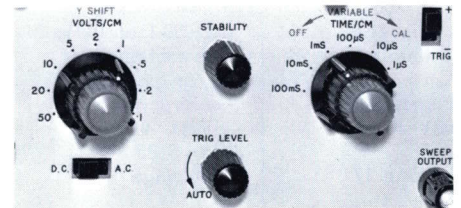
Convection Cooling

Dimensions and Weights

Height	8 in	20.3 cm
Width	7 in	17.8 cm
Depth	15 in	38.1 cm
Net weight	16 lb	7.3 kg
Shipping weight	22 lb	10.0 kg

S51E

**DC-3 MHz Bandwidth
Simplified Triggering**



The S51E is a simplified educational version of the S51B, in which the NORMAL/TV Field switch and the INT/EXT trigger source are deleted, providing just an internal trigger source. A front-panel SWEEP OUTPUT terminal replaces the EXT TRIG terminal on the S51B. Other characteristics are identical in both oscilloscopes.

Included Standard Accessories

Instruction manual (070-0792-00);
test leads (012-0129-00).

Type S51B, order TLS51B . \$225

Type S51E, order TLS51E . \$225

Optional Accessories

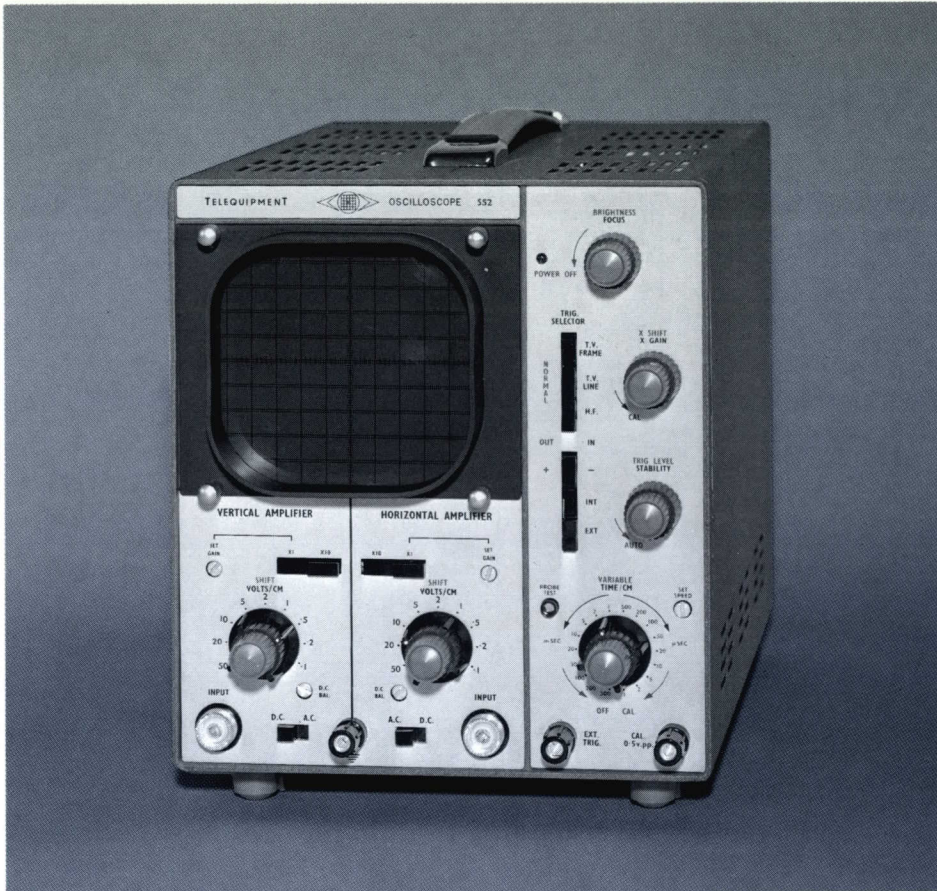
10X Passive Probe, UHF,
order 010-0234-00 \$ 9.50

Coaxial Adapter,
order 103-0085-00 2.25

Viewing Hood,
order 016-0251-00 12.75

U.S. Sales Prices FOB Beaverton, Oregon

- Matched X and Y Amplifiers**
- DC-3 MHz Bandwidth**
- Versatile Triggering Including TV Line and Frame**
- 10 cm x 10 cm Viewing Area**
- Flat-Face CRT**
- 5% Timing Accuracy**



General Description and Characteristics

Vertical and Horizontal Amplifiers

Bandwidth—DC to 3 MHz (approx 3-dB down) in 100 mV/cm to 5 V/cm range (X1). DC to 1 MHz (approx 3-dB down) in 10 mV/cm to 5 V/cm range (X10). Input can be AC or DC coupled.

Deflection Factor—100 mV/cm to 50 V/cm or 10 mV/cm to 5 V/cm in 9 calibrated steps (1-2-5 sequence), accurate within 5%. Front-panel control selects (X1 or X10) appropriate range.

Overshoot—Less than 2%.

Phase Difference in X-Y Mode— $\leq 1^\circ$ at 2 MHz for 100 mV/cm to 50 V/cm (X1), $\leq 1^\circ$ at 10 kHz for 10 mV/cm to 5 V/cm (X10).

Input RC—1 megohm paralleled by approx 44 pF.

Maximum Deflection—10 cm.

Time Base

Sweep Rates—1 μ s/cm to 500 ms/cm in 18 calibrated steps (1-2-5 sequence), accurate within 5%. Uncalibrated, continuously variable between steps.

Horizontal Expansion—Approx X10, continuously variable. Trace expands symmetrically from center of screen.

Any portion of expanded trace positionable on screen.

Sweep Amplifier Bandwidth—10 Hz to 400 kHz (approx 3-dB down).

Triggering

Automatic—Sweep free runs at a low speed in the absence of a signal but triggers on any signal up to approx 1 MHz.

Trigger Level Selection—Triggering occurs at any level on the input waveform.

High Frequency Sync—1 MHz to 10 MHz synchronization.

TV frame or line.

Slope—Plus or minus.

Sources—Internal or external.

Cathode-Ray Tube

5-inch flat-faced CRT operating at 2.4-kV accelerating potential. Viewing area 10 cm vertical by 10 cm horizontal. P31 phosphor normally supplied, P7 optional. A detachable green filter improves contrast under high ambient light conditions.

Voltage Calibrator

Line frequency square wave, 0.5 V $\pm 2\%$ peak to peak.

Rear Connectors

Sweep output, Z-axis modulation to CRT, horizontal amplifier input.

Power Requirements

For best performance, rear-panel quick-change connections to the transformer taps should be set to the voltage settings most nearly corresponding to the actual line voltage. Voltage settings are 100, 105, 110, 115, 120, 125, 200, 210, 220, 230, 240, 250 V. 50 to 400 Hz line frequency, 90 VA.

Convection Cooling

Dimensions and Weights

Height	9 1/4 in	23.4 cm
Width	8 1/2 in	20.6 cm
Depth	15 in	38.1 cm
Net weight	24 lb	10.9 kg
Shipping weight	31 lb	14.1 kg

Included Standard Accessories

Instruction manual (070-0793-00); two UHF adapters (103-0091-00); two UHF coax connectors (131-0647-00).

