

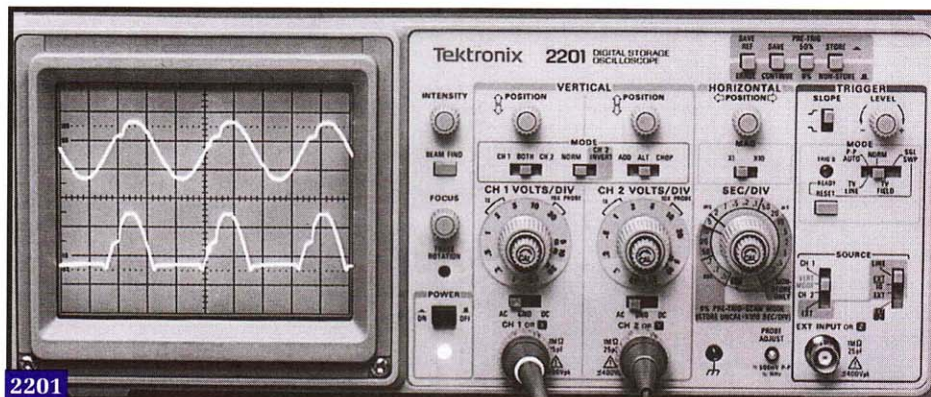
Digital + Analog Oscilloscope

20 MHz, 10 MS/s

Here's digital storage and analog familiarity plus documentation at an affordable price.

2201

- 20 MHz Analog Bandwidth
- 10 MS/s Per Channel Sampling
- 2K per Channel Record Length
- Hardcopy Interface Optional (RS-232-C)



The 2201 provides the power of digital storage, the familiarity of analog operation, and the affordability of Tektronix' lowest priced DSO.

2201 Digital + Analog Oscilloscope

Tektronix brings you familiar analog operation, plus CRT readout, on-screen cursors, and an RS-232-C hardcopy interface in a portable package. Now, with a 2201, you can have an inexpensive yet versatile oscilloscope with modern digital storage, without giving up the familiarity of analog operation.

The 2201 makes it easy to switch between conventional analog and digital storage operation. Just select storage or non-storage with the push of a button and the CRT switches between digital dot display and real-time mode.

PREMIUM SPECIFICATIONS

The 2201 provides 20 MHz analog bandwidth, two-channel sampling at 10 MS/s per channel, and a 2K record length per channel. Since the 2201 has dual digitizers, you don't sacrifice sampling speed or record length in two channel measurements.

A time base multiplier extends storage mode sweep speeds up to 50 s/div. Using the horizontal magnification, you can view delayed portions of the waveform similar to a dual time base oscilloscope. This allows analysis and documentation of slow or transient events found in physical measurement or electro-mechanical environments.

PUSH BUTTON DOCUMENTATION

The optional RS-232-C hardcopy output serial interface provides hardcopy documentation with HPGL and EPSON compatible plotters and printers, simply by pressing a button.

SOFTWARE

Tektronix GRABBER 2 software lets you transfer waveform data to an IBM PC/XT/AT (or compatible) for display, mass storage, or evaluation. This software creates an HPGL plot file which can be archived, converted to other formats or printed for documentation. Using a word processor which accepts HPGL files allows importing of stored waveforms to your documents. No complex communication protocols or cabling are required.

POWERFUL FEATURES FOR THE NOVICE OR EXPERT

In the digital storage mode, you can capture and display single-shot events and view low repetition rate signals without the usual flicker of an analog display. With digital pre-trigger you can view events that occurred before the trigger point, making it easy to identify trigger conditions.

These features make the 2201 the right instrument for a wide variety of applications. It is ideal for first-time users and seasoned operators.

Characteristics

DIGITAL STORAGE SYSTEM

Sample Rate – 10 MS/s max. per channel.

Resolution – Vertical: 8 bits (25 levels per division). Horizontal: 11 bits (200 points per division).

Record Length – 2K per channel.

Pre/Post Trigger – 0% or 50% trigger position selectable.

