

A Portable, Versatile Oscilloscope System by . . .



TELEQUIPMENT

SPECIFICATION



PLUG IN Y AMPLIFIERS

The range of plug in units available is shown overleaf.

Type A General Purpose Amplifier has a total of 8 stages including inter-stage and output cathode followers, is completely free from drift, has equal D.C. and A.C. gain and is compensated for optimum pulse response.

ACCURATE CALIBRATED INPUT ATTENUATORS

9 position frequency compensated, direct reading in Volts/cm. Voltage Measuring Accuracy $\pm 5\%$.

Input voltages from 100 mV/cm to 50 V/cm D.C.—6 Mc/s; 10 mV/cm D.C.—500 Kc/s (basic unit).

NEW WIDE RANGE CALIBRATED TIME BASE

18 preset calibrated Sweep Speeds.

500, 200, 100, 50, 20, 10, 5, 2, 1 milli-seconds per cm. } at minimum
500, 200, 100, 50, 20, 10, 5, 5, 2, 1 micro-seconds per cm. } x expansion.

Variable control covering intermediate speeds.

Slower speeds can be obtained by adjustment.

Time measurement accuracy $\pm 10\%$.

X EXPANSION

Continuously variable up to over 10 screen diameters (60 cms.), Trace expands symmetrically about centre of screen. X-shift control positions any portion of expanded trace on screen. Direct access to X-amp.

NEW VERSATILE TRIGGERING CIRCUIT

allows two modes of triggering:—

1. *Automatic Synchronisation.* The Time Base locks automatically to any frequency between a few cycles and 1 Mc/s at any input level.

2. *Selective Triggering.* Enables the Time Base to be triggered from any selected point on the input waveform.

This new Trigger Circuit gives rock steady synchronisation from even the most difficult and complex waveforms.

D.C. COUPLED FLYBACK BLANKING

ensures uniform trace brightness at slow sweep speeds and complete suppression of the re-trace.

BUILT-IN T.V. SYNC. SEPARATOR

selects Line or Frame pulses from Positive or Negative Video Signals.

TRIGGER SELECTOR

Positive, negative, or T.V. Line or Frame (+ve or -ve) internal or external.

CATHODE RAY TUBE 924 F

Two completely separate electron guns produce bright finely focused traces.

3½" flat faced PDA Tube operated at 3.5 KV. Screen phosphor, P.1 Medium Persistence fitted as standard. Long Persistence P.7 and Short Persistence (Photographic) P.11 also available. Tube face tilted at correct viewing angle. Removable filters are fitted to improve contrast at high ambient illumination. Edge lit illuminated graticule.

Z MODULATION

Input socket provided on back panel.

VOLTAGE CALIBRATOR

Stabilised 1 v.p.p. ($\pm 2\%$) 50 c/s. square-wave for checking voltage accuracy.

ILLUMINATED GRATICULE

facilitates accurate measurements. A front panel control varies the Illumination Intensity.

HIGH QUALITY COMPONENTS

"C" core mains transformer and latest high efficiency valves ensure complete reliability and long periods of service between maintenance.

COOLING

Convected air thermo-syphon cooling.

SUPPLY VOLTAGE

Normally 90–250 V. 50–100 c/s.

DIMENSIONS

7½" wide × 12½" high × 16½" long (14.5 cms × 32 cms. × 19.5 cms). Weight: 33lb. (15 kilos).

ACCESSORIES

High impedance × 10 divider probe; camera attachment; viewing hood with polaroid filter.



TELEQUIPMENT

Telequipment Limited, 313 Chase Road, Southgate, N.14.

FOX Lane 1166

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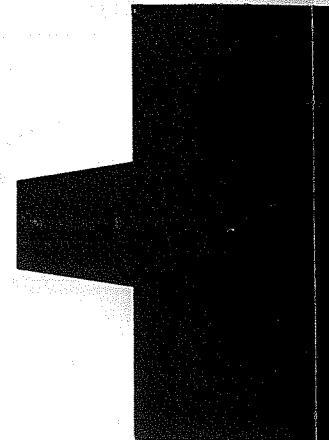
wme_West Mall Engineers

1962 £112 with 2'A' amplifier
 £130 with 2'e'
 £121 with 1'A' and 1'e'.



**D33 double-beam
 Laboratory Oscilloscope
 with plug-in amplifiers
 and PDA tube**

*Exceptionally bright traces
 and to record, are ensured
 PDA tube of advanced design.*



D33 is more than a new oscilloscope . . .

it is a new oscilloscope system

Despite rapidly changing needs, the general approach to oscilloscope design has changed very little during the past decade. On the one hand there are instruments of extreme accuracy and versatility—bulky, intricate, expensive; on the other, portable instruments of strictly limited performance. Yet, as electronic methods of control, measurement and investigation come increasingly into use, the demand is more and more for an instrument which makes the best of both worlds . . . portable, yet giving extreme high performance to suit a particular

range of applications. The early 'Serviscopes' went a long way towards meeting this need, but now D33 satisfies it completely by offering one oscilloscope with alternative plug-in amplifiers . . . not just an instrument, but a system.

This ingenious compromise allows production of a fully portable and rugged oscilloscope capable of tackling an extremely wide range of applications, at a cost normally associated with instruments of limited potentiality.

Build in the

The D33R is electrically identical to the D33, with an alternative amplifier. It is built in a form factor which fits into standard 19" racks.



wme_West Mall Engineers

e-beam

Oscilloscope

n amplifiers

tube

t traces, easy to read
nsured by use of a
ced design operated at 3.5KV

A General Purpose Amplifier

Dual Range 1 D.C. - 6 Mc/s 100 mV/cm
2 D.C. - 200 Kc/s 10 mV/cm

A standard form of amplifier with a wide frequency response, and the additional facility of x10 sensitivity. Many applications, especially in servo, computer, T.V. and radar development and maintenance.

1962 f18

B Differential Amplifier

Maximum sensitivity 1mV/cm D.C.-200 Kc/s
High common-mode rejection.

This unit adapts the D33 to work in the electro-mechanical field—involving strain-gauges, transducers, etc.—and to medical and biological applications.

introduced late 1962

the D33R . . .

is electrically the same instrument
with an identical specification, but
a form suitable for mounting in
racks.

C Ultra-high Gain A.C. Amplifier

Maximum sensitivity is as high as 100 μ V/cm
Frequency response 5 c/s to 150 Kc/s.
Primarily for applications in the electro-acoustical and magnetic recording fields.

1962 f27