Type S52, order TLS52 .. \$490

Optional Probe

10X Passive Probe, UHF, order 010-0234-00 \$ 9.50

Viewing Hood, order 016-0251-00 12.75

U.S. Sales Prices FOB Beaverton, Oregon



S54A/S54U

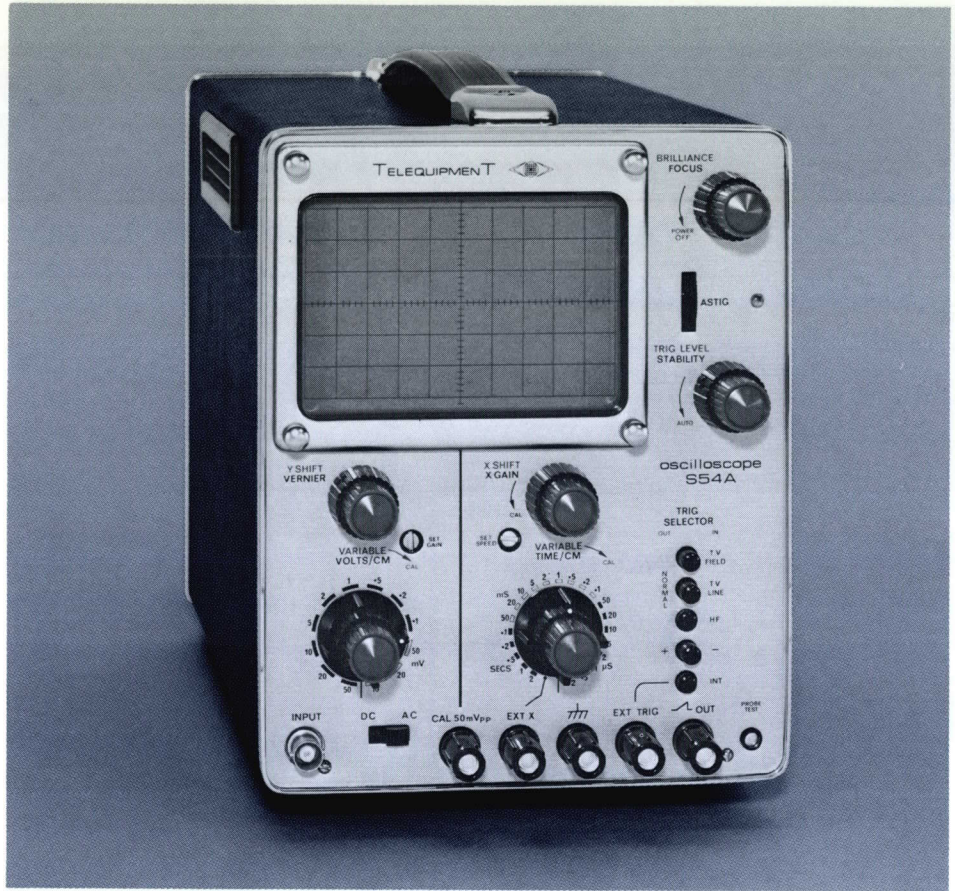
All Solid-State Design

FET Input

DC-to-10 MHz Bandwidth
at 10 mV/cm

Triggered Sweep

Flat-Face Rectangular CRT
with 6 x 10-cm Illuminated
Graticule



TYPE S54A AC POWERED

The S54 Series represents a new standard of performance for low-priced oscilloscopes. Features which serve to make the oscilloscopes a true measurement device, such as wide bandwidth, calibrated vertical and horizontal step attenuators and triggered sweep operation, are incorporated through solid-state circuitry. Other features, such as variable controls, probe calibration outputs, illuminated graticule and TV field or line triggering, make the instrument easier to use and more versatile.

The Type S54A and S54AR operate from the AC line, the Type S54U operates from internal batteries, an external DC source, or from the AC line.

A dual-trace version of the Type S54A is also available, see the Type D54 on page 12.



TYPE S54U
AC, DC, BATTERY POWERED



The Type S54AR is a rackmount version of the Type S54A. It is electrically identical to the bench model, but mechanically designed to require only 5 1/4 inches of rack height in a standard 19-inch rack.

General Description and Characteristics

VERTICAL AMPLIFIER

Bandwidth and Risetime

DC to 10 MHz (approx 3-dB down), 35-ns risetime.

Input can be AC or DC coupled. \approx 2-Hz low frequency 3-dB point when AC coupled.

Deflection Factor

10 mV/cm to 50 V/cm in 12 calibrated steps (1-2-5 sequence), accurate within 5%. Uncalibrated, continuously variable between steps and to approx 125 V/cm.

Maximum Deflection

6 cm up to 5 MHz, decreasing to 3 cm at 10 MHz.

Input RC

1 megohm paralleled by approx 47 pF.

Maximum Input Voltage

400 V DC plus peak AC.

TIME BASE

Sweep Rates

200 ns/cm to 2 s/cm in 22 calibrated steps (1-2-5 sequence) accurate within 5%. Uncalibrated, continuously variable between steps and to approx 5 s/cm.

Horizontal Expansion

Uncalibrated to approx X5, increasing max sweep to \approx 40 ns/cm.

Horizontal Amplifier

DC to 1 MHz (approx 3-dB down) 0.6 V/cm-to-3 V/cm deflection factor. Input impedance 1 megohm paralleled by approx 30 pF. 400 V DC + peak AC.

TRIGGERING

Automatic

Triggers over a frequency range of approx 50 Hz to 1 MHz.

Trigger Level Selection

Triggering occurs at any level on the input waveform over a frequency range of approx 10 Hz to 4 MHz.

High Frequency Sync

Synchronizes the sweep over a frequency range of approx 1 MHz to at least 10 MHz.

TV

Triggers on TV field or line.

Slope

Plus or minus.

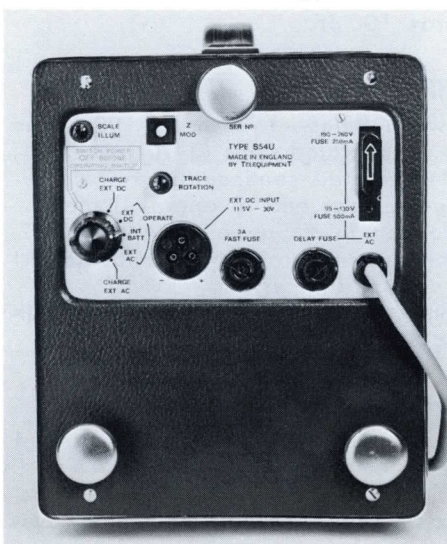
Requirements

Internal, 2-mm deflection to 1 MHz, increasing to 1-cm at 4 MHz. External, 1.5 V peak to peak up to 15 V peak to peak. Input impedance 100 k Ω paralleled by approx 10 pF.

POWER OPTIONS

Type S54A and S54AR

100 to 125 VAC in 5-V steps or 200 to 250 VAC in 10-V steps, 48 to 440 Hz, approx 24 VA. Rear-panel quick-change transformer tap connections should be set to most nearly correspond with the actual line voltage.



Type S54U

Internal NiCd batteries provide 3 hours operation (30 hours operation in standby mode). Batteries can be recharged in 14 hours from an external DC or AC source.

An external DC source of 11.5 to 30 V can be used. Power consumption is 2.5 to 3.75 W for standby, 18 W maximum for operation or maximum recharge.

An external AC source of 95 to 130 VAC or 190 to 260 VAC, 48 to 440 Hz can be used. Power consumption is 7 to 12 VA for standby, 34 VA maximum for operation or maximum recharge.

OTHER CHARACTERISTICS

Cathode-Ray Tube

5-inch flat-faced rectangular CRT operating at 4-kV accelerating potential. Viewing area 6 cm vertical by 10 cm horizontal. P31 phosphor normally supplied, P7 and P11 optional. Z-axis modulation to grid of CRT requires approx 20 V. Variable-intensity illuminated graticule (when operated from AC line).

Voltage Calibrator

Line-frequency squarewave, 50 mV P-P accurate within 2%.

Front Panel Outputs

Sawtooth Out—1-35 V DC coupled, 30-k Ω minimum load.

Probe test—approx 0.5 V.

Convection Cooling

Dimensions and Weights

S54A	Height	9 1/4 in	23.5 cm
	Width	6 3/4 in	17.2 cm
	Depth	16 1/2 in	41.9 cm
	Net weight	17 lb	8.0 kg
S54AR	Height	5 1/4 in	13.3 cm
	Width	19 in	48.3 cm
	Depth	17 1/2 in	44.5 cm
	Net weight	22 lb	10.0 kg
S54U	Height	9 1/4 in	23.5 cm
	Width	6 3/4 in	17.2 cm
	Depth	18 in	45.7 cm
	Net weight	25 lb	11.3 kg

Included Accessories for S54A

Instruction manual (070-0962-00); coax BNC connector (131-0649-00).

Type S54A, order TLS54A . \$435

Included Accessories for S54U

Instruction manual (070-0951-00); coax BNC connector (131-0649-00); DC input plug (134-0113-00).

Type S54U including batteries, order TLS54U \$685

Included Accessories for S54AR

Instruction manual (070-0962-00); two coax BNC connectors (131-0649-00).

