1962 Abridged Catalog

45 OSCILLOSCOPES
26 PLUG-IN UNITS
34 ASSOCIATED INSTRUMENTS

for Measurements in Research and Industry

CUSTOMER ASSISTANCE

United States & Canada—Tektronix maintains and offers to you the services of Field Engineering Offices staffed by thoroughly-trained Tektronix personnel in 36 cities.

Overseas—Tektronix is represented by qualified Engineering Organizations in 35 cities located in 23 overseas countries.

Tektronix, Inc.

February 1962

NEW

Instruments of uncompromising utilizing the newest concepts

TYPE 567 READOUT OSCILLOSCOPE

The Type 567 Readout Oscilloscope, with the Type 3S76, Type 3T77 and Type 6R1 Plug-In Units comprise the Tektronix dual-trace sampling digital readout system. An analog display appears simultaneously with the presentation in digital form. Other sampling and non-sampling plug-in units will be available.

The Type 567 supplies all of the regulated operating voltages for the present and future plug-in units.

CHARACTERISTICS

Amplitude Calibrator—Four calibrated steps: 0.05, 0.5, 5, and 50 v.

CRT—5" rectangular, 3.3 kv accelerating potential. Beam rotator adjustment.

Electronically-regulated power supply.

Edge-lighted Graticule—8 cm by 10 cm.

TYPE 3S76 DUAL-TRACE SAMPLING PLUG-IN UNIT

Adapts the Type 567 or Type 561 and RM561 Oscilloscopes for dual-trace displays with 0.40 nsec risetime. Contains two identical, independently controlled sampling channels.

For function with the Type 3T77 Sampling Sweep Plug-In Unit, in the above oscilloscopes, only the signal connection is necessary.

Frequency Response—Equivalent to 875 mc.

Sensitivity—2 mv/div to 200 mv/div in 7 calibrated steps. Continuous (uncalibrated) adjustment between steps.

Operating Modes—Channel A or B only, Dual-Trace, ±A ±B added, A vertical B horizontal.

Internal Delay Lines—55 nsec signal delay eliminates need for pre-trigger.

Triggering—Built-in trigger takeoffs, both channels.

DC Offset— −1 to +1 v.

50 Ω Input—Accepts signals up to 2 v, pk-pk.

Probe Power—Power is provided for separate cathode-follower probes for each channel.

Vertical Signals Out—1 v/div, through 10 k.

TYPE 3T77 SAMPLING SWEEP PLUG-IN UNIT

For use with Tektronix Type 567, Type 561, or RM561 Oscilloscopes. Provides wideband triggering and the equivalent fast sweeps for function of a sampling vertical plug-in such as the Type 3S76.

Sweep Range—0.2 nsec/div to 10 μsec/div in 15 calibrated steps. Variable between steps from 0.07 nsec/div to 10 μsec/div.

Horiz. Mag.—10X magnifier gives 10 times faster displays.

Delay—Sweep delay control through 100 nsec.

Manual Scan or Ext. Attenuator—For manual control of scanning function or adjustment of external sweep amplitude.

Samples/Div —10 or 100.

Single Display—Initiated by operation of a reset button.

Sweep Output—1 v/div (through 10 k), useful for X-Y plotting.

TYPE 6R1 DIGITAL UNIT

Digitally presents time and amplitude measurements. Time measurements can be made between pre-selected percentage points or absolute amplitudes of an arbitrary pulse.

Outputs are available for control of punchcard, tape, typewriters, and other devices used in data processing and statistical analysis.

Input—Internal, from horizontal and vertical plug-in units.

0% and 100% Zones—Automatically re-establish to new amplitude changes.

Start and Stop Timing System—Start and stop timing selectable for any point on the waveform.

Readout—In four digits plus unit of measurement (nsec, μsec, msec, μa, ma, a, μv, mv and v). Automatically presents the decimal point.

Preset Limits—Lower and upper measurement limits can be preset for immediate indication of readout status.

External Programming—For remote or automatic sequences.

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

INSTRUMENTS

quality and dependability— in the electronics field.

NEW

TYPE 661 SAMPLING OSCILLOSCOPE

Operating ease of conventional oscilloscopes—internal as well as external triggering.

The Type 661, with the Type 4S1 Dual-Trace Sampling Plug-In Unit and the Type 5T1 Timing Plug-In Unit, is a complete 0.35 nsec risetime sampling oscilloscope. The Type 661 will perform exceptionally well in the many areas where there is a need to analyze nanosecond pulses.

Features include the ability to trigger internally as well as externally, to drive X-Y plotters or similar readout accessories, and to trigger external circuitry.

HORIZONTAL DISPLAY

Sweep Magnifier—1, 2, 5, 10, 20, 50, and 100X, symmetrical about the screen center.

External Horizontal Input—0.05 to 5 v/cm sensitivity through 25-k impedance, ac or dc coupled.

Manual Scan—Choice of "Slow" or "Fast" ranges.

Horizontal Position—Coarse and Fine Controls—shift of display over 10 cm unmagnified, or 1000 cm fully magnified.

Amplitude/Time Calibrator—Amplitude: 1, 10, 100, and 1000 mv. Time: 0.01, 0.1, 1, and 10 μsec/cycle.

Delayed Pulse Output—Greater than 300 mv amplitude, 50 Ω impedance. Risetime less than 0.2 nsec.

Signal Outputs—Vertical A, Vertical B, and horizontal outputs.

OTHER CHARACTERISTICS

Tektronix designed crt. Accelerating potential approximately 2.7 kv.

Power Supply—Temperature compensated electronically-regulated dc-voltage and heater supplies.

TYPE 5T1 TIMING PLUG-IN UNIT

Contains the timing circuits necessary for the Type 661. Equivalent time range from 100 μsec/cm to 1 nsec/cm (to 10 picosec/cm with full horizontal magnification of the Type 661). An uncalibrated variable control extends the sweep speed to about 1/3 nsec/cm.

Triggering Source—External, internal, free run, calibrator.

Trigger Sensitivity—External: 5 mv for a 2 nsec wide pulse. Internal: 40 mv for a 2 nsec wide pulse. (With Type 4S1 Plug-In Unit)

Sweep Time/Cm—1 nsec/cm to 100 μsec/cm in 16 calibrated steps. (Better than 3% accuracy). Uncalibrated variable control between steps.

Samples/Cm—5, 10, 20, 50, and 100 (unmagnified display). Better than 2% accuracy.

Triggering Threshold— ±200 mv, continuously variable.

External Trigger Recovery Time—Variable from 10 to 13 μsec on speeds above 0.2 μsec/cm.

Sweep Mode—Repetitive or single display.

Time Delay—To 100 nsec.

Time Jitter—Less than 30 picosec or 10^{-4} of fast-ramp duration.

TYPE 4S1 50 Ω DUAL-TRACE SAMPLING PLUG-IN UNIT

Designed for use with the Type 661. Modes of operation include single trace, dual-trace, added, and A vertical B horizontal. Each channel has independent controls and either channel can be inverted for differential operation. Triggers from A or B channel without use of a pretrigger.

Risetime—350 picoseconds or less.

Sensitivity—2 mv/div to 200 mv/div in 7 calibrated steps. Continuous (uncalibrated) adjustment between steps and to 2/3 mv/div.

Noise Level—Less than 1 mv unsmoothed, or 0.5 mv smoothed.

