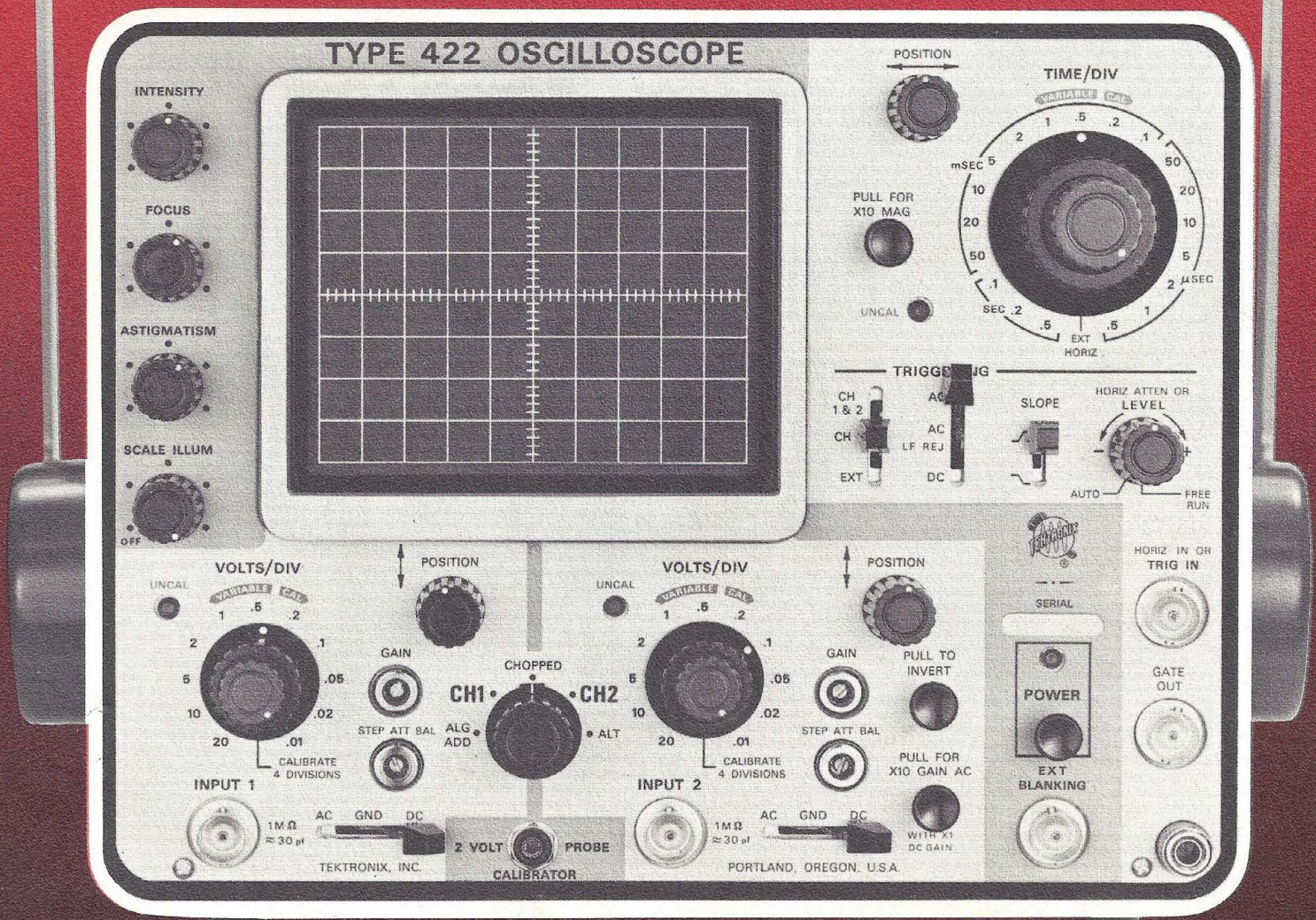


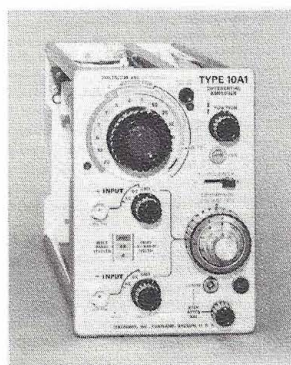
Tektronix at '65 IEEE

featuring the new Type 422 Portable Oscilloscope

BOOTHS 3609-3617 · NEW YORK COLISEUM
MARCH 22nd THROUGH 25th



Five new plug-in units increase versatility



High Resolution Differential Slide Back Plug-In Unit

permits new degree of
oscilloscope measurement

A new differential slide-back plug-in unit, Type 10A1 designed for use with the rugged Type 647 Oscilloscope adds new dimensions of dynamic range, waveform resolution, and amplitude accuracy to oscilloscope displays. It has a dc-to-35 Mc passband at a sensitivity of 1 mv/cm, and a dc-to-45 Mc passband at a sensitivity of 5 mv/cm. In addition, it has an effective 6000-cm slide-back scale and 10,000:1 common-mode rejection ratio up to 1 Mc. It permits measurements and comparisons with the Type 647 Oscilloscope to a degree previously not possible.

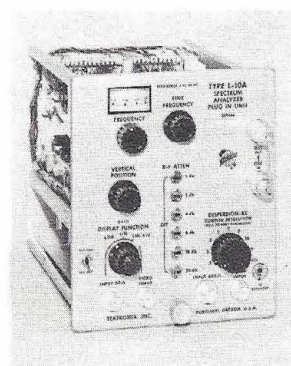
Unique to the Type 10A1 is its single-knob v/cm control which can be used to either reduce amplifier gain, thus reducing internal noise and drift and increasing passband, or to increase input attenuation, thus increasing input common-mode swing. The attenuator control can also automatically change the effective comparison-voltage range.

The slide-back system utilizes comparison voltages of 0 to ± 6 volts; accuracy is $\pm(0.1\% + 5 \text{ mv})$ and may be set to closer tolerances if accurate reference standards are available.

A front-panel control selects full passband or a limited passband of 1 Mc for low-frequency work. Sensitivity is from 1 mv/cm to 20 v/cm calibrated, to 50 v/cm uncalibrated.

Common-mode rejection ratio is 20,000:1 or better for low frequencies, 10,000:1 to 1 Mc, 100:1 to 20 Mc. Common-mode swing is $\pm 6 \text{ v}$ at 1 mv/cm, $\pm 60 \text{ v}$ at 10 mv/cm, $\pm 600 \text{ v}$ at 0.1 v/cm.

