

E11



SHORT FORM CATALOG

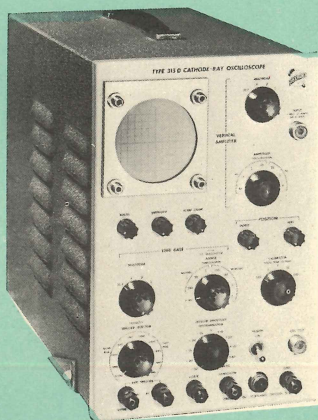
5302

EXCELLENCE



OSCILLOSCOPE FEATURES

- 5" Cathode-Ray Tubes (except Type 315-D)
- Direct reading sweep dials • Single, triggered or recurrent time bases • Time bases accurate to 5% or better • Positive or negative internal and external triggering • Sawtooth and gate available on front panel • All dc voltage electronically regulated • Individually adjusted for optimum transient response • Excellent image contrast under high ambient light conditions • Electrically welded all aluminum construction — low weight.

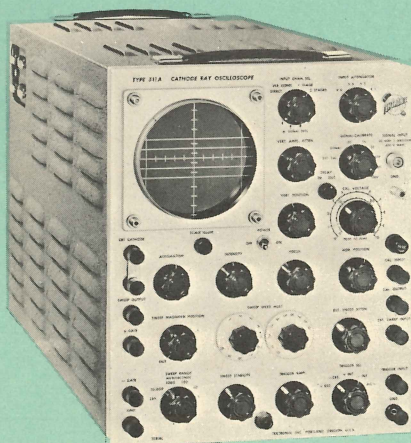


NEW

TYPE 315-D OSCILLOSCOPE

The TEKTRONIX Type 315-D is a 3" precision laboratory oscilloscope with the following features: Calibrated time bases in the extremely wide range of 1 μsec to 50 sec; accurate 5x magnifier (slightly less than 5x at sweep times less than 0.1 $\mu\text{sec/cm}$); direct coupled trigger amplitude discriminator, direct coupled unblanking; vertical amplifier risetime less than 0.07 μsec ; sensitivity, dc to 5 mc — 0.1 v/division to 50 v/division 5 cps to 5 mc — 0.01 v/division to 50 v/division calibrated (graticule marked in quarter-inch divisions); 0.25 μsec signal delay; square wave voltage calibrator; flat-faced crt, 1.8 kv accelerating potential. Small in size—12 $\frac{3}{8}$ " high, 8 $\frac{7}{8}$ " wide, 15 $\frac{1}{2}$ " deep—but fully accessible for servicing. Maximum depth including knobs and air filter, 18 $\frac{1}{4}$ ". Weight only 36 lbs. Price \$770 (50-60 cycle supply only).

Type 315-D—Equipped for operation on supply frequencies from 50 to 800 cycles. Price \$785.



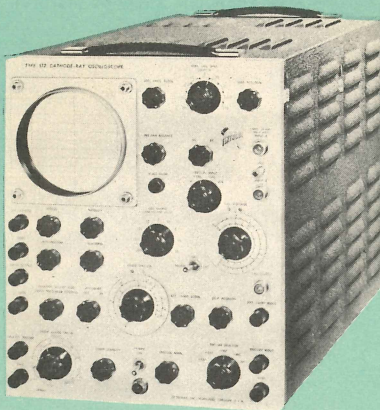
TYPE 511-AD OSCILLOSCOPE

The TEKTRONIX Type 511-AD Oscilloscope has the following characteristics: 0.1 $\mu\text{sec/cm}$ to 0.01 sec/cm time base, continuously variable; sweep magnifier, 5x, except at sweep times less than 0.5 $\mu\text{sec/cm}$; five position trigger selector; 0.04 μsec vertical amplifier risetime; approximate bandwidth 5 cycles to 10 mc; vertical deflection sensitivity from 0.25 v/cm to 200 v/cm; voltage calibrator zero to 100 volts in six ranges, accurate within 3% of full scale; 0.25 μsec delay network that can be switched in or out at will. This instrument is extremely valuable where excellent transient response, wide band-pass, and high sweep speeds are necessary. Weight 55 lbs. Price: Type 511-AD, \$845 Type 511-A (without delay network), \$795.