Dynamic Range—2 volts.

DC Offset—Allows vertical scanning of signals up to ±1 v at maximum sensitivity.

Input Impedance—50 Ω. (Passive or active probes for higher impedance)

Many other new Tektronix instruments are described in this catalog. For your convenience these are listed below, with the page number on which they can be found.

TYPE 530-540 SERIES OSCILLOSCOPES

Use of interchangeable Type A to Z Plug-In Units permits: . . .
Initial selection of plug-in units for your present needs.
Quick conversion to specialized applications.
Expansion, at moderate cost, of your applications area.

TYPE 545A FAST-RISE OSCILLOSCOPE with Sweep Delay

Vertical Specifications

DC-to-30 mc passband, 12-nsec risetime, 50-mv/cm deflection factor with Type K Plug-In Preamplifier.

Type A to Z Plug-In Units available for specialized applications.

Signal delay permits observation of leading edge of waveform that triggers the sweep.

Horizontal Specifications

Two Time-Base Generators—

Time Base A—0.1 μsec/cm to 5 sec/cm in 24 calibrated steps.

Continuously adjustable from 0.1 μsec/cm to 12 sec/cm.

5-x magnifier increases calibrated range to 20 nsec/cm.

Single sweep provision for one-shot applications.

Time Base B—Also functions as delay generator. 2 μsec/cm to 1 sec/cm in 18 calibrated steps.

Sweep Delay—Two modes of operation

Triggered—Delayed sweep started after the delay period by the signal under observation. Steady display, even of signals with inherent jitter.

Conventional—Delayed sweep started at the end of the delay period by the delayed trigger. Time jitter less than one part in 20,000.

Delay range—1 μsec to 10 sec in 18 calibrated ranges, each range divisible into 1000 parts by 10-turn control with incremental accuracy within 0.2%.

Other Characteristics

10-KV Accelerating Potential—4-cm by 10-cm display.

Dual-Trace Blanking—Eliminates switching transients from display when dual-trace unit is operated in its chopped mode.

Amplitude Calibrator—0.2 mv to 100 v.

Electronically-Regulated Power Supplies.

TYPE 541A FAST-RISE OSCILLOSCOPE

Same as Type 545A, except that it does not have Time Base B or provisions for sweep delay or single sweeps.

TYPE 535A WIDE-BAND OSCILLOSCOPE with Sweep Delay

Same specifications as Type 545A, except for main vertical amplifier.

DC-to-15 MC passband, 23-nsec risetime, 50-mv/cm deflection factor with Type K Plug-In Preamplifier, 6-cm by 10-cm display.

TYPE 531A WIDE-BAND OSCILLOSCOPE

Same as Type 535A except that it does not have Time Base B or provisions for sweep delay or single sweeps.

TYPE 543A OSCILLOSCOPE

High Performance

DC to 30 MC, 12-nsec Risetime with Fast-Rise Plug-In Preamplifier Units.

0.2 μsec Signal Delay.

20 nsec/cm to 15 sec/cm Sweep Range.

Easy Operation

24 Calibrated direct-reading sweep rates, 0.1 μsec/cm to 5 sec/cm.

Sweep Magnification—2, 5, 10, 20, 50, and 100 times.

Preset Triggering—Eliminates triggering adjustments in most applications.

Single-Sweep Operation—Lockout-reset circuitry for one-shot recording.

High Writing Rate

250 cm/μsec—10-kv accelerating potential assures bright trace for single sweeps and low repetition rates. 4-cm by 10-cm viewing area.

Electronically-Regulated Power Supplies.

TYPE 533A OSCILLOSCOPE

DC to 15 MC, 23-nsec Risetime with Fast-Rise Plug-In Preamplifier Units.

6-cm by 10-cm Viewing Area.

All other characteristics same as Type 543A.

TYPE 536 "X-Y" OSCILLOSCOPE

Identical Horizontal and Vertical Main Amplifiers

DC to 10 MC, both amplifiers, with Type G Differential Plug-In Preamplifiers.

Less than 1° relative phase difference from dc to 15 mc. Phase balance can be obtained at any one frequency to over 25 mc.

Converts to general-purpose oscilloscope with Type T Time-Base Unit plugged into horizontal amplifier.

4-KV Accelerating Potential

10 by 10 division viewing area.

Amplitude Calibrator

0.2 mv to 100 v in 18 steps. Square wave, frequency about 1 kc.

Electronically-Regulated Power Supplies.

RACK-MOUNTING OSCILLOSCOPES

Mechanically rearranged Types 531A, 533A, 535A, 541A, 543A, 545A Oscilloscopes for mounting in a standard 19-inch rack. The chassis is attached to the cabinet on slide-out tracks. It can be pulled forward, tilted and locked in any of seven positions for servicing convenience.

Dimensions—14" high, 19" wide, 22½" rack depth.

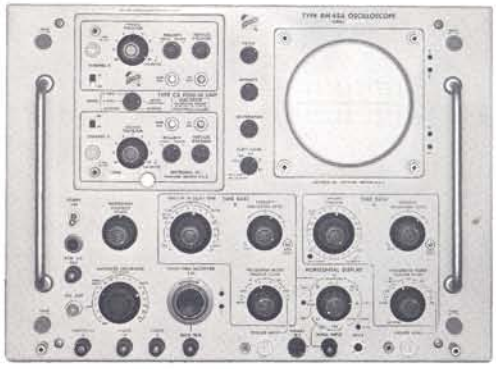
TYPE RM31A OSCILLOSCOPE
Electrically identical to the Tektronix Type 531A.

TYPE RM33A OSCILLOSCOPE
Electrically identical to the Tektronix Type 533A.

TYPE RM35A OSCILLOSCOPE
Electrically identical to the Tektronix Type 535A.

TYPE RM41A OSCILLOSCOPE
Electrically identical to the Tektronix Type 541A.

TYPE RM43A OSCILLOSCOPE
Electrically identical to the Tektronix Type 543A.



TYPE RM45A OSCILLOSCOPE
Electrically identical to the Tektronix Type 545A.

ENVIRONMENTALIZED OSCILLOSCOPE

TYPE 945 OSCILLOSCOPE, TYPE MC DUAL-TRACE PREAMPLIFIER, TYPE ML FAST-RISE PREAMPLIFIER

Rugged, environmentalized versions of the Type 545 Oscilloscope, the Type 53/54C Dual-Trace, and the Type L Plug-In Units. Designed to meet Mil-T-945A environmental specifications, the Types 945, MC, ML performs with accuracy and reliability in extreme environments. The 945/ML passband is dc to 30 mc; risetime is 12 nsec; and sensitivity is 50 mv/cm ac or dc coupled, 5 mv/cm ac-coupled only. The 945/MC passband is dc to 24 mc, risetime is 15 nsec, or less, and the maximum sensitivity is 50 mv/cm.

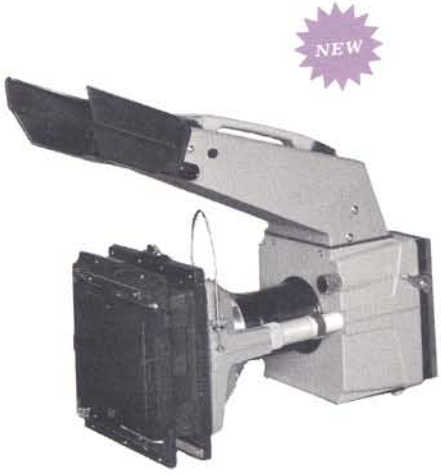
ELECTRICAL-ENVIRONMENTAL SPECIFICATIONS

This summary of the basic specifications of the Types 945, MC, ML indicates its environmental capabilities. Complete specifications are available through your Tektronix Field Engineer.