Type S54AR, order TLS54AR \$470

Optional BNC Probe

10X Passive Probe BNC, order 010-0233-00 \$9.50

U.S. Sales Prices FOB Beaverton, Oregon

D51

Dual Beam

DC-6 MHz Bandwidth (Ch 1)

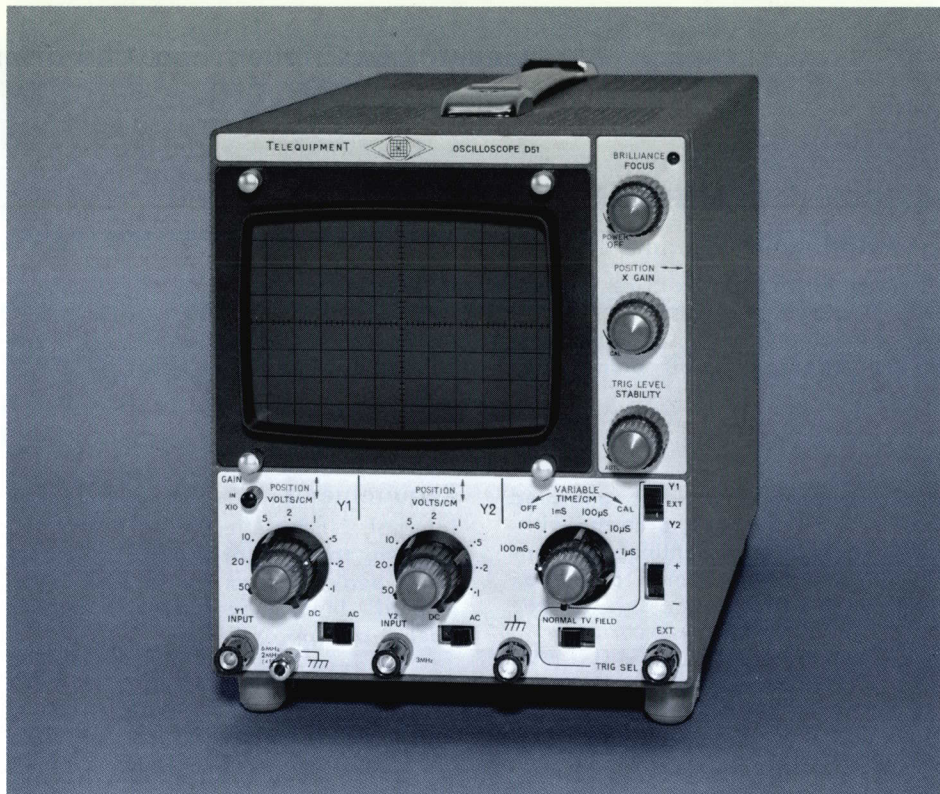
DC-3 MHz Bandwidth (Ch 2)

**Versatile Triggering
Including TV Field**

6 x 10 cm Viewing Area

Flat-Face CRT

DC Coupled Horizontal Amplifier



General Description and Characteristics

Channel 1 Vertical Amplifier

Bandwidth—DC to 6 MHz (approx 3-dB down) with DC coupling, 2 Hz to 6 MHz with AC coupling.

Deflection Factor—100 mV/cm to 50 V/cm in 9 calibrated steps (1-2-5 sequence), accurate within 5%. Front-panel control selects X10 gain for deflection factors from 10 mV/cm to 5 V/cm at DC-to-2 MHz bandwidth (approx 3-dB down).

Input RC—1 megohm paralleled by approx 47 pF.

Maximum Input Voltage—400 V (DC + peak AC).

Maximum Deflection—6 cm for each trace.

Channel 2 Vertical Amplifier

Bandwidth—DC to 3 MHz (approx 3-dB down) with DC coupling, 2 Hz to 3 MHz with AC coupling.

Deflection Factor—100 mV/cm to 50 V/cm in 9 calibrated steps (1-2-5 sequence), accurate within 5%.

Input RC—1 megohm paralleled by approx 47 pF.

Maximum Input Voltage—400 V (DC + peak AC).

Maximum Deflection—6 cm for each trace.

Horizontal Amplifier

Bandwidth—DC to 500 kHz (approx 3-dB down).

Deflection Factor—approx 100 mV/cm.

Input RC—1 megohm paralleled by approx 100 pF.

Time Base

Sweep Rates—1 μ s/cm to 100 ms/cm in 6 calibrated steps (1-10 sequence). Uncalibrated, continuously variable between steps and to approx 1 s/cm.

Horizontal Expansion—Approx X2, continuously variable, extends fastest sweep to 0.75 μ s/cm.

Time Measurement Accuracy—Within $\pm 5\%$ over center 8 cm.

Triggering

Automatic—Repetitive signals up to 1 MHz.

Trigger Level Selection—Triggering occurs at any level on the input waveform.

TV Field.

Slope—Plus or minus.

Sources—Internal from either amplifier, or external.

Cathode-Ray Tube

5-inch flat-faced CRT operating at 3.5 kV accelerating potential, single gun with beam splitter forms 2 electron beams, common horizontal deflection plates. Viewing area 6 cm vertical by 10 cm horizontal. P31 phosphor normally supplied, P7 optional. Detachable filters improve contrast under high ambient light conditions.

Rear Connectors

Sweep Output—Z-axis modulation to CRT, horizontal amplifier input, ground.

Power Requirements

For best performance, connections to the transformer taps should correspond as closely as possible to the actual line voltage. Voltage terminals are 90, 95, 100, 105, 110, 115, 120, 125, 130, 200, 205, 210, 215, 220, 225, 230, 235, 240 V. 50 to 400-Hz line frequency range, 70 VA.

Convection Cooling

Dimensions and Weights

Height	9 in	23 cm
Width	7 in	18 cm
Depth	18 in	45 cm
Net Weight	20 lb	9.1 kg

Included Standard Accessories

Instruction manual (070-0993-00); test leads (012-0168-00).

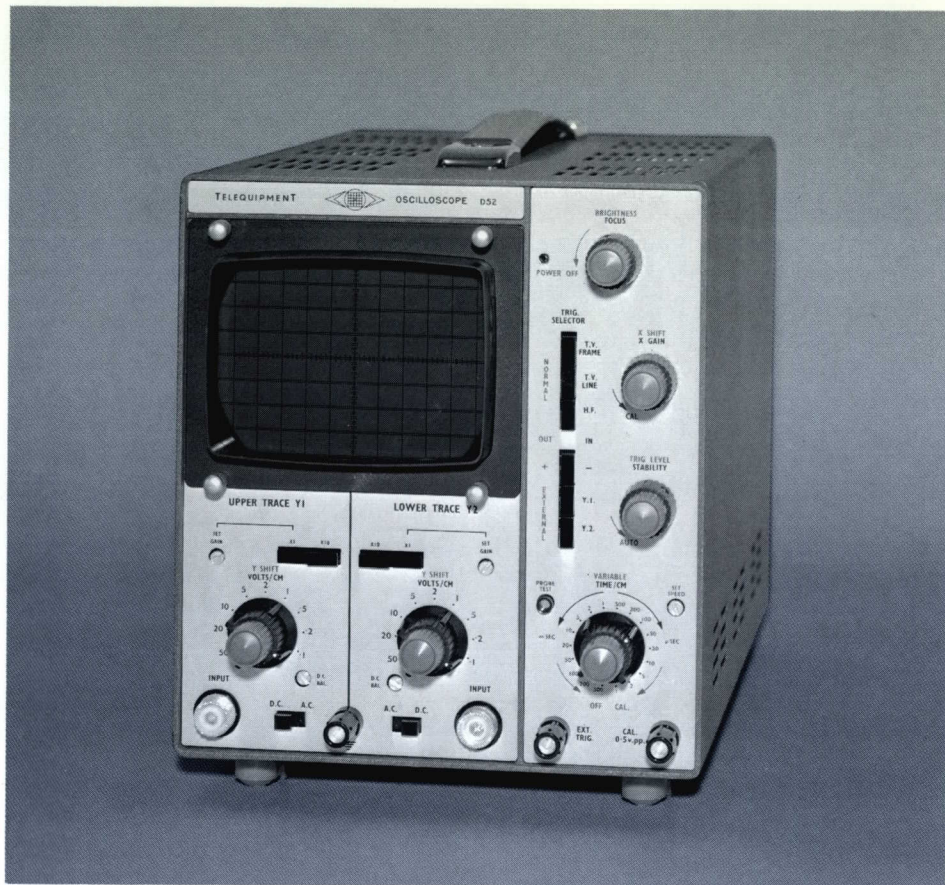
Type D51, order TLD51 . . \$345

Optional Accessories

10X Passive Probe, UHF, order 010-0234-00	\$ 9.50
Coaxial Adapter, order 103-0085-00	2.25
Viewing Hood, order 016-0251-00	12.75

U.S. Sales Prices FOB Beaverton, Oregon

D52



- Double Beams**
- DC-6 MHz Bandwidth**
- 6 cm x 10 cm Viewing Area**
- Flat-Face CRT**
- Versatile Triggering Including TV Line and Frame**
- 5% Timing Accuracy**
- Twin 10 mV (At 1 MHz) Vertical Amplifiers**

General Description and Characteristics

Vertical Amplifiers

Bandwidth—DC to 6 MHz (approx 3-dB down) in 100 mV/cm to 50 V/cm range (X1). DC to 1 MHz (approx 3-dB down) in 10 mV/cm to 5 V/cm range (X10). Input can be AC or DC coupled.

Deflection Factor—100 mV/cm to 50 V/cm or 10 mV/cm to 5 V/cm in 9 calibrated steps (1-2-5 sequence), accurate within 5%. Front panel control selects (X1 or X10) appropriate range.

Overshoot—Less than 2%.

Input RC—1 megohm paralleled by approx 44 pF.

