Digital + Analog Oscilloscope
20 MHz, 10 MS/s

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 electromechanical environments.

PUSH BUTTON DOCUMENTATION
The optional RS-232-C hardcopy output serial interface provides hardcopy documentation with HPG 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 HPG 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, ±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 MΩ, 25 pF.
Max Input Voltage – 400 V (DC + peak AC), 800 Vp-p.
Channel Isolation – 100:1 at 10 MHz.
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HORIZONTAL SYSTEM
Sweep Speeds – 0.5 s/div to 0.05 μs/div, extended to 5 ns/div with X10 MAG. 0.5 s/div to 20 μs/div in store mode, extended to 50 s/div with X100 (store uncal).

Accuracy – X1: ±3%; X10: ±1%; X50: ±5% (all +15°C to +35°C). X1: ±4%; X10: ±5%; X50: ±8% (all 0°C to +40°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 – ±3° 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, FCCUS.

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.

PHYSICAL CHARACTERISTICS
Dimensions

<table>
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<th></th>
<th>mm</th>
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<tbody>
<tr>
<td>Width (with handles)</td>
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<td>5.4</td>
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<tr>
<td>Height</td>
<td>380</td>
<td>15.0</td>
</tr>
<tr>
<td>Depth (without cover)</td>
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<td>17.2</td>
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Weight

<table>
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<tr>
<th></th>
<th>kg</th>
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<tbody>
<tr>
<td>7.6</td>
<td>16.8</td>
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</tbody>
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ORDERING INFORMATION

2201
20 MHz Digital Plus Analog Oscilloscope .................................................. $1,895


Opt. 12 – RS-232-C (2201) .............................................................................. $300

Opt. 3R – Rackmount Kit ................................................................................ $250

INTERNATIONAL POWER PLUG OPTIONS


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

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

Opt. A4 – North America 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. M6 – Calibration Service ...................................................................... $135

PROBES

See Page 423 for complete description.

Passive Voltage

- 60 MHz, 10X, ruggedized, without readout. Order PE6103B .................. $50
- 10 MHz/100 MHz, 1X/10X, switchable, without readout. Order PE6116B .... $75
- 15 MHz, 1X, modular without readout. Order PE6101B .................. $60

Current

- 20 Amp max, DC to 50 MHz, w/A6302 current probe. Order AM5035S ...... $2,595
- 100 Amp max, DC to 15 MHz, w/ A6303 current probe. Order AM5035S Opt. 03 ...... $3,240

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

Order PE6009 ......................................................................................... $265
- 40 kV 1000X, 75 MHz with readout. Order PE6015A Opt. 1R ................... $950

Specialty – 100 MHz, 1X10X differential probe, FET.

Order PE6046 ......................................................................................... $2,195
- Logic Probe, 16 channel word recognizer/Trigger-TTL.

Order PE6408 ......................................................................................... $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 1108 ......................................................... $3,495

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

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

- Binocular. Order 016-0598-00 ............................................................... $24

 Polarized. Order 016-0198-00 ................................................................. $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 070-7199-00 ...................................................... $105

Ambient Temperature – Operating: 0°C to +40°C. Non-operating: -55°C to +75°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 axes, 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 s, 11 ms duration, 3 shocks per axis along each major axis. Total of 18 shocks.

Safety – UL 1244 listed, CSA certification.