Temperature	—40°C to +55°C/71°C —65°C to +85°C	(operating) (storage)
Humidity	10 days, 95% RH +18°C to +65°C	(storage)
Fungus	28 days	(storage)
Vibration	5 G's, 55 cps, 0.030" pk-pk	(operating)
Shock	400 lb. hammer	(operating)
Altitude	20,000 ft. 50,000 ft.	(operating) (storage)

Radio Interference	15 kc to 400 mc	(operating)
Salt Atmosphere	100 hours	(finishes)
Rain	5 min. drip test	(storage)

TRACE-RECORDING CAMERAS



All Tektronix cameras have swing-away mounting, interchangeable lenses, par-focal backs, and are exceptionally easy to operate. They are designed for use with Tektronix 5" oscilloscopes.

TYPE C-12...Several combinations of lenses and backs give the C-12 unusual flexibility. Undistorted viewing, readily indentifiable controls, and a viewing hood designed for use with or without glasses give the C-12 ease of operation.

TYPE C-13...Many combinations of standard and optional equipment give the Type C-13 wide-range ability. This lowest priced Tektronix camera achieves quality and detail in everyday repetitive-trace recording applications.

TYPE C-19...Ideally suited for making permanent recordings of high-speed pulses where every detail of fast writing rate is important. The viewing system uses two first-surface mirrors and the viewer's eyes and the camera lens receive near equal amounts of light. Very low light loss permits excellent recordings of fast transients.

CAMERA LENSES AND BACKS

	OPTIONAL			STANDARD		
Lens	**C-12**	**C-13**	**C-19**	**C-12**	**C-13**	**C-19**
f/1.5-1:1	x	x	x			
f/1.5-1:0.9	x	x	x			
f/1.5-1:0.5	x	x				x
f/1.9-1:0.9		x	x	x		
f/1.9-1:0.7	x	x	x			
f/4.5-1:0.7	x		x		x	
Backs						
3¼ x 4¼ Polaroid				x	x	x
4 x 5 Graflok		x		x		x
3¼ x 4¼ Graflok	x	x	x			
2¼ x 3¼ Graflok	x	x	x			

DUAL-BEAM OSCILLOSCOPES

Dual-beam operation permits many specialized applications in addition to conventional single-display applications.

TYPE 551 DUAL-BEAM OSCILLOSCOPE

with Common X and Independent Y Deflection

Wide-Band Main Vertical Amplifiers

Passbands—dc to 25 mc with Type K Units.

Risetimes—14 nsec with Type K Units.

0.2-μsec Signal Delay.

All Tektronix Type A to Z Plug-In Units can be used in both channels for signal-handling versatility.

Wide Sweep Range

24 calibrated steps from 0.1 μsec/cm to 5 sec/cm. 5-x magnifier increases calibrated range to 20 nsec/cm.

Lockout-reset circuitry for one-shot sweep applications.

Complete Triggering

Fully automatic, or amplitude-level selection with preset or manual stability control.

10-KV Accelerating Potential

Bright display for fast sweeps and low repetition rates. 4-cm by 10-cm display for each beam, with 2-cm overlap.

Separate Power Supply

Electronically regulated.

TYPE 555 DUAL-BEAM OSCILLOSCOPE

Independent Electron Beams

Separate vertical and horizontal deflection of both beams.

Fast-Rise Main Vertical Amplifiers

Passbands—dc to 30 mc with Type K Units.

Risetimes—12 nsec with Type K Units.

0.2 μsec Signal Delay.

All Tektronix Type A to Z Plug-In Units can be used in both vertical channels for signal-handling versatility.

Wide-Range Time-Base Generators

Either time-base generator can be used to deflect either or both beams.

Sweep ranges—0.1 μsec/cm to 12 sec/cm. 5-x magnifiers increase calibrated sweep rates to 20 nsec/cm.

Sweep Delay—Two modes of operation.

Triggered—Delayed sweep started after the delay period by the signal under observation.

Conventional—Delayed sweep started at the end of the delay period by the delayed trigger.

Delay range—0.5 μsec to 50 sec in 24 calibrated steps, with continuous calibrated adjustment between steps.

High Writing Rate

10-KV Accelerating potential provides bright traces at low repetition rates and in one-shot applications. 4-cm by 10-cm display for each beam, with 2-cm overlap.

Separate Power Supply

Electronically regulated dc and heater supplies.

TYPE 502 DUAL-BEAM OSCILLOSCOPE

High Sensitivity

200 μv/cm, dc coupled, both beams.

Differential Input

Both amplifiers, at all sensitivities.

Curve Tracing With Two Beams

(Horizontal sensitivity to 0.1 v/cm.)

Single-Beam Curve Tracing—200 μv/cm, both axes.

Frequency Response

Both amplifiers—dc to 100 kc at 200 μv/cm, increasing to 200 kc at 1 mv/cm, to 400 kc at 50 mv/cm, and to 1 mc at 0.2 v/cm.

Wide Sweep Range

21 direct-reading calibrated sweep rates from 1 μsec/cm to 5 sec/cm.

Accurate Sweep Magnifier—2, 5, 10, and 20 times.

Automatic Triggering

Amplitude Calibrator—6 steps, 1 mv to 100 v.

Electronically-Regulated Power Supplies

Input stages of both amplifiers have transistor-regulated parallel heater supplies.

MAIN SPECIFICATIONS of TEKTRONIX TYPE 530 SERIES,

	Vertical Frequency Response (with Type K Unit)	Signal Delay	Calibrated Sweep Range	Sweep Magnifier	Sweep Delay	Accelerating Potential
TYPE 531A General Purpose	dc to 15 mc	Yes	0.1 μsec/cm to 5 sec/cm	5x	None	10 kv
TYPE 533A General Purpose	dc to 15 mc	Yes	0.1 μsec/cm to 5 sec/cm	2, 5, 10, 20, 50, 100x	None	10 kv
TYPE 535A General Purpose	dc to 15 mc	Yes	0.1 μsec/cm to 5 sec/cm	5x	1 μsec to 10 sec	10 kv
TYPE 536 X-Y Curve Tracer	dc to 11 mc	No	See Type T Time-Base Gen.		None	4 kv