Acquisition Mode – Sample.

Save Reference Memory – One acquisition.

VERTICAL SYSTEM (2 Identical Channels)

Bandwidth (–3 dB) and Rise Time – 20 MHz and 17.5 ns.

Deflection Factor and Accuracy – 5 mV/div to 5 V/div, $\pm 3\%$.

Vertical Operating Modes – CH 1, CH 2, CH 2 INVERT, ADD, ALT, CHOP (500 kHz).

CMRR – At least 10:1 at 10 MHz.

Input R and C – 1 M Ω , 25 pF.

Max Input Voltage – 400 V (DC + peak AC), 800 Vp-p.

Channel Isolation – 100:1 at 10 MHz.

TD

Call Direct – Product available within 24 hours, (through TekDirect only). Call 1-800-426-2200. Also available through an Authorized Tektronix Distributor (listed on page 540).

To order, contact your local sales office (listed on the inside back cover) or call the National Marketing Center at 1-800-426-2200, Ext. 99.

GPIB
IEEE-488

The 2200 Series complies with IEEE Standard 488.1-1987, and with Tektronix Standard Codes and Formats.

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HORIZONTAL SYSTEM

Sweep Speeds – 0.5 s/div to 0.05 μ s/div, extended to 5 ns/div with X10 MAG. 0.5 s/div to 20 μ s/div in store mode, extended to 50 s/div with X100 (store uncal).

Accuracy – X1: $\pm 3\%$; X10: $\pm 4\%$; X50: $\pm 5\%$ (all $+15^{\circ}\text{C}$ to $+35^{\circ}\text{C}$); X1: $\pm 4\%$; X10: $\pm 5\%$; X50: $\pm 8\%$ (all 0°C to $+40^{\circ}\text{C}$).

Horizontal Operating Modes – X-Y (non-store).

TRIGGER SYSTEM

Trigger Sensitivity – Internal: 0.35 div at 5 MHz, 1.0 div at 50 MHz. External: 40 mV at 5 MHz, 150 mV at 50 MHz.

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

Trigger Source – VERT MODE, CH 1, CH 2, LINE, EXT, EXT/10.

Trigger Coupling – DC.

X-Y OPERATION

Deflection Factors – Same as vertical system.

Bandwidth – X-Axis: 2 MHz. Y-Axis: Same as vertical.

Phase Difference – $\pm 3^{\circ}$ from DC to 50 kHz.

ADVANCED FUNCTIONS

Hardcopy Interface (RS-232-C) – Plots all displayed records (X1 MAG), crt readout and graticule (selectable). Baud rate: 300 to 9600. Plotter Devices: HPGL, Epson FX-Series. Connector: 9-pin DTE (male).

Communication Software (Grabber 2)

Comes with the instrument and transfers waveform data from the 2201 to an IBM PC/XT/AT (or compatible). Uses the RS-232-C interface.

CRT SYSTEM

Display – 8 cm x 10 cm, 12.6 kV nominal voltage.

Controls – INTENSITY, TRACE ROTATION, BEAM FIND, FOCUS.

Z-Axis – 5 V causes modulation, usable to 5 MHz.

POWER REQUIREMENTS

Line Voltage Range – Low: 95 VAC to 128 VAC. High: 185 VAC to 250 VAC.

Line Frequency – 48 Hz to 440 Hz.

Maximum Power Consumption – 70 W (80 VA).

ENVIRONMENTAL/SAFETY CHARACTERISTICS

Instrument meets in part, the environmental requirements of MIL-T-28800D or C for Type III, Class 3, Style D or C equipment described as below.

Ambient Temperature – Operating: 0°C to $+40^{\circ}\text{C}$. Non-operating: -55°C to $+75^{\circ}\text{C}$.

Humidity – Percent: 95% 5 cycles, (120 hours) Reference: MIL-T-28800D, paragraph 4.5.5.1.2.2.

Altitude – Operating: To 4,500 m (15,000 ft), maximum operating temp decreases 1°C per 300 m above 1500 m. Non-operating: To 15,000 m (50,000 ft).