Maximum Deflection—6 cm for each trace.

Time Base

Sweep Rates—1 μs/cm to 500 ms/cm in 18 calibrated steps (1-2-5 sequence), accurate within 5%. Uncalibrated, continuously variable between steps.

Horizontal Expansion—Approx X10, continuously variable. Trace expands symmetrically from center of screen. Any portion of expanded trace positionable on screen.

Amplifier Bandwidth—10 Hz to 400 kHz (approx 3-dB down).

Triggering

Automatic—Sweep free runs at a low speed in the absence of a signal but triggers on any signal up to approx 1 MHz.

Trigger Level Selection—Triggering occurs at any level on the input waveform.

High Frequency Sync—1 MHz to 10 MHz synchronization.

TV frame or line.

Slope—Plus or minus.

Sources—Internal from either vertical amplifier or external.

Cathode-Ray Tube

5-inch flat-faced CRT operating at 3.6-kV accelerating potential, single gun with beam splitter plate forms 2 electron beams, common horizontal deflection plates, separate vertical deflection plates. Viewing area 6 cm vertical by 10 cm horizontal. P31 phosphor normally supplied, P7 optional. A detachable green filter improves contrast under high ambient light conditions.

Voltage Calibrator

Line frequency square wave, 0.5 V ± 2%, peak to peak.

Rear Connectors

Sweep output, Z-axis modulation to CRT, horizontal amplifier input.

Power Requirements

For best performance, rear-panel quick-change connections to the transformer taps should be set to the voltage settings most nearly corresponding to the actual line voltage. Voltage settings are 100, 105, 110, 115, 120, 125, 200, 210, 220, 230, 240, 250 V. 50 to 400 Hz line frequency, 90 VA.

Convection Cooling

Dimensions and Weights

Height	9 1/4 in	23.4 cm
Width	8 1/2 in	20.6 cm
Depth	15 in	38.1 cm
Net weight	24 lb	10.9 kg
Shipping weight	31 lb	14.1 kg

Included Standard Accessories

Instruction manual (070-0793-00); two UHF coax adapters (103-0091-00); two UHF coax connectors (131-0647-00).

Type D52, order TLD52 . . . \$450

Optional Probe

10X Passive Probe, UHF, order 010-0234-00 \$ 9.50

Viewing Hood, order 016-0251-00 12.75

U.S. Sales Prices FOB Beaverton, Oregon



D54

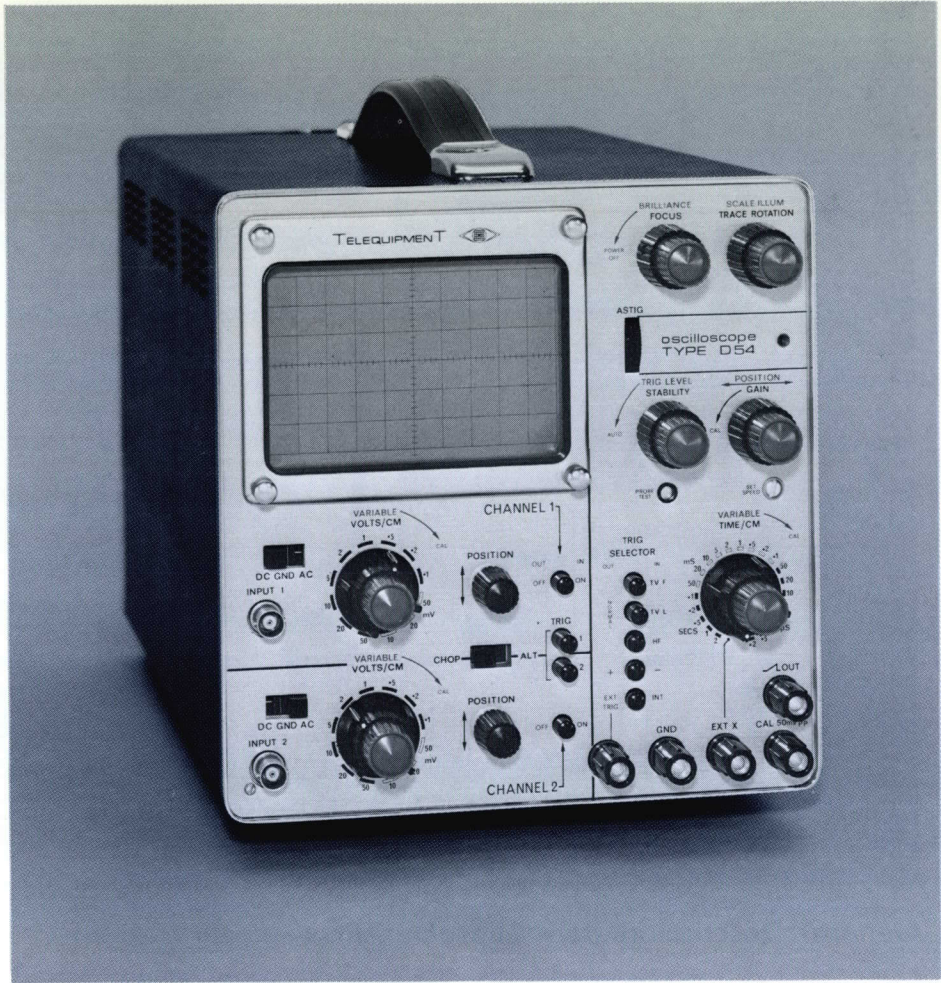
All Solid-State Design

Dual Trace, FET Inputs

DC-to-10 MHz Bandwidth
at 10 mV/cm

Triggered Sweep

Flat-Face Rectangular CRT
with 6 x 10-cm Illuminated
Graticule



FOUR DISPLAY MODES

Channel 1 only, Channel 2 only, chopped or alternate electronic switching between channels. Alternate: channels switched at the end of each trace during sweep retrace time. Chopped: successive 5- μ s segments of each channel displayed at an approximate 100-kHz rate per channel. A switch permits selection of either channel 1 or channel 2 as the trigger source.



VERTICAL AMPLIFIER

Bandwidth and Risetime

DC to 10 MHz (approx 3-dB down),
35-ns risetime.

Input can be AC or DC coupled. \approx 2-Hz low frequency 3-dB point when AC coupled.

Deflection Factor

10 mV/cm to 50 V/cm in 12 calibrated steps (1-2-5 sequence), accurate within 5%. Uncalibrated, continuously variable between steps and to approx 125 V/cm.

Maximum Deflection

6 cm up to 5 MHz, decreasing to 3 cm at 10 MHz.

Input RC

1 megohm paralleled by approx 40 pF.

Maximum Input Voltage

400 V DC plus peak AC.

TIME BASE

Sweep Rates

200 ns/cm to 2 s/cm in 22 calibrated steps (1-2-5 sequence) accurate within 5%. Uncalibrated, continuously variable between steps and to approx 5 s/cm.

Horizontal Expansion

Uncalibrated to approx X5, increasing max sweep to ≈ 40 ns/cm.

Horizontal Amplifier

DC to 1 MHz (approx 3-dB down) 0.6 V/cm-to-3 V/cm deflection factor. Input impedance 1 megohm paralleled by approx 30 pF. 400 V DC + peak AC.

TRIGGERING

Automatic

Triggers over a frequency range of approx 50 Hz to 1 MHz.

Trigger Level Selection

Triggering occurs at any level on the input waveform over a frequency range of approx 10 Hz to 4 MHz.

High Frequency Sync

Synchronizes the sweep over a frequency range of approx 1 MHz to at least 10 MHz.

TV

Triggers on TV field or line.

Slope

Plus or minus.

Requirements

Internal, 2-mm deflection to 1 MHz, increasing to 1-cm at 4 MHz. External, 1.5 V peak to peak up to 15 V peak to peak. Input impedance 100 k Ω paralleled by approx 10 pF.

OTHER CHARACTERISTICS

Cathode-Ray Tube

5-inch flat-faced rectangular CRT operating at 4-kV accelerating potential. Viewing area 6 cm vertical by 10 cm horizontal. P31 phosphor normally supplied, P7 and P11 optional. Z-axis modulation to grid of CRT requires approx 20 V. Variable-intensity illuminated graticule.

Voltage Calibrator

Line-frequency squarewave, 50 mV P-P accurate within 2%.

Front Panel Outputs

Sawtooth Out—1-35 V DC coupled, 30-k Ω minimum load. Probe test—approx 0.5 V.

Power Requirements

For best performance rear-panel quick-change connections to the transformer taps should be set to the voltage settings most nearly corresponding to the actual line voltage. Voltage settings are 100, 105, 110, 115, 120, 125, 200, 210, 220 230 240 250 V. 48-to-440 Hz line frequency, 32 VA.