LETTER-SERIES PLUG-IN UNITS

TYPE B

TYPE C-A

TYPE D

TYPE E

TYPE H

TYPE L

CHARACTERISTICS OF PLUG-IN PREAMPLIFIERS

	Risetime and Passband of Combination — Plugged into Type					
	531A-533A-535A	541A-543A-545A 555	551	536	Calibrated Deflection Factor	Input Capacitance
TYPE B Wide-Band High-Gain	35 nsec 2 c to 10 mc 25 nsec dc to 14 mc	30 nsec 2 c to 12 mc 18 nsec dc to 20 mc	30 nsec 2 c to 12 mc 20 nsec dc to 18 mc	40 nsec 2 c to 9 mc 35 nsec dc to 10 mc	5 mv/cm to 0.05 v/cm 0.05 v/cm to 20 v/cm	47 pf
TYPE C-A Dual-Trace DC	23 nsec dc to 15 mc	15 nsec dc to 24 mc	16 nsec dc to 22 mc	35 nsec dc to 10 mc	0.05 v/cm to 20 v/cm	20 pf
TYPE D High-Gain DC Differential	0.18 μsec dc to 2 mc	0.18 μsec dc to 2 mc	0.18 μsec dc to 2 mc	0.18 μsec dc to 2 mc	1 mv/cm to 50 v/cm	47 pf
TYPE E Low-Level AC Differential	6 μsec 0.06 cycles to 60 kc	6 μsec 0.06 cycles to 60 kc	6 μsec 0.06 cycles to 60 kc	6 μsec 0.06 cycles to 60 kc	50 μv/cm to 10 mv/cm	50 pf
TYPE G Wide-Band DC Differential	25 nsec dc to 14 mc	18 nsec dc to 20 mc	20 nsec dc to 18 mc	35 nsec dc to 10 mc	0.05 v/cm to 20 v/cm	47 pf
TYPE H DC Coupled High-Gain Wide-Band	31 nsec dc to 11 mc	23 nsec dc to 15 mc	25 nsec dc to 14 mc	37 nsec dc to 9.5 mc	5 mv/cm to 20 v/cm	47 pf
TYPE K Fast-Rise DC	23 nsec dc to 15 mc	12 nsec dc to 30 mc	14 nsec dc to 25 mc	31 nsec dc to 11 mc	0.05 v/cm to 20 v/cm	20 pf
TYPE L Fast-Rise High-Gain	23 nsec 3 c to 15 mc 23 nsec dc to 15 mc	15 nsec 3 c to 24 mc 12 nsec dc to 30 mc	17 nsec 3 c to 22 mc 14 nsec dc to 25 mc	35 nsec 3 c to 10 mc 31 nsec dc to 11 mc	5 mv/cm to 2 v/cm 0.05 v/cm to 20 v/cm	20 pf
TYPE R Transistor Testing	Supplies 5-nsec risetime pulse, 400-ma collector supply, 100-ma bias supply, risetime and passband same as with K Unit.				0.5 ma/cm	15 pf
TYPE S Diode Recovery	1 to 20 ma forward current, 0 to 2 ma reverse current, risetime and passband same as with K Unit.				0.05 v/cm 0.5 v/cm	
TYPE T Time Base Generator	Generates 22 calibrated sweep rates from 0.2 μsec/div to 2 sec/div. plus 5-x magnifier. Complete triggering facilities.					

with PLUG-IN PREAMPLIFIERS

TYPE 540 SERIES, and TYPE 550 SERIES OSCILLOSCOPES

	Vertical Frequency Response (with Type K Unit)	Signal Delay	Calibrated Sweep Range	Sweep Magnifier	Sweep Delay	Accelerating Potential
TYPE 541A Fast-Rise	dc to 30 mc	Yes	0.1 μsec/cm to 5 sec/cm	5x	None	10 kv
Type 543A Fast-Rise	dc to 30 mc	Yes	0.1 μsec/cm to 5 sec/cm	2, 5, 10, 20, 50, 100x	None	10 kv
TYPE 545A Fast-Rise	dc to 30 mc	Yes	0.1 μsec/cm to 5 sec/cm	5x	1 μsec to 10 sec	10 kv
TYPE 551 Dual-Beam	dc to 25 mc	Yes	0.1 μsec/cm to 5 sec/cm	5x	None	10 kv
TYPE 555 Dual-Beam	dc to 30 mc	Yes	0.1 μsec/cm to 5 sec/cm	5x	0.5 μsec to 50 sec	10 kv

NEW

Type M Four-Trace Preamplifier...Provides a convenient means for viewing up to four signals, either separately or in any combination. Has four individual, independently controlled input amplifiers. Frequency response and risetime is dc to 20 mc, 17 nsec, with fast-rise oscilloscopes. Operating modes include Channels A, B, C, or D only, Chopped, and Alternate. The polarity can be inverted on all channels for comparison of signals 180° out of phase. Selectable ac or dc coupling. Input impedance is 1 megohm paralleled by 47 pf.

TYPE K

Type N Sampling Plug-In Unit...Takes successive samples at a slightly later time at each recurrence of a repetitive pulse and reconstructs it on a relatively long time base. Risetime is approximately 0.6 nsec (corresponding to about 600 mc), and the sensitivity is 10 mv/cm. A four-position switch provides equivalent sweep times of 1, 2, 5, and 10 nsec/cm (100, 200, 500, and 1000 psec/cm with 10-X magnifier). Number of samples per display can be 50, 100, 200, or 500. Requires an external trigger applied in advance of the signal.

TYPE R

Type Q Strain Gage Unit—Designed to measure any mechanical quantity that can be converted to a change in resistance, capacitance, or inductance through use of a suitable transducing device. Strain sensitivity range is 10 microstrain/div to 10,000 microstrain/div in 10 steps. Other features include: dc to 6-kc frequency response, 25-kc carrier frequency, essentially drift-free operation.

TYPE S

Type Z Differential Comparator Plug-In Unit—Vertical "magnification" up to 500 times. Sensitivity is 50 mv/cm, dynamic range is ±100 volts providing an effective scale length of ±2000 cm. Internal dc comparison voltages are 0 to ±100 v, 0.15%; 0 to ±10 v, 0.2%; 0 to ±1 v, 0.25%. Besides differential comparator operation, the Type Z operates as a conventional amplifier and differential amplifier.

HIGH-PERFORMANCE OSCILLOSCOPES

These dc to 100 mc oscilloscopes use the Type 80-Series or, with a Type 81 Adapter, the Type A to Z Plug-In Units. Performance features include:

High sensitivity and high-speed sweeps
Versatile triggering facilities
10-kv accelerating potential

TYPE 585 OSCILLOSCOPE
3.5-nsec Risetime

Fast-Rise Vertical Amplifier

Passband—DC to approximately 100 MC.
Sensitivity—Basic deflection factor 0.1 v/cm with Type 80 Plug-In Preamplifier and P80 Probe.
Versatility—Designed for plug-in preamplifiers.

Sweep Delay

Triggered (jitter free)—delayed sweep is started after the delay period by the signal under observation.
Conventional—delayed sweep is started at the end of the delay period by the delayed trigger.
Range—1 μsec to 10 sec, continuously adjustable (2 μsec/cm to 1 sec/cm).

Two Time-Base Generators

TIME BASE A—50 nsec/cm to 2 sec/cm in 24 calibrated steps, continuously variable from 50 nsec/cm to 5 sec/cm. 5-x magnifier increases calibrated range to 10 nsec/cm. Single-sweep provision for one-shot applications.
TIME BASE B—Also functions as delay generator. 18 calibrated steps from 2 μsec/cm to 1 sec/cm.

Versatile Triggering

Amplitude-level selection with either preset or manual stability control.

10-KV Accelerating Potential

Lumped-constant traveling-wave crt provides 4-cm by 10-cm display area.

Amplitude Calibrator

Square wave, 18 steps from 0.2 mv to 100 v, frequency about 1 kc.

Electronically-Regulated Power Supply

TYPE 581 OSCILLOSCOPE

Same as Type 585, except that it does not have TIME BASE B or provision for sweep delay.