The Type 10A1 is designed to meet the same stringent environmental test conditions as the Type 647 and RM647 Oscilloscopes.



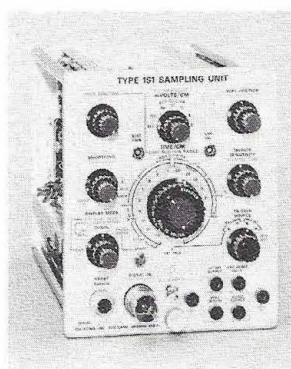
Spectrum Analyzer Plug-In Unit

for 25 Tektronix
Oscilloscopes

Newest of 18 Spectrum Analyzer Plug-In Units, Type L-10A covers the frequency range of 1 Mc to 36 Mc. It extends the capabilities of Tektronix 530, 540, 550, and (with adapter) 580-Series Oscilloscopes, into the area of spectrum analysis. This plug-in unit/oscilloscope combination offers distinct advantages over ordinary spectrum analyzers. The oscilloscope's calibrated time base and versatile triggering allow direct measurement of pulse repetition rate and provide stable displays even in the presence of interference. Frequency or time-domain displays are available at the flick of a switch.

Features of the Type L-10A include CALIBRATED DISPERSION from 100 cps to 20 kc, with CROSS-COUPLED RESOLUTION from 10 cps to 1 kc. Sensitivity is -100 dbm at 10 cps resolution. Dial accuracy is $\pm(100 \text{ kc} + 1\% \text{ of dial frequency reading})$. Display functions include Log, Linear, Linear X10, and Video.

Other L-Series Analyzers include multi-band units covering the frequency range of 10 Mc to 10.4 gc, fixed-frequency units operating at 30 Mc to 200 Mc, and narrow-band units covering the range of 2 gc through 18 gc.



New Plug-In Unit Converts Oscilloscopes for Wideband Sampling

A new sampling plug-in unit, Type 1S1 extends the bandwidth of Tektronix Oscilloscopes (Types 530, 540, 550-Series) to one gc. Operation is like a conventional oscilloscope—but with sensitivity and bandwidth possible only through sampling.