Convection Cooling

Dimensions and Weights

Height	9 3/4 in	24.7 cm
Width	8 1/4 in	21.0 cm
Depth	17 1/2 in	44.5 cm
Net weight	20 lb	9.1 kg
Shipping weight	27 lb	12.2 kg

Included Standard Accessories

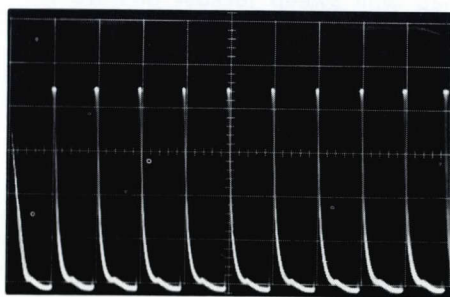
Instruction manual (070-0989-00); two coax BNC connectors (131-0649-00).

Type D54, order TLD54 . . . \$550

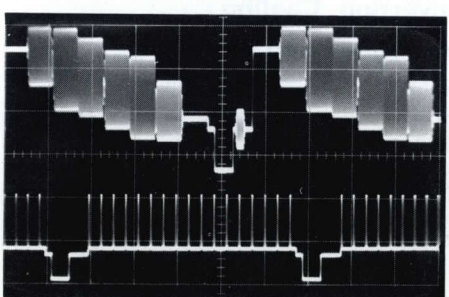
Optional BNC Probe

10X Passive Probe BNC, order 010-0233-00 \$9.50

U.S. Sales Prices FOB Beaverton, Oregon



1 μ s markers from a time mark generator clearly show the sweep to be linear, even at fast TIME/CM settings.

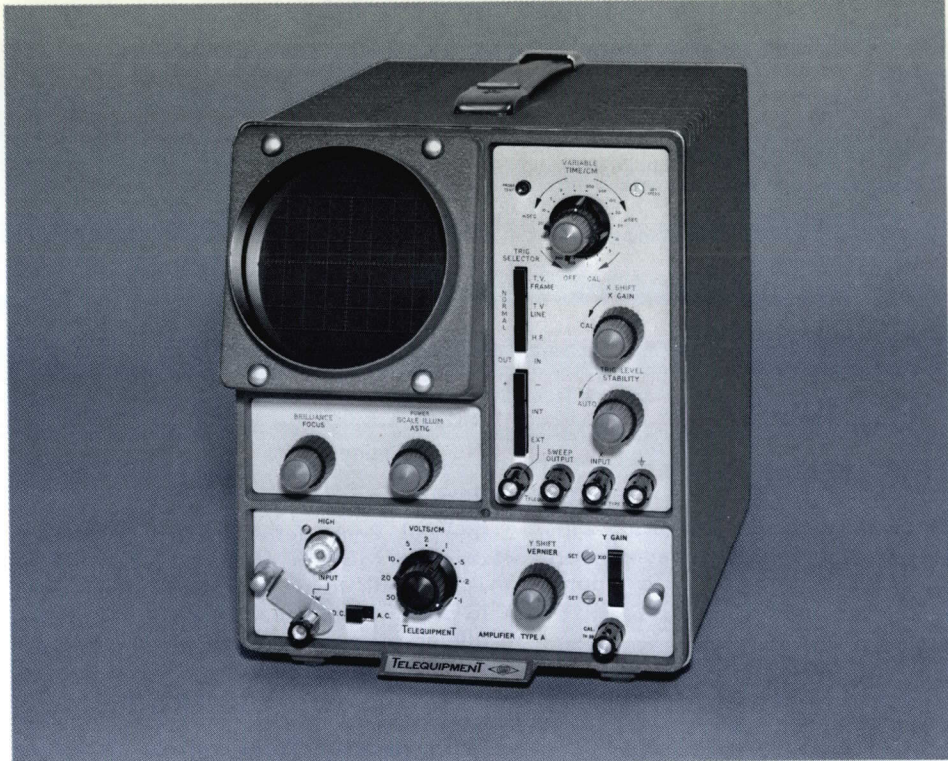


TV field or line triggering allows viewing of complex video waveforms.



Dual-trace capability makes most measurements easier; pulse circuit analysis is but one application.

S43
DC-25 MHz Bandwidth
Plug-In Versatility
5 cm x 8 cm Display Area
Flat-Face CRT
Versatile Triggering Including TV Line and Frame



General Description and Characteristics

Type S43 Oscilloscope with Type TS41 Time Base Unit Vertical Amplifier

Interchangeable Plug-In Units—Five amplifier units are available for a variety of applications. See pages 17 and 18.

Horizontal Amplifier
 Deflection Factor—Uncalibrated, continuously variable from 250 mV/cm to 2.5 V/cm. 1 to 25 V input voltage.

Bandwidth—10 Hz to 350 kHz (approx 3-dB down).
 Input RC—170 kilohm paralleled by approx 30 pF.

Horizontal Expansion—Uncalibrated, continuously variable gain control magnifies horizontal axis up to approx 10 screen diameters, symmetrically about center of screen. Any portion of expanded trace positionable on screen.

Standard Time Base—Type TS41
 Sweep Rates—1 μ s/cm to 0.5 s/cm in 18 calibrated steps (1-2-5 sequence), accurate within 5%. Uncalibrated, continuously variable between steps.

Triggering
 Automatic—Sweep free runs at approx 40 Hz in absence of an input signal but triggers internal on 5 mm of deflection or 0.5 V external between 50 Hz and 1 MHz.

Trigger Level Selection—Triggering occurs at any level on the waveform.
 HF Sync—Synchronizes to input signals from 1 MHz to 12 MHz.

Triggers at TV frame or line rates.
 Sources—Internal, external.
 Slope—Plus or minus.

Cathode-Ray Tube
 4-inch flat-faced CRT operating at 3.5 kV accelerating potential. Viewing area 5 cm vertical by 8 cm horizontal. P31 phosphor normally supplied. Variable illuminated graticule.

Voltage Calibrator
 Line Frequency square wave, 1 V \pm 2% peak to peak.

Power Requirements
 For best performance, rear-panel quick-change connections to the transformer taps should be set to the voltage setting most nearly corresponding to the actual line voltage. Voltage settings are 90, 100, 105, 110, 115, 120, 130, 200, 210, 215, 220, 225, 230, 240 V. 50 to 400 Hz line frequency, 100 VA.

Convection Cooling
Dimensions and Weights

Height	10 1/2 in	26.7 cm
Width	8 1/4 in	21.0 cm
Depth	19 in	48.0 cm
Net weight	28 lb	12.7 kg
Shipping weight	34 lb	15.4 kg

Included Standard Accessory
 Instruction manual (070-0952-00).

Type S43 Oscilloscope with Type TS41 Time Base Unit, order TLS43 \$350

Type S43 Oscilloscope with Type TS42 Time Base Unit

An optional time base for the Type S43 Oscilloscope provides wider ranges of sweep rates, improved horizontal amplifier performance, and facilities for single sweeps. All other characteristics remain as described with the standard time base.

Time Base
 Sweep Rates—0.5 μ s/cm to 5 s/cm in 22 calibrated steps (1-2-5 sequence), accurate within 5%. Uncalibrated, continuously variable between steps.

Horizontal Amplifier
 Deflection Factor—Uncalibrated, continuously variable from 100 mV/cm to 1 V/cm.

Bandwidth—DC to 500 kHz (approx 3-dB down).

Triggering
 Same as TS41 with addition of single sweep with sweep lockout and front-panel indicator of armed trigger.

Type S43 Oscilloscope with Type TS42 Time Base unit, order TLS43T \$385

Optional Accessories
 10X Passive Probe, UHF, order 010-0234-00 \$ 9.50
 Viewing Hood, order 016-0250-00 12.75
 Plug-In Extension Cable, order 012-0126-00 14.50

U.S. Sales Prices FOB Beaverton, Oregon

D43 and D43R

Dual Beam

DC-25 MHz Bandwidth

Plug-In Versatility

6 cm x 8 cm Display Area

Flat-Face CRT

**Versatile Triggering Including
TV Line and Frame**



Optional Accessories

- 10X Passive Probe, UHF,
order 010-0234-00 \$ 9.50
- Viewing Hood,
order 016-0250-00 12.75
- Plug-In Extension Cable,
order 012-0126-00 14.50

Type D43 Oscilloscope with Type TD42 Time Base Unit (shown)

An optional time base, Type TD42, for the Type D43 Oscilloscope provides wider ranges of sweep rates, improved horizontal amplifier performance, and facilities for single sweeps. All other characteristics remain the same. See Type S43 description for complete characteristics.

Type D43 Oscilloscope with Type TD42 Time Base Unit, order TLD43T \$425

Rack Mount Oscilloscope

The Type D43R Oscilloscope is a rack-mount version of the Type D43 and is available with the Type TD41 unit or the Type TD42 unit. Characteristics of the rack mount model are the same as those of the cabinet models.