TYPE 80 PLUG-IN UNIT
TYPE P80 PROBE

Designed especially for the Type 585 and 581 Oscilloscopes, the Type 80 Plug-In Unit and Type P80 Probe couple the signal to the oscilloscope.

TYPE 81 PLUG-IN ADAPTER

Fits the Type 585, 581 preamplifier compartment and accepts any Tektronix A to Z Plug-In Unit and retains the passband and sensitivity of the plug-in unit.

HIGH-SPEED OSCILLOSCOPES

Combining simple operation with laboratory precision and reliability, these instruments are especially well-suited to applications involving transients of very short duration.

TYPE 507 OSCILLOSCOPE

for High-Voltage Surge Testing

Vertical Deflection Factor
Approximately 50 v/cm to 500 v/cm in ten equal steps.

Risetime
Adjusted to 10 nsec for optimum transient response.

Calibrated Vertical Positioning
Seven 50-v steps—also continuously adjustable.

Calibrated Sweeps
Eleven fixed sweeps from 20 nsec/cm to 50 μsec/cm.

High Accelerating Potential
24-KV provides bright trace for photographic recordings.

6-cm by 10-cm Linear Deflection

Electronically-Regulated Power Supply

TYPE 519 DC TO 1000 MC OSCILLOSCOPE

Risetime—Less than 0.35 nsec.

Vertical Deflection Factor—Better than 10 v/cm.

Calibrated Sweep Range—2 nsec/cm to 1 μsec/cm in 9 steps.

Cathode-Ray Tube—2 x 6 cm viewing area, distributed deflection plates, 24-kv accelerating potential.

Calibration-Step Generator—±10 v into 125 ohms. Useful to drive device under test or check sensitivity of Type 519.

Rate Generator—For internal triggering.

Wideband Trigger System—External triggering on pulses as small as 20 mv and 1 nsec duration, internal triggering on signals having 2 trace widths or more.

High-Frequency Synchronization to 2000 MC.

Electronically-Regulated Power Supply—Self contained.

TYPE 517A OSCILLOSCOPE

Excellent Transient Response
Vertical-amplifier risetime—7 nsec.
Deflection factor—0.05 v/cm.
Signal-displacement error—less than 2% of 2 cm.

Fast Triggered Sweeps
Eleven calibrated rates from 10 nsec/cm to 20 μsec/cm.
Sweep-displacement error—less than 2% of 8 cm.

High Writing Rate
1100 cm/μsec. 24-kv accelerating potential on Tektronix metallized crt.

Pulse-Type Amplitude Calibrator

Trigger-Rate Generator

Automatic Duty-cycle Limiter

Cathode-Follower Input Probe

Electronically-Regulated Power Supplies

Highly Mobile—Indicator unit and power supply mounted on Scope-Mobile.*

* Registered, Tektronix, Inc.

3" PORTABLE OSCILLOSCOPES

Small size oscilloscopes with 3" cathode-ray tubes combine—
Portability . . . space-saving size
High performance . . . easy operation

TYPE 310A PORTABLE OSCILLOSCOPE

Vertical Response—DC to 4 mc, 0.1 v/div to 50 v/div in 9 calibrated steps. 3 additional steps from 0.01 v/div to 0.1 v/div, at 2 cycles to 3.5 mc. Continuously variable from 0.01 v/div to 150 v/div.

Risetime—90 nsec.

Sweep Range—0.1 μsec/div to 0.6 sec/div, with 5-x magnifier.

Versatile Triggering—Internal, external, line.....ac-coupled or dc-coupled and automatic triggering.

TYPE 321 PORTABLE OSCILLOSCOPE

Transistorized for Battery, DC, or AC Operation.

Frequency Response—DC to 5 mc.

Risetime—70 nsec.

Vertical Deflection Factor—0.01 v/div to 20 v/div in 11 calibrated steps (div equals 1/4 inch), continuously variable to 50 v/div, uncalibrated.

Sweep Range—0.5 μsec/div to 0.5 sec/div with accurate 5-x magnifier.

Triggering—Amplitude-level selection and automatic triggering.

Versatile Power Requirements—10 size D flashlight cells, or 10 size D rechargeable cells; 11.5 to 35 volts dc; 105 to 125 volts or 210 to 250 volts, ac single phase.

TYPE 317 PORTABLE OSCILLOSCOPE

9-KV Accelerating Potential—Bright trace at low sweep repetition rates.

Vertical Response—DC to 10 mc, 0.1 v/div to 50 v/div in 9 calibrated steps. 3 additional steps from 0.01 v/div to 0.1 v/div, at 2 cycles to 10 mc. Continuously variable from 0.01 v/div to 125 v/div.

Risetime—35 nsec.

Sweep Range—0.2 μsec/div to 6 sec/div, with 22 calibrated steps. Accurate 5-x magnifier.

Triggering—Amplitude-level selection with preset or manual stability control, and automatic triggering.

TYPE RM17 OSCILLOSCOPE

Mechanical rearrangement of Type 317 Oscilloscope. Same electrical characteristics. Slide-out mounting. Dimensions: 7" high, 19" wide, 17 5/8" rack depth.

5" COMPACT-SIZE OSCILLOSCOPES

This group of compact-size oscilloscopes offers—
Wide ranges of sensitivities—broad sweep ranges
Versatile triggering—easy mobility

TYPE 503 X-Y OSCILLOSCOPE

Identical Horizontal and Vertical Amplifier—DC to 450-kc passband, 1 mv/cm to 20 v/cm in 14 calibrated steps, differential input at all sensitivities.

Sweep Range—1 μsec/cm to 5 sec/cm in 21 calibrated steps. Accurate 2, 5, 10, 20, and 50-times magnifier.

Triggering—Amplitude-level selection with preset stability control, and automatic-triggering.

Electronically-Regulated Power Supply

TYPE RM503 RACK-MOUNTING OSCILLOSCOPE

Mechanical rearrangement of Type 503 Oscilloscope. Same electrical specifications. Bolts directly to rack. Dimensions—7" h, 19" w, 16½" d.

TYPE 504 OSCILLOSCOPE

Vertical Response—DC to 450 kc, 5 mv/cm to 20 v/cm in 12 calibrated steps, continuously variable from 5 mv/cm to 50 v/cm, uncalibrated.

Sweep Range—1 μsec/cm to 0.5 sec/cm in 18 calibrated steps.

Triggering—Amplitude-level selection with preset stability control, and automatic-triggering.

Electronically-Regulated Power Supply

TYPE RM504 RACK-MOUNTING OSCILLOSCOPE

Mechanical rearrangement of Type 504 Oscilloscope. Same electrical specifications. Bolts directly to rack. Dimensions—7" h, 19" w, 16½" d.

TYPE 515A PORTABLE OSCILLOSCOPE

Passband—DC to 15 mc.

Sensitivity—0.05 v/cm to 20 v/cm in 9 calibrated steps—continuously variable from 0.05 v/cm to 50 v/cm.

Risetime—23 nsec.

Sweep Range—0.2 μsec/cm to 6 sec/cm with 22 calibrated steps. Accurate 5-x magnifier.

Balanced 0.25 μsec Delay Network.

Triggering—Amplitude-level selection with preset or manual stability control, and automatic triggering.