in Instrumentation

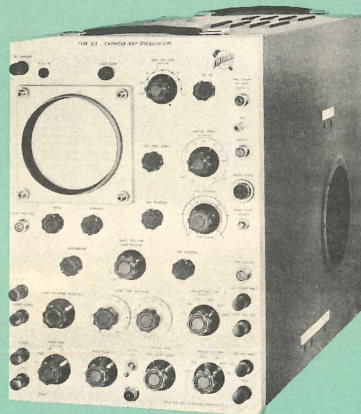
TYPE 512 OSCILLOSCOPE

The TEKTRONIX Type 512 Oscilloscope features: balanced, direct-coupled, push-pull amplifiers with sensitivity ranging from 5 mv/cm to 50 v/cm; rise-time 0.2 μ sec; bandwidth from dc to 2 mc; time base range from 3 μ sec/cm to 0.3 sec/cm, with 5x magnifier; differential input to amplifiers; square wave voltage calibrator from 0 to 50 v in 9 ranges, 3% of full scale accuracy; time bases of 1.0 sec/cm and 3.0 sec/cm available on order. With its high stability, sensitivity, and accurate calibration of timing and amplitude, the Type 512 has gained exceptional and immediate acceptance in the fields of biophysical and geophysical research, as well as being an indispensable circuit development tool in the hands of the electronic engineer. Weight, 56 lbs. Price \$950.



TYPE 513-D OSCILLOSCOPE

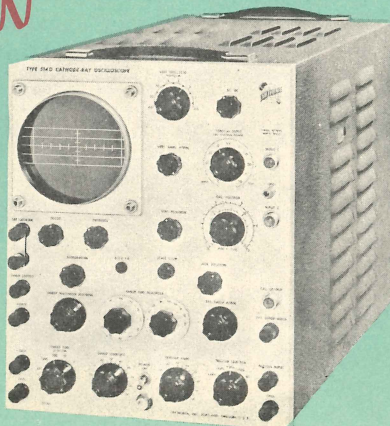
The TEKTRONIX Type 513-D Oscilloscope has the following features: high writing rate; metallized crt with regulated accelerating potential of 12 kv (+10 kv and -2 kv); distributed type vertical amplifier with a risetime of 0.025 μ sec, sensitivity of 0.03 v/cm at 5 cycles to 16 mc (approx.) and 0.3 v/cm at dc to 18 mc (approx.); trigger rate generator with 5 fixed pulse rate frequencies of 0.2 kc, 0.5 kc, 1 kc, 2 kc and 5 kc; a square wave voltage calibrator from 0 to 50 v in 7 ranges, 3% of full scale accuracy; a delayed gate and a delayed trigger for control of auxiliary equipment; 0.25 μ sec signal delay; other specifications similar to those of Type 511-A. This instrument is extremely useful in random pulse work where high writing rate is essential. Weight 79 lbs. Price, Type 513-D, \$1650. Type 513 (without delay network) \$1600.