Dimensions and Weights

Height	7 in	17.8 cm
Width	19 in	48.0 cm
Depth	16 in	40.6 cm
Net weight	38 lb	17.2 kg
Shipping weight	45 lb	20.4 kg

Type D43R Oscilloscope with TD41 Time Base Unit, order TLD43R \$410

Type D43R Oscilloscope with TD42 Time Base Unit, order TLD43TR \$445

U.S. Sales Prices FOB Beaverton, Oregon

General Description and Characteristics

Type D43 Oscilloscope with Type TD41 Time Base Unit

The Type D43 Oscilloscope is a dual-beam instrument and has characteristics similar to the Type S43 Oscilloscope. The characteristics different from the Type S43 are indicated.

Vertical Amplifiers

Interchangeable Plug-In Units—Two units are required for oscilloscope operation. See pages 17 and 18 for complete characteristics.

Triggering

Sources—Internal from either trace and external.

Cathode-Ray Tube

4-inch flat-faced CRT operating at 4 kV accelerating potential. Viewing area 6 cm vertical by 8 cm horizontal, 4-cm overlap. P31 phosphor normally

supplied, P7 optional. Variable illuminated graticule.

Power Requirements

For best performance, rear-panel quick-change connections to the transformer taps should be set to the voltage setting most nearly corresponding to the actual line voltage. Voltage settings are 90, 100, 105, 110, 115, 120, 130, 200, 210, 215, 220, 225, 230, 240 V. 50 to 400 Hz line frequency, 132 VA.

Dimensions and Weights

Height	13 in	33.0 cm
Width	8 1/4 in	21.0 cm
Depth	19 in	48.0 cm
Net weight	36 lb	16.0 kg
Shipping weight	56 lb	25.4 kg

Included Standard Accessory

Instruction manual (070-0952-00).

Type D43 Oscilloscope with Type TD41 Time Base Unit, order TLD43 \$390

D53A

DC-25 MHz Bandwidth

Double-Beam

Sweep Delay

Plug-In Versatility

8 cm x 10 cm Viewing Area

Flat-Face Rectangular CRT

Versatile Triggering Including TV Line and Frame

Single Shot

Vertical Amplifiers

Interchangeable Plug-In Units—The Type D53A accepts the five amplifier units used with the S43 and D43 Oscilloscopes, and accepts one additional amplifier unit. The Type JD is similar to the Type J, except signal delay of 0.2 μ s is incorporated in the amplifier and bandwidth is DC-10 MHz at 10 mV/cm. Maximum vertical deflection is 6 cm.

Horizontal Amplifier

Deflection Factor—Uncalibrated, continuously variable from 500 mV/cm to 5 V/cm.

Bandwidth—DC to 1 MHz (approx 3-dB down).

Horizontal Expansion—Uncalibrated, continuously variable gain control expands horizontal axis up to approx 10 screen diameters, symmetrically about center of screen. Horizontal positioning positions any part of trace on screen.

Time Base

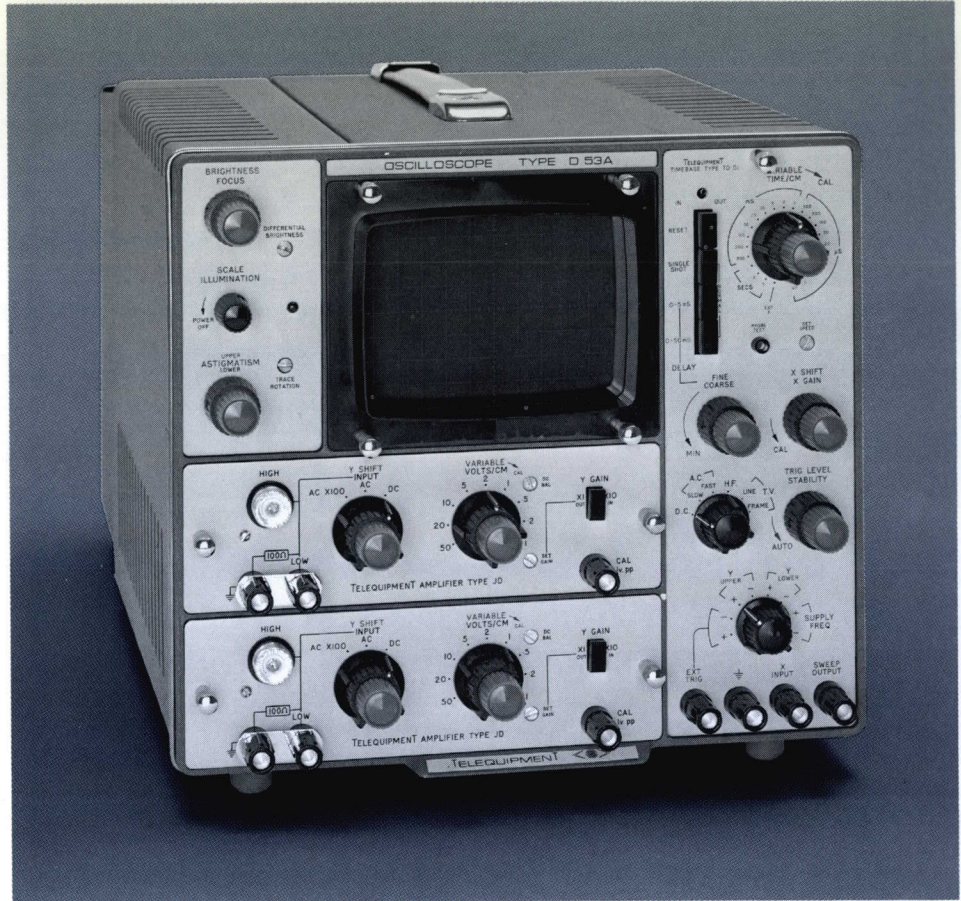
Sweep Rates—0.5 μ s/cm to 5 s/cm in 22 calibrated steps (1-2-5 sequence), accurate within 5%. Uncalibrated, continuously variable between steps, and to approx 12 s/cm.

Single-shot facility with sweep lock-out is provided. A light indicates when time base is armed. Delay ranges up to 5 ms or 50 ms, uncalibrated, continuously variable.

Triggering

Automatic—Sweep free runs at approx 40 Hz in absence of an input signal but triggers on 5 mm of deflection or 0.5-V external between 50 Hz and 1 MHz.

Trigger Level Selection—Triggering occurs at any level selected on the input waveform.



HF Sync—Synchronizes to input signals from approx 1 MHz to approx 25 MHz.

DC—Permits triggering from pre-selected DC level.

AC Slow—Removes DC components.

AC Fast—Removes low-frequency components.

TV—Triggers at TV frame or line rates.

Sources—Internal from either trace, external and line.

Slope—Plus or minus.

Cathode-Ray Tube

Rectangular flat-face, mesh CRT operating at 9 kV accelerating potential. Viewing area 8 cm vertical by 10 cm horizontal. P31 phosphor normally supplied, P7 optional. Variable illuminated graticule.

Rear Connectors

Z-axis Input—To CRT grids. (0.01 μ and 1 M Ω).

Power Requirements

For best performance, rear-panel quick-change connections to the transformer taps should be set to the voltage setting most nearly corresponding to the actual line voltage. Voltage settings are 100, 105, 110, 115, 120, 125, 200, 210, 220, 230, 240, 250 V. 50 to 400 Hz line frequency, 200 VA.

Convection Cooling

Voltage Calibrator

Line frequency square wave, 1 V peak to peak, accurate within 2%.

Dimensions and Weights

Height	11 in	28.0 cm
Width	11 1/2 in	29.2 cm
Depth	20 1/4 in	51.5 cm
Net weight	52 lb	24 kg
Shipping weight	56 lb	26 kg

Included Standard Accessory

Instruction manual (070-0994-00).

Type D53A Oscilloscope, order TLD53A \$775

Please order Type JD Wide-Band Amplifier separately.

Type JD Wide-Band Amplifier, order TLJD \$140

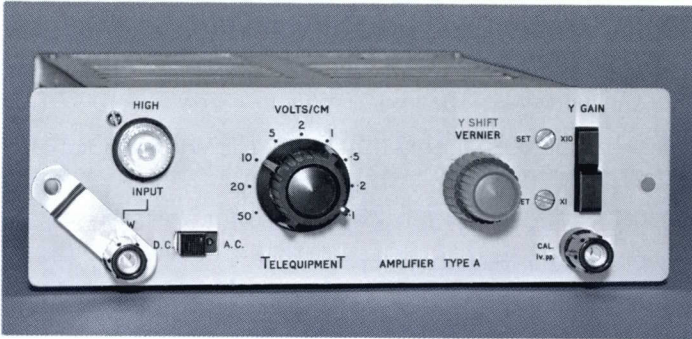
Optional Accessories

10X Passive Probe, UHF, order 010-0234-00 \$ 9.50

Viewing Hood, order 016-0251-00 12.75

U.S. Sales Prices FOB Beaverton, Oregon

CHARACTERISTICS OF PLUG-IN VERTICAL AMPLIFIERS For S43, D43, D43R, and D53A MAIN FRAMES



TYPE 'A' General Purpose Amplifier

BANDWIDTH & DEFLECTION FACTOR—DC—15 MHz, 100 mV to 50 V/cm.