TYPE RM15 RACK-MOUNTING OSCILLOSCOPE

A mechanical rearrangement of the Type 515A for rack-mounting. The electrical characteristics of the Type RM15 are the same as the Type 515A.

Slide-out Mounting.

Dimensions—8¾" high, 19" wide, 22½" rack depth.

TYPE 516 DUAL-TRACE OSCILLOSCOPE

Identical Vertical Input Channels—Passband, dc to 15 mc; risetime, 23 nanoseconds; sensitivity, 0.05 v/div to 20 v/div in 9 calibrated steps (div equals 1 cm), continuously variable to 50 v/div.

Four Operating Modes—Channel A, channel B, A and B chopped (electronic switching at 150-kc rate), or A and B alternate.

Sweep Range—0.2 μsec/div to 2 sec/div in 22 calibrated steps with accurate 5-x magnification.

Versatile Triggering—Amplitude-level selection with preset or manual stability control, and automatic triggering.

NEW

MOBILE OSCILLOSCOPE CARTS

Tektronix Scope-Mobiles* provide mobile support for oscilloscopes or other instruments. An adjustable tray (through nine 4.5° steps) places the instrument at the best viewing angle. 5-inch rubber tire wheels. Optional plug-in carriers provide dust-free storage of extra plug-in units. Aluminum construction.

* Registered, Tektronix, Inc.

Type 201 and Type 203—10½" tray width. Will hold Types 503, 504, 515A, 516, 560, and 561 Oscilloscopes.

Type 202 and Type 204—14" tray width. Will hold Types 530, 540, 550, 580-Series Oscilloscopes; 502, 524AD, 517A, 507 Oscilloscopes; 570, 575 Curve Tracers.

Type 201 . . . . . (Part No. 016-030)
Type 203 (Type 201 with Plug-in Carrier installed) (Part No. 016-033)
Type 202 . . . . . (Part No. 016-031)
Type 204 (Type 202 with Plug-In Carrier installed) (Part No. 016-034)
Plug-In Carrier (for Type 201) Part No. 014-007
Plug-In Carrier (for Type 202) Part No. 014-008

TYPE 560 and TYPE 561 OSCILLOSCOPES

Basically indicators, these oscilloscopes use plug-in units in both the vertical and horizontal channels which drive the crt deflection plates directly. Advantages include—

No limiting circuitry between plug-ins and deflection plates
Selectable type and degree of performance
Fewer components and controls
Less indicator "down-time"

TYPE 560 OSCILLOSCOPE

Regulated Power Supply—Provides 30 watts for powering all signal-amplifier and time-base plug-in units below Type 70.

Regulated Heater Supply

Amplitude Calibrator—500 mv and 50 mv, square wave at line frequency.

TYPE 561 OSCILLOSCOPE

Regulated Power Supply—Provides 90 watts for powering all present and all future plug-in units in this series.

Regulated Heater Supply—Has separate regulator circuitry.

Amplitude Calibrator—18 square-wave voltages from 0.2 mv to 100 v, approximately 2 μsec risetime, at line frequency.

NEW

TYPE RM561 OSCILLOSCOPE

Mechanical rearrangement of the Type 561 Oscilloscope for mounting in a standard 19" rack. Same electrical specifications except the crt is a 5" rectangular tube; amplitude calibrator range is 1 mv to 100 v in steps of 1, 10, 100 mv; 1, 10, and 100 v. Has beam rotator adjustment for aligning beam without removing instrument from rack.

Please refer to page 2 for descriptions of the new Type 3S76 Dual-Trace Sampling Plug-In Unit and the Type 3T77 Sampling Sweep Plug-In Unit.

SIGNAL-AMPLIFIER AND TIME-BASE PLUG-IN UNITS

General Description	Plug-In Type	Passband	Calibrated Deflection Factor	Cal. Sweep Range	Sweep Magnifier
Basic	59	dc to 400 kc	Approx. 1 v/cm		
General Purpose	60	dc to 1 mc	50 mv/cm to 50 v/cm		
High-Gain DC Differential	63	dc to 300 kc	1 mv/cm to 20 v/cm		
Time-Base	67			1 μsec/cm to 5 sec/cm	5X
Dual-Trace	72	dc to 650 kc	10 mv/cm to 20 v/cm		
Wide-Band	75	dc to 4 mc	50 mv/cm to 20 v/cm		
Special-Purpose	50	15 cps to 200 kc	1 mv/cm		
Special-Purpose	51			5 ms/cm	1X to 20X
Dual-trace Sampling	3S76	Equivalent to 875 mc	2 mv/div to 200 mv/div		
Sampling Sweep	3T77			0.2 nsec/div to 10 μsec/div	10X

TELEVISION OSCILLOSCOPES

Built to meet the exacting demands of both the design engineer and the TV-Broadcaster, these instruments will display and measure television-signal waveforms with a high degree of accuracy and dependability.

NEW

TYPE 526 VECTORSCOPE
for the N.T.S.C. Color-Television Signal

Both Vector and Line-Sweep Displays

Phase Accuracy—±1.5° by vector presentation, ±1° by null technique.

Phase Resolution—Better than 0.1° at 3.58 mc.

Saturation Measurements—±2% on graticule, closer when comparing two signals.

Dual Displays—Electronically-switched dual input channels permit direct comparisons between two signals.

Interfield Signal Key—Permits easy display of test signals during vertical blanking time.

Linear Time Base—Operates at line rate, synchronized by horizontal sync pulse.

Burst Brightening—Positive identification of burst packet.

Push-Pull Synchronous Demodulators—DC-Coupled to crt to prevent changes in chroma signal composition from affecting the positioning of the display.

Self-Checking Circuitry

Subcarrier Regenerator

TYPE 527 TELEVISION WAVEFORM MONITOR

Displays and measures linearity, signal level and bandwidth of both black-and-white and color tv-signal waveforms.

Frequency Response—Flat, ±1% from 60 cycles to 5 mc. IRE, new 1958 Standard #23S-1.

Sensitivity—Variable from 0.25 v, min, to 1.6 v, max, for 140 IRE units.

Linearity—Within ±1%.

DC Restorer—New circuit eliminates dc drift, base-line shift due to color-burst.

Video Input—Calibrator, A, B, or balanced A-B. Input impedance never less than 1 megohm.

Calibrated Sweeps—0.125 H/cm, 0.025 H/cm, 0.005 H/cm. Accurate sweeps eliminate need for Z-axis time-marks.

Horizontal Display—2-Line, 2-Field, VIT, .125 H/cm, RGB Line, RGB Field.

DC-Coupled Unblanking

Vertical Amplifier Calibrator—0.714 or 1.00 v pk-pk, ±1%.

TYPE 524AD TELEVISION OSCILLOSCOPE

Passband

Normal—dc to 10 mc from 0.15 v/cm to 50 v/cm, 2 cycles to 10 mc from 15 mv/cm to 50 v/cm.

Flat—Within 1% from 60 cycles to 5 mc.

IRE—Meets IRE standards for level measurements.

Risetime—35 nsec.

Sweep Range—Continuously variable, 0.1 μsec/cm to 0.01 sec/cm.

Time Markers—0.05 μsec, 0.1 μsec, 1.0 μsec, 200, and 40 pips per television line.

Sweep Delay—0 to 25 milliseconds, continuously variable.

DC-Coupled Unblanking.