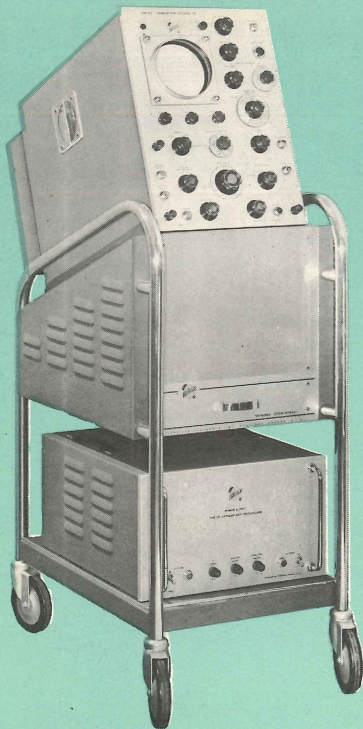
TYPE 514-AD OSCILLOSCOPE

NEW

The TEKTRONIX Type 514-AD is a laboratory type oscilloscope with the following new features: 6cm undistorted vertical deflection with new vertical amplifier, new flat-faced cathode-ray tube, new variable duty cycle calibrator, new direct coupled unblanking. Vertical amplifier bandwidth dc to 10mc at 0.3 v/cm to 100 v/cm sensitivity, 2 cycles to 10 mc at 0.03 v/cm to 100 v/cm sensitivity, risetime 0.04 μ sec, 0.25 μ sec signal delay. Time base range 0.1 μ sec/cm to 0.01 sec/cm accurate within 5% of full scale. Square wave calibrator variable from 0 to 50 volts, accurate within 3% of full scale, duty cycle variable from 2% to 98%. Direct coupled unblanking insures uniform CRT bias regardless of sweep time and repetition rate. 3 kv accelerating potential. Weight 61 lbs. Price, Type 514-AD, \$950; Type 514-A (without delay network) \$900.

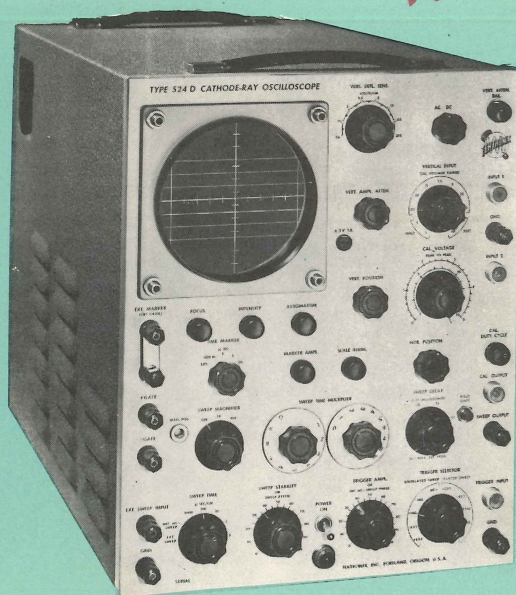


EXCELLENCE



TYPE 517 OSCILLOSCOPE

The TEKTRONIX Type 517 is a wide band high voltage cathode-ray oscilloscope designed primarily for the observation and photography of very fast transients. It consists of two units, indicator and power supply, mounted on a scope-mobile to make up a convenient, mobile instrument. Features include; high writing rate, obtained by 24 kv accelerating potential on a metallized P11 crt; eleven calibrated times bases from 0.01 to 20 $\mu\text{sec}/\text{cm}$, accuracy 2%; time base triggered by observed signals of 2 mm or greater amplitude; signal delay to permit observation of front of pulse; distributed vertical amplifier with 0.007 μsec risetime and 0.1 v/cm sensitivity; cathode follower input probe with capacitance attenuators; pulse type amplitude calibrator with 6 ranges, accuracy $\pm 4\%$; all supply voltages to indicator (including heaters and crt gun voltage) electronically regulated; trigger rate generator variable from 15 to 15,000 cps; panel switch to reduce accelerating potential to 12 kv giving twice above sensitivities and sweep rates. Standard accessories; scope-mobile, cathode follower probe and attenuators, 170 ohm attenuator, viewing hood. Weight 190 lbs. Price: \$3500.