EMC – Meets Class B requirements per VDE 0871-B for radiated and conducted emissions and FCC requirements.

Vibration – Operating: 15 minutes along each of the 3 major axis. 10 Hz to 55 Hz in one minute cycles. Holds for 10 minutes at 55 Hz. Displ. (in p-p): 0.015.

Shock – Operating: 30 g, 1/2 sine, 11 ms duration, 3 shocks per axis along each major axis. Total of 18 shocks.

Safety – UL 1244 listed, CSA certification.

PHYSICAL CHARACTERISTICS

Dimensions	mm	in.
Width (with handles)	138	15.0
Height	380	5.4
Depth (without cover)	438	17.2
Weight	kg	lbs
	7.6	16.8

ORDERING INFORMATION

2201

20 MHz Digital Plus Analog Oscilloscope **TD \$1,895**
Includes: Two 10X Voltage Probes (P6103B), Operators Manual (070-7190-00), Users Ref. Guide (070-7232-00), 3 Year Warranty, Power Cord.

Opt. 12 – RS-232-C (2201) **TD +\$300**

Opt. 3R – Rackmount Kit **+\$250**

INTERNATIONAL POWER PLUG OPTIONS

Opt. A1 – Universal Euro 220 V, 50 Hz **NC**

Opt. A2 – United Kingdom 240 V, 50 Hz **NC**

Opt. A3 – Australian 240 V, 50 Hz **NC**

Opt. A4 – North American 240 V, 60 Hz **NC**

Opt. A5 – Switzerland 220 V, 50 Hz **NC**

See General Customer Information Section for additional description.

WARRANTY-PLUS SERVICE OPTIONS

Opt. M2 – Repair Protection **+\$135**

Opt. M8 – Calibration Service **+\$135**

PROBES See Page 423 for complete description.

Passive Voltage –

60 MHz, 10X, ruggedized, without readout. Order P6103B **\$50**

10 MHz/100 MHz, 1X/10X, switchable, without readout. Order P6119B **\$75**

15 MHz, 1X, modular without readout. Order P6101B **\$60**

Current – 20 Amp max, DC to 50 MHz, w/A6302 current probe. Order AM503S **\$2,595**

100 Amp max, DC to 15 MHz, w/ A6303 current probe. Order AM503S Opt. 03 **\$3,240**

High Voltage – 1.5 kV 100X, 120 MHz with readout.

Order P6009 **\$265**

40 kV 1000X, 75 MHz with readout. Order P6015A Opt. 1R **\$950**

Specialty – 100 MHz, 1X/10X differential probe, FET.

Order P6046 **\$2,195**

Logic Probe, 16 channel word recognizer/Trigger-TTL.

Order P6408 **\$425**

Digital Timing Demodulator – Order TVC501 **\$2,495**

CART – Order K212 **\$395**

CAMERA

Low-Cost – Without graticule illum. Flash required on camera.

Order C-9 Opt. 20 **\$510**

PLOTTER/PRINTER

RS-232-C – Order HC100 Opt. 03 **\$1,075**

ADDITIONAL ACCESSORIES

Carrying Strap – Order 346-0199-00 **\$22**

Transit Carrying Case – Order 016-0792-01 **\$380**

Front Panel Cover – Order 200-3397-00 **\$18.50**

Accessory Pouch – Order 016-0677-02 **\$75**

DC Power – Battery Pack. Order 1106 **\$3,495**

12 VDC to 110 VAC Inverter. Order 1107 **\$1,995**

Viewing Hoods – Collapsible. Order 016-0592-00 **\$16.50**

Binocular. Order 016-0566-00 **\$24**

Polarized. Order 016-0180-00 **\$315**

CRT Shields – Blue. Order 337-2775-00 **\$5.00**

Clear. Order 337-2775-01 **\$2.40**

Rackmount Kit – Order 016-0819-03 **\$275**

Service Manuals – Order 070-7189-00 **\$105**

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