3-x and 10-x Magnifier.

Variable-Duty-Cycle Amplitude Calibrator.

TYPE 525 TELEVISION WAVEFORM MONITOR

Frequency Response

Flat—within 1% between 60 cycles and 5 mc.

Low Pass—passes stair steps, eliminates high frequencies.

High Pass—passes high frequencies, eliminates stair steps.

IRE—meets IRE standards for level measurements.

Sensitivity—Deflection factor of the vertical amplifier is 0.015 v/cm.

Vertical Attenuator—1-x, 2-x, and 5-x.

Keyed Clamp-Type DC Restorer.

Gain Stability within 1%.

Rack-Mounting—8¾" high, 19" wide, 20¾" rack depth.

TYPE 525MOD111—Equipped with intensifier for observation of vertical-blanking-interval test signal.

CHARACTERISTIC-CURVE TRACERS

Present accurate graphic analysis of electron-tube or transistor characteristics under operating conditions.

TYPE 575 TRANSISTOR CHARACTERISTIC-CURVE TRACER

20 ampere collector displays. (10 ampere average supply current).

2.4 Ampere base supply.

Positive or negative collector sweep—

Collector supply—0 to 20 v, 10 amperes.
0 to 200 v, 1 ampere.

Positive or negative base stepping

4 to 12 steps/family, repetitive or single family display.
17 current/step positions, 0.001 ma/step to 200 ma/step.
5 voltage/step positions, with 24 different driving resistances.

Calibrated display

Vertical Axis—	Horizontal Axis—
Collector current	Collector voltage
Base voltage	Base voltage
Base current	Base current
Base source voltage	Base source voltage

Base current range is from 0.01 v/div to 0.5 v/div in 6 steps.

Collector current range is in 16 steps from 0.01 to 1000 ma/div.
Pushbuttons are provided for multiplying each current step by 2 and dividing by 10, increasing the current range to 0.001 to 2000 ma/div.

Collector voltage range is from 0.1 v/div to 20 v/div in 11 steps.

TYPE 175 TRANSISTOR CURVE-TRACER ADAPTER

When used with the Type 575 Transistor-Curve Tracer, the Type 175 offers:

200-Ampere Collector Displays (100-ampere peak continuous supply current)

12-Ampere Base Supply

Positive or Negative Base Stepping

4 to 12 steps/family, repetitive or single family display.
1 ma/step to 1000 ma/step in 10 positions.
0.02 v/step to 0.5 v/step in 5 positions, with 11 different driving resistances.

Calibrated Displays

Vertical Axis—Collector current.
Horizontal Axis—Collector voltage or base voltage.

Positive or Negative Collector Sweep

Collector Voltage—0 to 20 v, 0 to 100 v, and 0 to 100 v with 300-ohm series load resistor.

TYPE 570 ELECTRON-TUBE CHARACTERISTIC-CURVE TRACER

Displays 4 to 12 characteristic curves per family.

Plots all important characteristics—

Plate current against plate or grid voltage.
Screen current against plate or grid voltage.
Grid current against plate or grid voltage.

Plots up to 8 positive-bias curves per family.

Calibrated Controls—

Accurate current and voltage readings directly from the crt screen.

Wide Display Range—

11 current ranges from 0.02 ma/div to 50 ma/div.
9 voltage ranges from 0.1 v/div to 50 v/div.
11 series-load resistors from 300 ohms to 1 megohm.
7 grid-step values from 0.1 v/step to 10 v/step.

Heater voltages available in 17 steps, variable to 20%.

WAVEFORM, TIME-MARK, PULSE GENERATORS

Precision instruments with stable, trouble-free operation.

TYPE 105 SQUARE-WAVE GENERATOR

Risetime—13 nsec, with 52-ohm termination.
Frequency Range—25 cycles to 1 mc, continuously variable.
Frequency Meter — Direct reading, accurate within 3% of full scale.
Output Amplitude—0 to 100 v maximum, 0 to 15 v across 93-ohm load.

TYPE 107 SQUARE-WAVE GENERATOR

Risetime—3 nsec, with 52-ohm termination.
Frequency Range — 400 kc to 1 mc, uncalibrated.
Output Amplitude—0.1 v to 0.5 v, with 52-ohm termination.

TYPE 110 PULSE GENERATOR and TRIGGER TAKE-OFF

Pulse Risetime—Less than 0.25 nsec.
Pulse Length—Minimum of 0.5 nsec to 300 nsec at half rep rate.
Pulse Output Impedance 50 ohms.
Pulse Repetition Rate — Nominally 720 pulses/sec.
Trigger Systems—50-ohm impedance. Takeoff system where signal is patched into a "loop-through" arrangement and a portion of signal used as a trigger signal. Regenerated trigger system with trigger output ±10 v amplitude, 225 nsec duration, 4 nsec 50% risetime, count down from approximately 100 mc.

NEW

TYPE 109 PULSE GENERATOR

Produces pulses of different widths, amplitudes, and polarities. Risetime is less than 0.25 nsec. Calibrated amplitudes from 0 to 50 v in three ranges, each continuously variable.

TYPE 111 PRETRIGGER PULSE GENERATOR

Risetime—0.5 nsec for positive pulse, slightly longer for negative pulse.
Pulse Duration—2 nsec minimum, 100 nsec maximum at low rep rates decreasing to 20 nsec at 100-kc rep rate (obtained with external charge line).
Pulse Repetition Rate—10 pps to 100 kc in 4 ranges with continuously variable control.
Pulse Amplitude—More than ±5 volts.
Pretrigger Pulse Characteristics—10 volts, 250 nsec duration, half-amplitude risetime about 4 nsec.
Pulse Delay—Continuously variable from 30 to 250 nsecs after pretrigger pulse.
Output Impedance—50 ohms.

TYPE 161 PULSE GENERATOR

Variable-Amplitude—Positive or negative pulse from 0 to 50 v.
Positive Gate—50 v amplitude.
Output Characteristics
Duration—calibrated, continuously variable, 10 μsec to 0.1 sec.
Delay—continuously variable, 0 to 100% of triggering sawtooth waveform.
Risetime—less than 0.5 μsec.

TYPE 162 WAVEFORM GENERATOR

Output Waveforms — positive pulse, positive gate, and negative-going sawtooth.
Output Characteristics—
Repetition Rate—0.1 c to 10 kc for recurrent operation.
Duration—pulse 10 μsec to 0.05 sec; gate and sawtooth, 100 μsec to 10 sec.
Amplitude — pulse and gate, 50 v; sawtooth, +150 v to +20 v.

TYPE 163 FAST-RISE PULSE GENERATOR

Variable-amplitude positive pulse—0 to 25 v.
Fixed-amplitude positive gate—25 v.
Output characteristics—
Risetime—less than 0.2 μsec.
Duration—Calibrated, continuously variable, 1 μsec to 10,000 μsec.
Delay—Continuously variable to 100% of triggering sawtooth duration.

TYPE 181 TIME-MARK GENERATOR

Time-marks—1, 10, 100, 1000, and 10,000 microseconds, plus 10-mc sine wave.

1-mc crystal controlled oscillator is accurate within 0.03%.

TYPE 180A TIME-MARK GENERATOR

Time-Marks—1, 5, 10, 50, 100, 500 μsec; 1, 5, 10, 100, 500 msec; 1, 5 seconds.

