

## 2235A AND 2236A OSCILLOSCOPES

The 2235A and 2236A offer reliability and easy operation with 100 MHz, dual time base performance. The 2236A's Counter/Timer and DMM provide additional measurement versatility.

### PROVEN STANDARD IN 100 MHz TWO-CHANNEL OSCILLOSCOPES

The 2235A and 2236A offer advanced 100 MHz, dual time base performance with simple operation. Innovative architecture, advanced circuit design and a large bright crt make these scopes accurate, reliable and serviceable.

The 2235A and 2236A scopes ideal for digital and high-speed analog circuit troubleshooting. Both offer the needed sensitivity for reliable low-level signal measurements with 5 ns/div sweep speed and 2% vertical and horizontal accuracy. The 2236A integrated counter/timer and multimeter permits quick measurements of critical circuit parameters at the touch of a button.

## CHARACTERISTICS

### VERTICAL SYSTEM

**Bandwidth (-3 dB) and Rise Time** - 100 MHz and 3.5 ns (0°C to 15°C).

**Deflection Factor and Accuracy** - 2 mV/div to 5 V/div  $\pm 2\%$  (15°C to 35°C);  $\pm 3\%$  (0°C to 50°C).

**Vertical Operating Modes** - CH 1, CH 2, CH 2 INVERT, ADD, ALT, CHOP.

**CMRR** - At least 10:1 at 50 MHz.

**Input R and C** - 1 M $\Omega$ ; 2235A: 20 pF, 2236A: 22 pF.

**Max Input Voltage** - 400 V (dc + peak ac), 800 V p-p.

**Channel Isolation** - 100:1 at 50 MHz.

### HORIZONTAL SYSTEM

**Sweep Speeds** - A sweep: 0.5 s/div to 0.05  $\mu$ s/div. B sweep: 50 ms/div to 0.05  $\mu$ s/div. Both extended to 5 ns/div with X10 magnifier.

**Accuracy** -  $\pm 2\%$ , Magnified  $\pm 3\%$ .

**Horizontal Operating Modes** - A, ALT and B.

**Delay Jitter** - 2235A: 20,000:1. 2236A: 10,000:1.

**Delay Accuracy** - 2235A:  $\pm 1\%$ . 2236A: Same as counter/timer time base  $\pm 20$  ps.

### TRIGGER SYSTEM

**Trigger Sensitivity (A and B)** - Internal: 0.35 div at 10 MHz, 1.5 div at 100 MHz. External: 35 mV (2235A) or 40 mV (2236A) at 10 MHz, 200 mV (2235A) or 250 mV (2236A) at 100 MHz (A trigger only).

**Trigger Operating Modes** - Peak-Peak AUTO (also for TV LINE), NORM, TV FIELD, SGL SWP.

**Trigger Source** - A Trigger: VERT MODE, CH 1, CH 2, LINE, EXT. B Trigger: VERT MODE, CH 1, CH 2.

**Trigger Coupling** - With internal source: ac with P-P AUTO, TV LINE, or TV FIELD mode; dc with NORM or SGL SWP mode; HF and LF Rej. With external source: ac, dc, or dc/10.

**Variable Holdoff** - At least 10:1.

### X-Y OPERATION

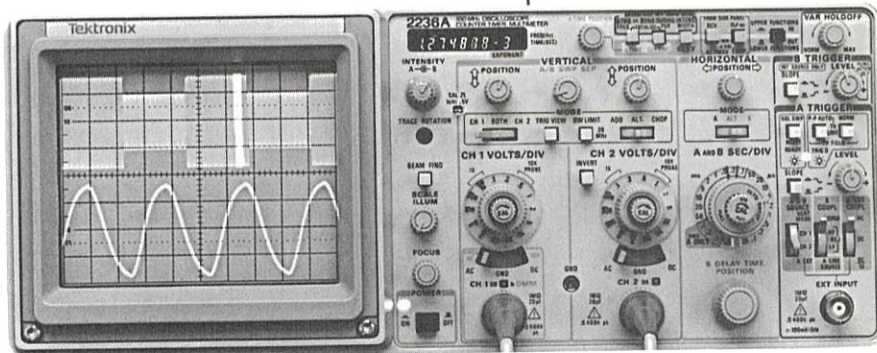
**Deflection Factors** - Same as vertical system.

**Bandwidth** - X-Axis: 3 MHz. Y-Axis: same as vertical.

**Phase Difference** -  $\pm 3^\circ$  from dc to 150 kHz.

### CRT SYSTEM

**Display** - 8 cm x 10 cm, 14 kV nominal voltage.



The 2236A offers all the features, reliability, and performance of the popular 2235A plus the added versatility of a counter/timer and digital multimeter.