NEW

TYPE 524-D OSCILLOSCOPE

The TEKTRONIX Type 524-D Oscilloscope was designed for Television Broadcasters and has the following features: time bases 0.01 sec/cm to 0.1 $\mu\text{sec}/\text{cm}$; zero to 25 milliseconds delay, a line at a time, on all time bases; 3x or 10x magnification, accurate within 2% except at sweep times less than 1 $\mu\text{sec}/\text{cm}$; field selector for switching to either field of the frame; built-in sync separator; 60 cycle sweep with amplitude and phase control; time mark generator, 1 μsec , 0.1 μsec , 0.05 μsec , or 200 pips per television line; vertical amplifier risetime 0.04 μsec ; vertical sensitivity dc to 10 mc — 0.15 v/cm, 2 cycles to 10 mc — 0.015 v/cm; 0.25 μsec signal delay; more than 6 cm undistorted deflection; variable duty cycle square wave calibrator, accurate within 3%; flat-faced crt with 4 kv accelerating potential. The specialized features of the 524-D make it highly desirable for maintenance of TV transmitter and studio equipment. Weight 61 lbs. Price \$1180.

in Instrumentation

TYPE 104-A SQ. WAVE GENERATOR

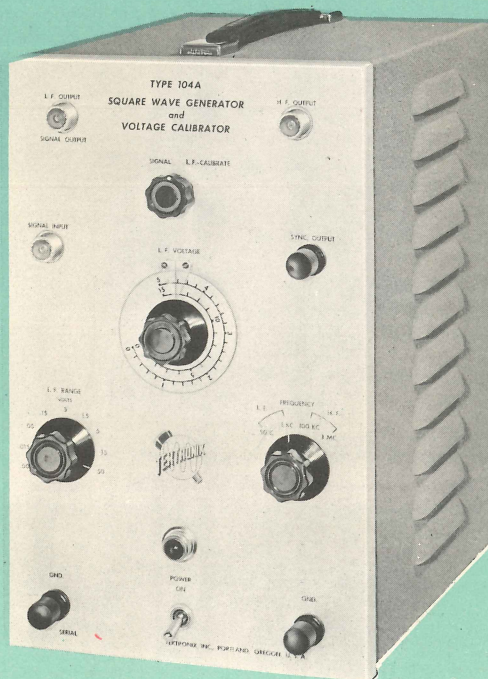
The TEKTRONIX Type 104-A is a low cost generator of precision square waves. It is equipped with four fixed frequencies in the ranges most used to test wide band amplifiers and oscilloscopes. Selected frequencies will be supplied at a small additional charge on special order. Controls are provided enabling use of LF output as voltage calibrator, 5 mv to 50 v in 9 ranges, accurate within 3% of full scale. Frequencies normally supplied: LF—50 cps and 1 kc, HF—100 kc and 1 mc.

Risetime: LF—3 μ sec, HF—0.02 μ sec.

Amplitude: LF—0 to 50 v, HF—0 to 5 v.

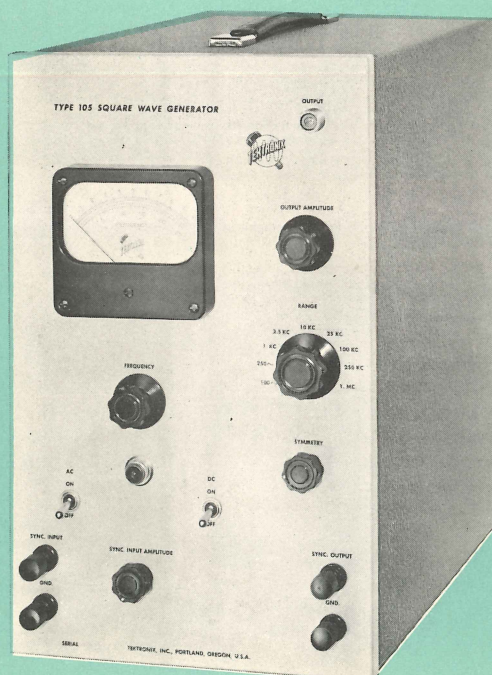
Output load: LF—0 to 20 k, HF—0 to 93 ohms.