Three Sine-Wave Frequencies—5 mc, 10 mc, and 50 mc.

Six Trigger-Rate Frequencies—1, 10, 100 cycles and 1, 10, 100 kc.

Temperature-Stabilized Crystal—provides stability of 2 ppm.

TYPE 190B CONSTANT-AMPLITUDE SIGNAL GENERATOR

Output Frequency—350 kc to 50 mc, continuously variable, 50 kc reference signal.

Output Amplitude—40 mv to 10 v peak-to-peak, continuously adjustable.

Amplitude Variation—less than ±2% from 50 kc to 30 mc; less than ±5% from 30 mc to 50 mc.

Harmonic Content—typically less than 5%.

PULSE SAMPLING SYSTEM

The Tektronix Pulse Sampling System has an inherent risetime of 0.6 nsec (corresponding to a band-width of about 600 mc), and will display recurrent signals with equivalent sweep times of 1, 2, 5, and 10 nsec/cm (100, 200, 500, and 1000 psec/cm, with the magnifier). The system (in addition to a Tektronix plug-in oscilloscope) includes (1) a Type N Sampling Plug-In Unit—used alone when suitable pretriggers are available, or (2) a Type N and a Type 111 Pretrigger Pulse Generator—used when 10 cps to 100 kc repetition rate is desirable, or (3) a Type N, a Type 110 Pulse Generator and Trigger Takeoff System, and a Type 113 Delay Cable—used when the ultimate risetime capability of a Type N is needed or when a trigger must be derived from a signal having an amplitude as low as 20 mv or a repetition rate as high as 100 mc.

ROTAN SYSTEM

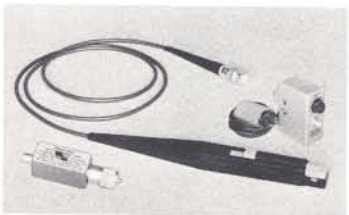
Designed to study rotation-associated phenomena in machinery, the Type 182B Angle-Encoding Transducer and Type 183B Rotation Analyzer adapt an oscilloscope to provide horizontal trace deflection proportional to angular displacement of a rotating shaft. Transduced data, such as velocity, pressure, acceleration or vibration provides vertical trace deflection.

Three Marker Tracks—1, 10, and 360-degree intensity-marker and trigger pulses.

Output Voltages—Marker pulses not less than 10 v, trigger not less than 7 v.

Angular Velocity — Essentially zero rpm to 20,000 rpm.

AC CURRENT PROBE SYSTEMS



P6016 PROBE and TYPE 131 AMPLIFIER

Sensitivity (with 50 mv/div oscilloscope input)—1 ma/div to 1 amp/div in 10 steps. Variable sensitivity control on oscilloscope provides continuous uncalibrated adjustment.

Frequency Passband (With Tektronix Type 540-Series Oscilloscope and Type L Plug-In Unit)—3 db down at 50 cps and approximately 17 mc (risetime—20 nsec).

Saturation Ratings—DC, 0.5 amp; AC, 15 amp peak-to-peak decreasing to 8 amp at 400 cps, 400 ma at 50 cps.

P6016 PROBE and PASSIVE TERMINATION SYSTEM

Sensitivity—2 ma/mv and 10 ma/mv.

Frequency Range (With Tektronix Type 540-Series Oscilloscope and Type L Plug-In Unit)—3 db down at 850 cps (2 ma/mv), 230 cps (10 ma/mv) and 20 mc (risetime—18 nsec).

Saturation Ratings—DC, 0.5 amp; AC—(2 ma/mv), 15 amp peak-to-peak decreasing to 8 amp at 1.5 kc, 4 amp at 850 cps; (10 ma/mv), 15 amp peak-to-peak decreasing to 5 amp at 400 cps, 2.5 amp at 230 cps.

POWER SUPPLIES

Electronically-regulated power supplies provide power for various Tektronix instruments and assure stable operation.

NEW

TYPE 132 PLUG-IN UNIT POWER SUPPLY

Provides an electronically-regulated power supply and amplifier for any Tektronix Type A to Z Plug-In Unit.

Easily portable, it enables the many plug-ins to be used with or without an oscilloscope in a wide variety of applications.

Frequency response of the amplifier is dc to 15 mc, with a risetime of 23 nsec, when using a Tektronix Type K or L Plug-In Unit.

TYPE 133 PLUG-IN UNIT POWER SUPPLY

Provides power to an internal, transistorized amplifier and any Tektronix Type A to Z Plug-In Unit.

The frequency response of the transistorized amplifier is dc to 100 kc and the output is ±5 volts. The source impedance is 2 ohms. Characteristics of this unit make it particularly useful for driving recorders, and for audio or other low-frequency work.

TYPE 160A POWER SUPPLY

Large load capacity—Provides operating power for four to six 161, 162, 163 Units plus a 360 Indicator Unit.

Electronic voltage regulation.

TYPE 125 POWER SUPPLY

Provides power for one to four Type 122 Amplifiers. Electronic voltage regulation improves drift stability.

TYPE 127 PREAMPLIFIER POWER SUPPLY A rack-mounting unit that supplies proper operating power to one or a combination of two Type A to Z Plug-In Units. Contains a differential dc-coupled amplifier stage with push-pull output. Risetime is 18 nsec. Square-wave amplitude calibration has 18 steps from 0.2 mv to 100 v. Dimensions—8¾" high, 19" wide, 20" rack depth.

AUXILIARY INSTRUMENTS

TYPE 122 LOW-LEVEL PREAMPLIFIER

Voltage Gain—1000.

Frequency Response—0.16 cycles to 40 kc maximum.

Rejection Ratio—80 to 100 db for in-phase signals.

Noise Level—4 μv rms maximum.

Output Voltage—20 v max pk-pk.

Input Impedance—10 megohms paralleled by approximately 50 pf.

Battery powered, if desired.

TYPE 130 L,C METER

Guard Voltage—Eliminates the effects of other capacitances from the measurements.

Five Ranges—

Microhenries—0 to 3, 10, 30, 100, 300.

Micromicrofarads—0 to 3, 10, 30, 100, 300.

Accuracy—Within 3% of full scale.

TYPE 1121 AMPLIFIER

Voltage Gain—100 with 9 calibrated attenuator steps to provide net gain from 100 to 0.2.

Frequency Response—5 cycles to 17 mc.

Risetime—21 nsec.

Maximum Output Voltage—±1 v in terminated 93-ohm cable.

TYPE 123 PREAMPLIFIER

Frequency Response—

Within 2% from 15 cycles to 6 kc.

Within 3 db from 3 cycles to 25 kc.

Voltage Gain—100 times.

Hum-Free—Powered by miniature batteries.

Compact—3⅝" x 1½" x 2¼".

Weight—10 ounces.

Type 113 DELAY CABLE

Time Delay—60 nsec.

Risetime—Approximately 0.1 nsec.

TYPE 360 INDICATOR

Vertical Passband—DC to 500 kc.

Calibrated Vertical Attenuator

Deflection Factor—0.05 v/div.

Waveform Requirements—for Horizontal Deflection +50 v unblanking pulse, ± sawtooth with amplitude from 110 to 150 v and extreme voltage limits at −90 v and +170 v.

Powered by a Type 160A, or Type 126 Power Supply.

TEKTRONIX, INC.

An Oregon Corporation
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