**Controls** - A, B INTENSITY, TRACE ROTATION, BEAM FIND, SCALE ILLUM, FOCUS.

**Z-Axis** - 5 V causes noticeable modulation, to 20 MHz.

### POWER REQUIREMENTS

**Line Voltage Range** - 90 VAC to 250 VAC.

**Line Frequency** - 48 Hz to 440 Hz.

**Maximum Power Consumption** - 2235A: 40 W (70 VA). 2236A: 60 W (110 VA).

### 2236A ADVANCED FUNCTIONS

**Counter/Timer** - Time Base and Accuracy: 200 MHz, 10 ppm (0.001%); with optional temp. compensated crystal oscillator (TCXO): 0.5 ppm (0.00005%). Frequency: 0.2 Hz to 100 MHz. Max resolution: 0.00000001 Hz. Max accuracy same as time base. Period/Width: 5 s to 5 ns. Max resolution: 10 ps. Max accuracy same as time base  $\pm 10$  ns. Totalize: 8,000,000 counts. Delay Time: 2.5 s to 500 ns. Max resolution: 10 ps. Max accuracy same as time base  $\pm 20$  ps. Delta Time: 1 ns to 2.5 s. Max resolution: 10 ps. Max accuracy same as time base  $\pm 50$  ps.

**Digital Multimeter** - Dc Volts: 0 to 500 V. Max resolution: 100  $\mu$ V. Accuracy  $\pm 1\%$ . Input: side DMM leads. RMS AC Volts: 0 to 350 V (20 Hz to 20 kHz). Max resolution: 100  $\mu$ V. Accuracy  $\pm 1\%$ . Input: side DMM leads. CH 1 VDC: 0 to 500 V. Resolution: 1 mV. Accuracy  $\pm 5\%$ . CH 1 Vrms ac: 0 to 350 V (50 Hz to 20 kHz). Max resolution: 1 mV. Accuracy  $\pm 2\%$ . Resistance: 0 to 20 G $\Omega$ . Max resolution: 0.01  $\Omega$ . Max accuracy 0.15%  $\pm 2$  LSD's. Diode Detect: 0.15 V to 2.0 V. Max resolution: 1 mV. Max accuracy 0.15%  $\pm 2$  LSD's. Continuity: 0 to 5  $\Omega$ . Accuracy  $\pm 1 \Omega$ . Temperature: -62°C to +230°C. Accuracy  $\pm 2\% \pm 1.5^\circ$ C.

### ENVIRONMENTAL CHARACTERISTICS

See page 108.

### OTHER CHARACTERISTICS

**Safety** - UL 1244 listed, CSA certification.

**Warranty** - 3 years.

## 2236A

- Built-in Counter/Timer/DMM
- Voltage, resistance, and temperature measurements
- Crystal-controlled precision C/T accuracy

## ORDERING INFORMATION

**2236A 100 MHz Oscilloscope with Counter/Timer/ Multi-meter** **\$3,595**

Includes: Two 10X Probes (P6109) Opt. 01, DMM Leads (012-0941-01), Operators/Service Manual (070-7685-00), 3 Year Warranty, Power Cord. **2235A 100 MHz Oscilloscope** **\$1,995**  
Includes: Two 10X Probes (P6109) Opt. 01, Operators/Service Manual (070-7683-00), 3 Year Warranty, Power Cord.

### INSTRUMENT OPTIONS

**Opt. 14** - (2236A only) - TCXO Temperature Compensated Crystal Oscillator (0.5 ppm). **+\$315**

**INTERNATIONAL POWER PLUG OPTIONS**  
**Opt. A1-A5** (see page 108) **NC**

### WARRANTY-PLUS SERVICE OPTIONS

**2236A:**  
**Opt. M2** - +2 yrs service **+\$200**  
**Opt. M8** - +4 calibrations **+\$320**  
**2235A:**  
**Opt. M2** - +2 yrs service **+\$169**  
**Opt. M8** - +4 calibrations **+\$259**

### RECOMMENDED ACCESSORIES

**Rackmount Kits** -  
2236A Order 016-0015-03 **\$300**  
2235A Order 016-0833-01 **\$250**  
**Temperature Compensated Crystal Oscillator (TCXO) Retrofit Kit** - (2236A only) Order 040-1136-00 **\$370**

### PHYSICAL CHARACTERISTICS

| Dimensions              | mm  | in   |
|-------------------------|-----|------|
| Height                  | 137 | 5.4  |
| Width (with handle)     | 360 | 14.2 |
| Depth (w/o front cover) | 445 | 17.3 |
| Weight                  | kg  | lb   |
| 2236A Net               | 7.3 | 16.2 |
| 2235A Net               | 6.1 | 13.5 |

Product available within 24 hours through Tek Direct. Call 1-800-426-2200.