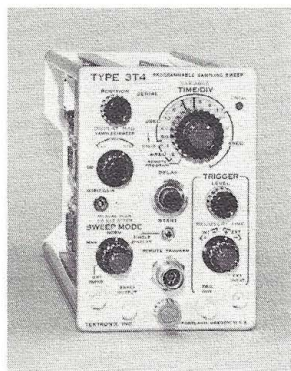
Internal triggering is featured together with a risetime of 0.35 nsec, with no need for external delay lines or pre-triggers. Triggering capability extends through 1 gigacycle.

Calibrated sweep rates are from 100 psec/cm to 50 $\mu\text{sec/cm}$. A unique "Time Magnifier" allows any part of the display to be magnified up to 100X horizontally without reducing displayed dot density. Actual sweep rate, even when magnified, is read out directly on a single knob.

Calibrated vertical sensitivities range from 2 mv/cm to 200 mv/cm. Noise in the display is less than 1 mv and may be reduced by a "smoothing" control. A dc offset control permits observation of millivolt signals in the presence of up to ± 1 volt input levels.

Output signals are provided at the front panel to drive both X-Y and Y-T chart recorders.

y of other oscilloscopes



Programmable Sampling Sweep Plug-In Unit

provides new convenience for automatic measurement and readout systems

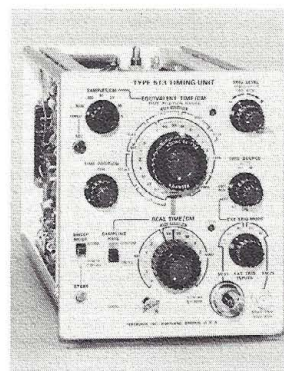
A new programmable sampling sweep plug-in unit, Type 3T4 provides remote control of sweep functions in Type 567 and RM567 Digital Readout Oscilloscopes, and in Type 561A and Type 564 conventional Oscilloscopes.

Sweep rates, delay, and samples per sweep can all be remotely programmed through a 19-wire cable connected to a front-panel jack. Grounding various combinations of these leads determines the operating conditions for the plug-in.

Calibrated sweep rates cover the range from 200 $\mu\text{sec}/\text{cm}$ to 1 nsec/cm in 17 steps. The 10X magnifier extends the fastest sweep rate to 0.1 nsec/cm.

Calibrated delay of sweep rates is in three ranges: (1) up to 1 microsecond for sweep rates 0.1 $\mu\text{sec}/\text{cm}$ and faster, (2) up to 100 microsecond for sweep rates 0.2 $\mu\text{sec}/\text{div}$ to 10 $\mu\text{sec}/\text{div}$, and (3) up to 1 millisecond for sweep rates of 20, 50, or 100 $\mu\text{sec}/\text{div}$.

Displays can be programmed at 100 or 1000 samples/sweep.



New Sampling Plug-In Unit

incorporates real-time sampling with equivalent-time sampling

A new wide-range timing unit, Type 5T3 adds new capabilities to the Type 661 Sampling Oscilloscope.

The Type 5T3 incorporates both real-time and equivalent-time sampling—to provide a range of calibrated sweep rates from 10 psec/cm to 5 sec/cm. Triggering capabilities extend from dc to above 5 gigacycles at millivolt sensitivity levels.

Equivalent-time sampling sweep rates are 10 psec/cm to 100 $\mu\text{sec}/\text{cm}$. A unique "time magnifier" arrangement allows any part of the display to be magnified up to 100X horizontally without reducing displayed dot density. Actual sweep rate, even when magnified, is read out directly on a single control.

Real-time sampling sweep rates are from 200 $\mu\text{sec}/\text{cm}$ to 5 sec/cm. Display rate is high since a real-time sweep is used on the X-axis. The display is in the form of dots in both real-time and equivalent-time sampling.

Both 50-ohm and 1-megohm external trigger inputs are provided. The latter may be used with a conventional high-impedance probe to facilitate triggering between dc and 20 Mc.

If you are unable to attend the IEEE show this year, but would like additional information on new Tektronix instruments, please check and return the attached card. No postage is necessary.

Please have Field Engineer call. Phone _____

Please send information on these instruments.