Weight 22 lbs. Price \$195.

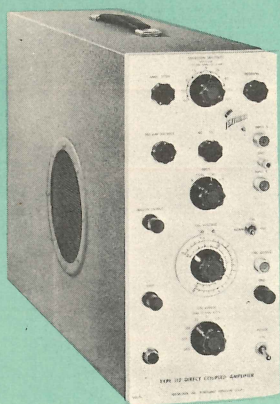


TYPE 105 SQ. WAVE GENERATOR

The TEKTRONIX Type 105 Square Wave Generator is an extremely versatile precision instrument for checking transient response and bandwidth (1 cps to 20 mc) of amplifiers, filters, attenuators, etc. Regulated dc supply, direct reading frequency meter, small size, and other features combine to make this instrument a necessity for any well equipped laboratory. Frequency: 25 cps to 1 mc variable; risetime, 0.02 μ sec if load is 93 ohms or less; amplitude, 100 v. maximum, 15 v across 93 ohms; accuracy of frequency meter, 3% of full scale; sync voltages, output 5 v, input 3 v—50 v. Weight 35 lbs. Price \$395.



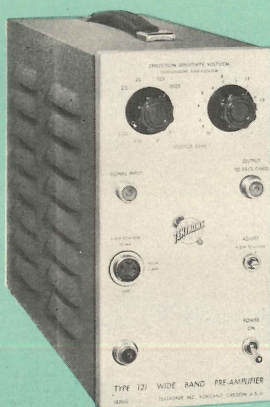
EXCELLENCE



TYPE 112 AMPLIFIER

The TEKTRONIX Type 112 DC Amplifier was developed to be used with TEKTRONIX or other oscilloscopes.

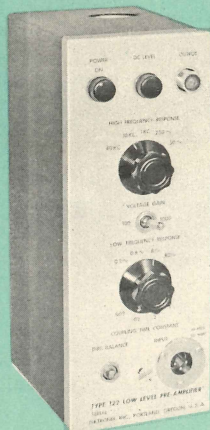
Same as Type 512 vertical amplifier; self-contained regulated supply; square wave calibrator accurate within 3%, trigger output; marker input; output voltages, 150 v high impedance; 75 v, 8000 ohm load; average output level, 150 v or ground. Weight 32 lbs. Price \$495.



TYPE 121 PRE-AMPLIFIER

The TEKTRONIX Type 121 Pre-Amplifier was designed primarily to augment the vertical amplifier of the Type 511-A oscilloscope, providing an overall sensitivity of 2.5 mv/cm while preserving the band-pass and transient response. May be used with other oscilloscopes or wide band equipment.

Voltage gain, 100; input impedance 1 megohm paralleled by 25 μ f; output, ± 1 v, 93 ohms; band pass, 5 cps, 12 mc; front panel supply socket, 6.3 v dc, 20-120 v dc; portable; self-contained power supply. Weight 18 lbs. Price \$265.



TYPE 122 PRE-AMPLIFIER

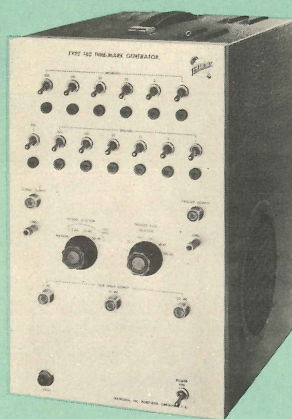
The TEKTRONIX Type 122 Pre-Amplifier was designed as an accessory to the Type 512 Oscilloscope, for use in the biophysical, geophysical and other fields requiring additional sensitivity in the limited pass-band of 1/6 cps — 40 kc. At maximum gain, a 5 μ v signal will produce a 1-cm deflection on the oscilloscope. Use of the differential input gives a rejection ratio of 80 to 100 db for in-phase signals. A maximum of 20 v (peak-to-peak) is available at the cathode follower output. Multiposition switches permit separate control of both ends of the pass-band. Battery operated for minimum noise level. Price \$85.