DC—0.8 MHz, 10 mV/cm to 5 V/cm.

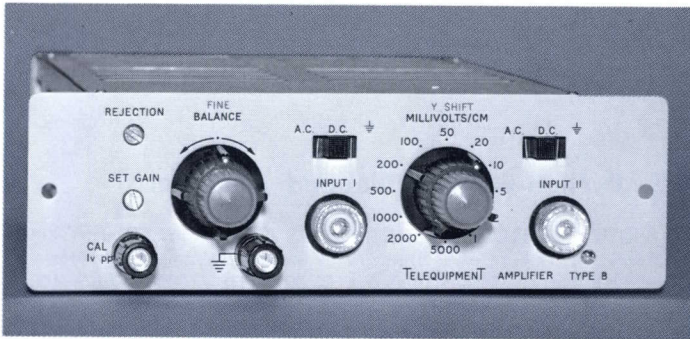
INPUT RC—1 MΩ in parallel with approx 40 pF.

ATTENUATOR—Frequency Compensated. Calibrated volts/cm. 9 position 1, 2, 5, sequence. Accuracy ±5%.

NET WEIGHT 3 lb 1.3 kg SHIPPING WEIGHT 4 lb 1.8 kg

Includes: instruction manual (070-0953-00), UHF coax adapter (103-0091-00), UHF coax connector (131-0647-00).

Order TLA \$ 85



TYPE 'B' Differential Amplifier

BANDWIDTH—DC—75 kHz

DEFLECTION FACTOR—1 mV/cm—5 V/cm.

COMMON MODE REJECTION RATIO—10,000:1 from DC to 1 kHz reducing to 1,000:1 at 75 kHz on 1 to 50 mV/cm ranges. On 100 mV/cm—5 V/cm ranges 1,000:1 DC to 1 kHz reducing to 100:1 at 10 kHz.

MAXIMUM IN-PHASE INPUT—5 V P to P (1—50 mV ranges.)

STABILITY—Normal drift approximately 5 mV/hour.

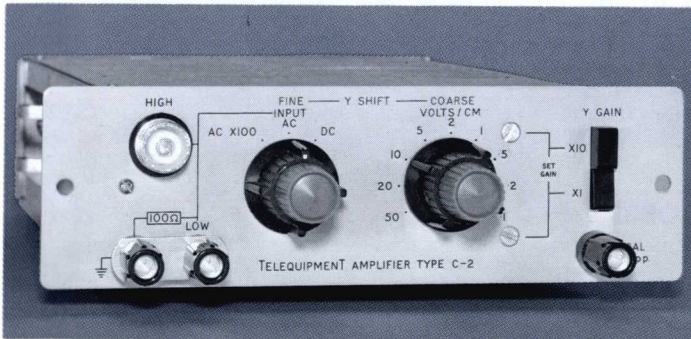
INPUT RC—1 MΩ in parallel with approx 40 pF.

ATTENUATOR—Frequency Compensated. Calibrated volts/cm. 12 position 1, 2, 5 sequence. Accuracy ±5%.

NET WEIGHT 5 lb 2.3 kg SHIPPING WEIGHT 6 lb 2.7 kg

Includes: instruction manual (070-0954-00), two UHF coax adapters (103-0091-00), two UHF coax connectors (131-0647-00).

Order TLB \$135



TYPE 'C-2' High Gain Amplifier

BANDWIDTH & DEFLECTION FACTOR—DC—15 MHz, 100 mV/cm—50 V/cm.

DC—0.8 MHz, 10 mV/cm—5 V/cm.

3 Hz—100 kHz, 100 μV/cm—50 mV/cm.

INPUT RC—1 MΩ in parallel with approx 40 pF.

ATTENUATOR—Frequency Compensated. Calibrated volts/cm. 9 position 1, 2, 5, sequence. Accuracy ±5%.

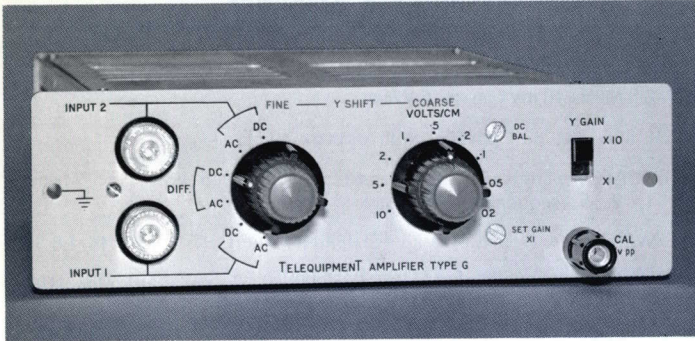
TOTAL HUM AND NOISE—At max sensitivity, with input short circuited, approximately 30 μV.

NET WEIGHT 4 lb 1.8 kg SHIPPING WEIGHT 5 lb 2.3 kg

Includes: instruction manual (070-0941-00), UHF coax adapter (103-0091-00), UHF coax connector (131-0647-00).

Order TLC-2 \$125

CHARACTERISTICS OF PLUG-IN VERTICAL AMPLIFIERS For S43, D43, D43R, and D53A MAIN FRAMES



TYPE 'G' General Purpose Differential

BANDWIDTH & DEFLECTION FACTOR—DC—10 MHz from 20 mV/cm to 10 V/cm and DC—500 kHz from 2 mV/cm to 1 V/cm.

COMMON MODE REJECTION RATIO—1,000:1, at 1 MHz falling to 50:1 at 10 MHz (sine wave input).

MAXIMUM INPUT—5 V P to P in 2 mV/cm and 20 mV/cm positions.

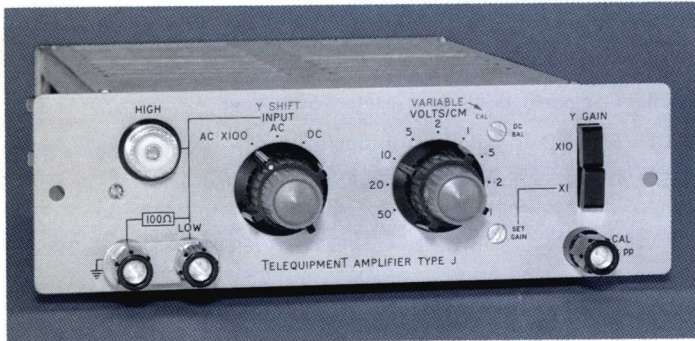
INPUT RC—1 M Ω in parallel with approx 40 pF.

ATTENUATOR—Frequency Compensated. Calibrated volts/cm. 9 position 1, 2, 5, sequence. Accuracy $\pm 5\%$.

NET WEIGHT 3 lb 1.3 kg **SHIPPING WEIGHT** 4 lb 1.8 kg

Includes: instruction manual (070-0955-00), two UHF coax adapters (103-0091-00), two UHF coax connectors (131-0647-00).

Order TLG \$125



TYPE 'J' High-Gain, Wideband Amplifier

BANDWIDTH & DEFLECTION FACTOR—DC—25 MHz from 100 mV/cm to 50 V/cm (X1), DC—5 MHz from 10 mV/cm to 5 V/cm (X10), 3 Hz—100 kHz from 1 mV/cm to 500 mV/cm (X100), 3 Hz—100 kHz from 100 μ V/cm to 50 mV/cm (X1000). A control provides continuous uncalibrated variation of gain, reducing calibrated setting by a factor of 2.5:1 or greater.

INPUT RC—1 M Ω in parallel with 60 pF in X1 and X10.
1 M Ω in parallel with 20 pF in X100.

ATTENUATOR—Frequency compensated. Calibrated volts/cm. 9 positions, 1, 2, 5 sequence. Accuracy $\pm 5\%$.

HUM AND NOISE—With input short circuited, 20 μ V P-P or less. With input open circuited, 100 μ V P-P or less.