- | | |
|---|--|
| <input type="checkbox"/> Type 422 Portable Oscilloscope | <input type="checkbox"/> Type 3T4 Programmable Sampling Sweep Unit |
| <input type="checkbox"/> Type RM529 Waveform Monitor | <input type="checkbox"/> Type 5T3 Timing Unit |
| <input type="checkbox"/> Type 114 Pulse Generator | <input type="checkbox"/> Type L-Series Spectrum Analyzer Units |
| <input type="checkbox"/> Type 10A1 Differential Comparator Unit | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Type 1S1 Sampling Unit | |

Name _____

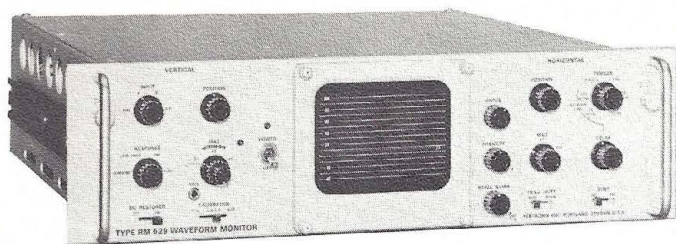
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Company _____

Address _____

New Video Waveform Monitor

permits analysis of Vertical Interval Test signals



A new video waveform monitor, Type RM529 features extensive use of semiconductors—for new performance capabilities combined with high reliability. Low power consumption of 80 watts eliminates the need for a fan, insuring cool, clean, quiet operation.

The Type RM529 provides bright, stable displays of Vertical Interval Test signals, even at the fastest sweep rates. A line selector is used to choose any line for display. The displayed line, as viewed on the associated picture monitor, is automatically intensified by a brightening pulse with no modification to the picture monitor required. Other features include backporch dc restoration and positive field selection.

The four frequency-response characteristics, required for complete waveform analysis, can be selected by front-panel control: Chroma—centered at 3.58-Mc bandwidth ± 400 kc; Low Pass—80% down at 500 kc; Flat— $\pm 1\%$ from 60 cps (DC restorer off) to 5 Mc, $\pm 3\%$ to 8 Mc; IRE—Standard 23S-1.

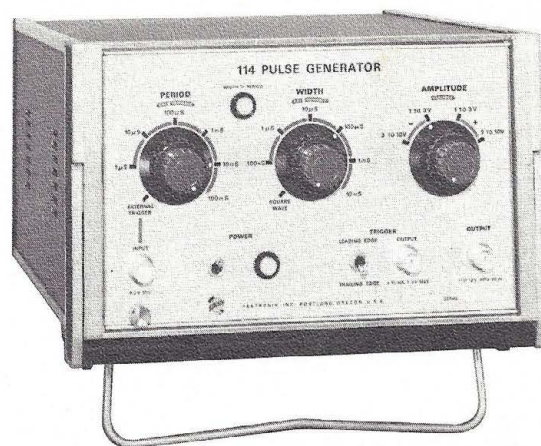
Ideally suited for modulation monitoring at the transmitter, the Type RM529 can be used in conjunction with color process amplifiers for RGB and YRGB displays.

Although employing a 5-inch rectangular crt, the RM529 occupies only $5\frac{1}{4}$ " of rack height, with all front-panel controls located for operational convenience. It accepts all Tektronix Trace-Recording Cameras.

The Type RM529 is also featured at the National Association of Broadcasters (NAB) exhibit, booth 201, March 21—24, Sheraton-Park Hotel, Washington, D.C.

High Repetition Rate, Fast-Rise Pulse Generator

for laboratory and production-test facilities



A new wide-range, general-purpose pulse generator, Type 114 features continuously-variable amplitude, pulse width, and pulse period. Pulse Risetime and Falltime is 10 nsec or less. Amplitude Range is 1 to 10 volts, positive or negative polarity, into a 50-ohm load impedance.

Pulse Width is variable from 100 nanoseconds to 10 milliseconds. A front-panel light indicates when the pulse-width setting exceeds the period setting. A symmetrical square-wave output is instantaneously available, with full control of repetition rate and amplitude.

Pulse Period is variable from 1 microsecond to 100 milliseconds, in 5 ranges, and duty cycle of the output pulse can exceed 90 percent.

For added versatility, the pulse generator can be triggered by external equipment. Two Type 114's can be connected together so that the output pulse of the second unit is delayed by the pulse width of the first unit.

Dimensions of the Type 114 are 6" high by 9" wide by $12\frac{1}{2}$ " deep.

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