in Instrumentation

TYPE 180 TIME MARK GENERATOR

NEW

The TEKTRONIX Type 180 Time Mark Generator has the following features: time markers of 1, 5, 10, 50, 100, 500 microseconds—1, 5, 10, 50, 100, 500 milliseconds—1 second, all available separately and simultaneously through pin jacks at 20 v to 50 v, or mixed in any combination through uhf connector at 1 v to 3 v; sine wave outputs of 5 mc, 10 mc and 50 mc at approximately 7 v; trigger impulses of 1, 10, 100 cycles, 1, 10, 100 kilocycles through uhf connector at 3 v to 10 v. A crystal controlled oscillator operating at 1 mc controls all outputs. The 1-mc frequency is factory adjusted within 0.005% and may easily be standardized against station WWV for greater accuracy. Weight 35 lbs. Price \$575.



TYPE 160 SERIES WAVEFORM GENERATORS

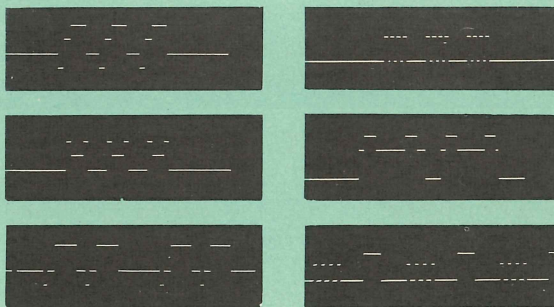
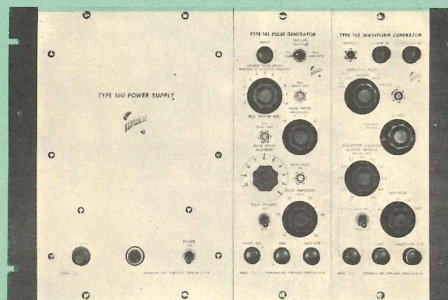
The TEKTRONIX Type 160 series consists of Type 160 regulated power supply, the Type 161 Pulse Generator, and Type 162 Waveform generator. Shown are some of the combinations possible with these generators in various hook-ups. The number and repetition rate of pulses in a group are easily varied with calibrated controls. Duration, repetition rate, and amplitude of individual pulses are also variable through calibrated controls.

The Type 161, when triggered, produces calibrated rectangular pulses of variable duration (10 μ sec to 0.1 sec) and amplitude (0 to 50 v) and of either polarity. Output pulses can be adjusted to occur at any point through the duration of a negative going sawtooth trigger. Price \$95.

Type 162 generates a linear negative going sawtooth (+150 v to +20 v, duration 100 μ sec to 10 sec, rep. rate 0.1 cps to 10 kc for recurrent operation), positive gate (+150 v, duration 100 μ sec to 10 sec) and positive trigger (+50 v, duration 10 μ sec to 0.2 sec). It can be triggered externally or by a front panel button. Price \$95.

The Type 160 produces ac voltages and regulated dc voltages necessary to operate any combination of six of the 161 and 162 generators. Price \$110.

The Type FA 160 Mounting Frame adapts these instruments to rack mounting. Holds four waveform generators—or two waveform generators and one power supply. Price \$5.



WARRANTY

All TEKTRONIX instruments are fully guaranteed against defective materials and workmanship for one year. Should replacement parts be required, whether at no charge under warranty or at established net prices, they will be shipped from the factory, via air transportation on request, prepaid to any point within continental North America.

TEKTRONIX Transformers, manufactured in our own plant, carry an indefinite warranty. In the event of failure please be sure to contact the nearest TEKTRONIX Field Engineer, Field Sales Representative, or Headquarters.

Prices Shown are f.o.b. Portland, Oregon

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