NET WEIGHT 3 lb 1.3 kg **SHIPPING WEIGHT** 4 lb 1.8 kg

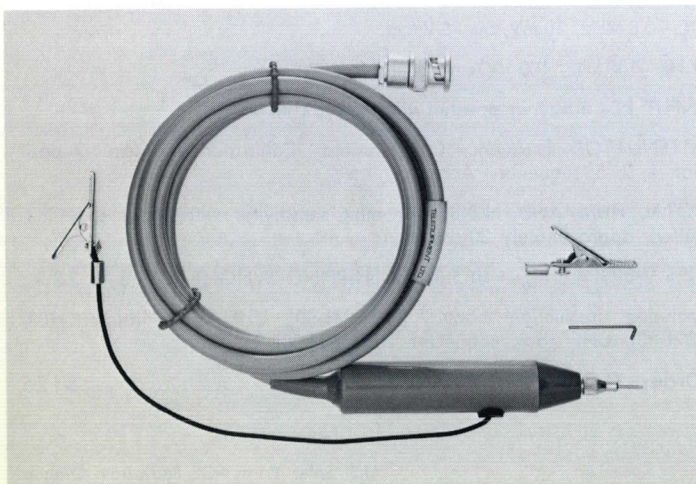
Includes: instruction manual (070-0956-00), UHF coax adapter (103-0091-00), UHF coax connector (131-0647-00).

Order TLJ \$135

PROBES

10X Passive Probe, BNC
Order 010-0233-00 \$9.50

10X Passive Probe, UHF
Order 010-0234-00 \$9.50



U.S. Sales Price FOB Beaverton, Oregon

TEKTRONIX, INC.

P. O. Box 500, Beaverton, Oregon 97005

Telephone: (503) 644-0161 TWX—503-291-6805 Telex: 36-691 Cable: TEKTRONIX

FIELD ENGINEERING OFFICES

ALABAMA

Huntsville 35801
Suite 51, 3322 S. Memorial Parkway
Phone (205)881-2912, Telex 59-4422

ARIZONA

Phoenix
7045 E. Camelback Road
Scottsdale 85251
Phone (602)946-4273, Telex 66-7401
Tucson Area: Enterprise 383

CALIFORNIA

Alhambra 91801
Suite D, 1525 S. Garfield Avenue
Phone (213)576-1601, Telex 6-74397
From L.A. call: 283-0501

Concord 94520
2339A Stanwell Circle
Phone (415)687-8350, Telex 335-344
From Oakland, Berkeley, Richmond,
Albany and San Leandro: 254-5353

Orange 92667
1722 E. Rose Avenue
Phone (714)633-3450, Telex 6-78432

Palo Alto 94303
3750 Fabian Way
Phone (415)326-8500, Telex 34-8411

San Diego 92120
Suite 107, 6150 Mission Gorge Road
Phone (714)283-6225, Telex 69-5025

San Jose
Suite 1B, 1725 De La Cruz Blvd.
Santa Clara 95050
Phone (408)296-3010, Telex 34-6439

Santa Barbara 93104
1310 Santa Barbara Street
Phone (805)963-1848, Telex 658-424
From Island of Oahu,
Hawaii Area: 365-700

Van Nuys 91406
16930 Sherman Way
Phone (213)987-2600, Telex 65-1426
From L.A. call: 873-6868

COLORADO

Denver 80222
2120 South Ash Street
Phone (303)757-1249, Telex 45-662

CONNECTICUT

Hartford
809 Main Street
East Hartford 06108
Phone (203)289-8695, Telex 9-9338

Stamford 06902
125 Strawberry Hill Avenue
Phone (203)325-3817, Telex 96-5917

FLORIDA

Fort Lauderdale 33311
1871 West Oakland Park Blvd.
Phone (305)731-1220, Telex 51-4474
Also serves Puerto Rico and
U.S. Virgin Islands

Orlando 32803
Suite 185, 1010 Executive Center Dr.
Phone (305)841-2382, Telex 56-4465
From The Cape Kennedy Area:
636-0343

GEORGIA

Atlanta 30329
Suite 106, 1680 Tullie Circle, N.E.
Phone (404)633-0344, Telex 54-2233

ILLINOIS

Chicago
Suite 104, 2590 E. Devon
Des Plaines 60018
Phone (312)298-6666, Telex 72-6347

Hinsdale 60521
Suite 111, 119 E. Ogden Avenue
Phone (312)325-3050, Telex 25-3694

INDIANA

Indianapolis 46205
3937 N. Keystone Avenue
Phone (317)546-2408, Telex 27-348

KANSAS

Kansas City
Suite 106, 5845 Horton
Mission 66202
Phone (913)432-1003, Telex 4-2321

MARYLAND

Baltimore
1526 York Road
Lutherville 21093
Phone (301)825-9000, Telex 87-804
From Harrisburg, Lancaster and
York Area call: Enterprise 1-0631

Rockville 20852
1500 East Jefferson Street
Phone (301)881-6133, Telex 89-2337

MASSACHUSETTS

Boston
244 Second Avenue
Waltham 02154
Phone (617)894-4550, Telex 92-3446

Methuen 01844
240 Pleasant Street
Phone (617)685-1511, Telex 94-7458

MICHIGAN

Detroit
22132 West Nine Mile Road
P.O. Box 363
Southfield 48075
Phone (313)358-3122, Telex 23-400

Lansing 48910
Suite 10, 6425 S. Pennsylvania Ave.
Phone (517)393-5280, Telex 22-9423

MINNESOTA

Minneapolis 55426
Suite 115, 7515 Wayzata Blvd.
Phone (612)545-2524, Telex 29-699

St. Paul
Pentagon Office Park
4930 West 77th Street
Edina 55435
Phone (612)920-1860, Telex 29-5393

MISSOURI

St. Louis 63135
119 North Harvey
Phone (314)524-0900, Telex 44-851

NEVADA

Las Vegas 89102
5128 West Charleston Blvd.
Phone (702)870-8201, Telex 68-4419

NEW JERSEY

Cherry Hill 08034
905 Kings Highway North
Phone (609)667-4333, Telex 84-5338

Springfield 07081
964 South Springfield Avenue
Phone (201)379-1670, Telex 13-8259

NEW MEXICO

Albuquerque 87108
1258 Ortiz Drive, S.E.
Phone (505)268-3373, Telex 66-0421
Southern N.M. Area: Enterprise 678

NEW YORK

Albany
678 Troy Road
Latham 12110
Phone (518)785-3353, Telex 145-402

Buffalo 14225
965 Maryvale Drive
Phone (716)633-7861, Telex 91-385

Endicott
3214 Watson Blvd.
Endwell 13763
Phone (607)748-8291, Telex 933-421

Poughkeepsie 12603
1 Old Mill Road
Phone (914)462-4674, Telex 96-8414

Long Island

125 Mineola Avenue
Roslyn Heights, L.I. 11577
Phone (516)484-2300, Telex 96-1328

Syracuse 13211
112 Pickard Building
5858 E. Molloy Road
Phone (315)455-6666, Telex 937-239

NORTH CAROLINA

Greensboro 27405
1011 Homeland Avenue
Phone (919)274-4647, Telex 57-4416

OHIO

Cleveland 44129
5562 Pearl Road
Phone (216)884-6558, Telex 98-5217

Columbus
Suite 5, 12 West Selby Blvd.
Worthington 43085
Phone (614)888-4040, Telex 24-5497

Dayton 45439
3309 Office Park Drive, Suite 103
Phone (513)293-4175, Telex 2-88225

OREGON

Portland
8845 S.W. Center Court
Tigard 97223
Phone (503)639-7691, Telex 36-0205

PENNSYLVANIA

Philadelphia
126 Presidential Blvd. North
Bala-Cynwyd 19004
Phone (215)839-3111, Telex 83-4218

Pittsburgh
3834 Northern Pike
Monroeville 15146
Phone (412)351-3345, Telex 86-761

RHODE ISLAND

Providence
2845 Post Road
Warwick 02886
Phone (401)739-4771, Telex 92-7662

TEXAS

Dallas 75240
4315 Alpha Road
Phone (214)631-4560, Telex 73-0570

Houston 77027
Suite H, 3723 Westheimer
Phone (713)622-8141, Telex 77-494

San Antonio 78209
8031 Broadway
Phone (512)826-0686, Telex 76-7456

UTAH

Salt Lake City 84115
65 West 2950 South
Phone (801)484-8501, Telex 388-365

VIRGINIA

Alexandria 22304
Suite 102, 6000 Stevenson Avenue
Phone (703)751-6096, Telex 8-9406

Hampton 23366
1310 Todds Lane
Phone (703)826-4020, Telex 82-3409

WASHINGTON

Seattle 98188
410 Baker Blvd.
Andover Industrial Park
Phone (206)243-2494, Telex 32-488
From Pullman, Richland, Spokane,
Yakima: Zenith 9369

WISCONSIN

Milwaukee 53226
Mayfair Plaza
2421 North Mayfair Road
Phone (414)476-6850, Telex 2-6604

