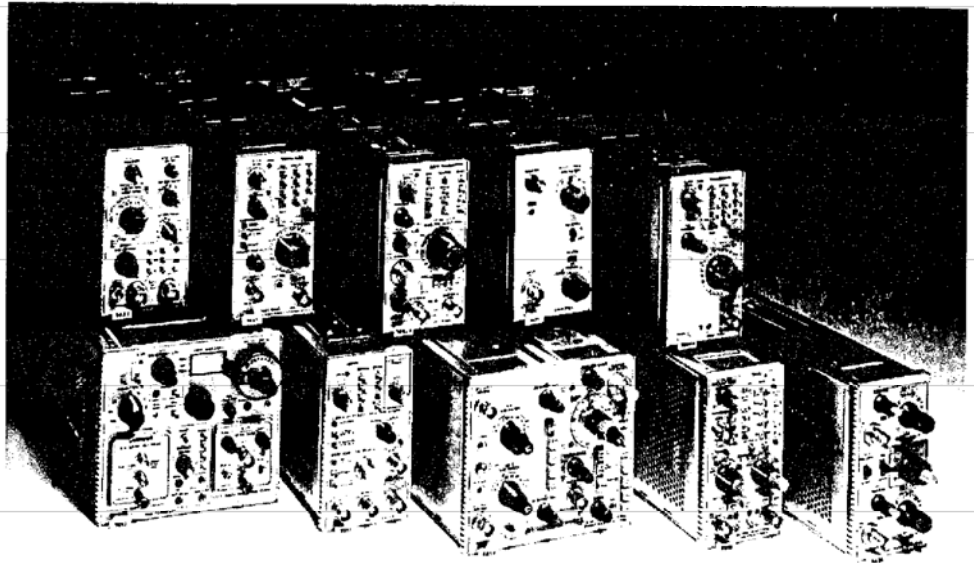


# 7000 SERIES PLUG-INS

## CONTENTS

|                               |          |
|-------------------------------|----------|
| <b>Amplifiers</b>             |          |
| Wideband Single Channel ..... | 213      |
| Programmable Digitizer .....  | 214, 315 |
| Dual Trace .....              | 215      |
| Logic Triggered .....         | 216      |
| Differential .....            | 218      |
| Curve Tracer .....            | 219      |
| <b>Time Bases</b>             |          |
| Delayed .....                 | 220, 223 |
| $\Delta$ Delaying .....       | 220, 223 |
| Single .....                  | 220, 224 |
| Dual .....                    | 223, 224 |
| <b>Digital</b>                |          |
| Multimeter .....              | 225      |
| Delay .....                   | 226      |
| A/D Converter .....           | 227      |
| Universal Counter/Timer ..... | 228      |
| Spectrum Analyzers .....      | 154, 229 |
| Sampling .....                | 230      |



For the 7000 Series, you can select from over forty different plug-in units—single-trace and dual-trace amplifiers, differential comparators, samplers, logic analyzers, spectrum analyzers, trigger recognizers, waveform digitizer, curve tracer, universal counter/timer, digital multimeter, digital delay unit, a wide range of time-bases, and others. This variety lets you tailor your instrument to meet your immediate need—for the most exotic application—and then expand its capabilities later as your needs change.

Tektronix offers service training classes on various 7000 Series plug-ins. For further training information, contact your local sales/service office or request a copy of the Customer Service Training Catalog on the return card in the back of this catalog.

## 7A29

Dc to 1 GHz Bandwidth

10 mV/div to 1 V/div  
Calibrated Deflection Factors

50 Ω Input

±500 ps Variable Delay Line (Option 04)

The 7A29 is a high-performance, wide-band, single-trace amplifier which provides a bandwidth of 1 GHz in the 7100 Series mainframes. Bandwidth constant over the entire range of calibrated deflection sensitivities of 10 mV/div to 1 V/div. Input impedance is 50 Ω. Manually resettable input protection circuitry protects the input against most common overloads. Polarity of the display is selectable by a front-panel switch. An optional variable delay line (front-panel adjustable) permits matching the transit time of two 7A29s and/or probes to better than 10 ps.

### CHARACTERISTICS

**Bandwidth** — Dc Coupled: 1 GHz (10 mV/div to 1 V/div).

**Deflection Factor** — Calibrated: 10 mV/div to 1 V/div in seven steps (1-2-5 sequence). Accuracy is within 2% with gain adjusted at 0.1 V/div. Uncalibrated: Variable continuously between steps and a maximum of at least 2.5 V/div (with some bandwidth reduction).

**Input Z** — 50 Ω.

**Ac Coupling** — -3 dB at 1 kHz or less from a 50 Ω source.

**Option 04, Variable Signal Delay** — Permits matching the transit time of two preamps and probes to better than 10 ps. Range is ±500 ps.

**Maximum Input Voltage** — Dc Coupled: 50 V or 10 V RMS (whichever is less). Ac Coupled: 100 V additional.

**Dc Stability** — Drift with Ambient Temperature (Line Voltage Constant): 0.04 div/°C or less.

**Input Protection** — Internal detection circuitry provides protection by automatically disconnecting excessive signals of up to 50 V. The "disconnected" condition is indicated and has manual reset.

### ORDERING INFORMATION

7A29 Amplifier **\$3,245**

Includes: Instruction manual (070-2320-00).

Option 04 — Variable Signal Delay. **+\$435**

## P6201 FET Probe

Dc to 900 MHz Bandwidth

50 Ω or 1 MΩ Inputs

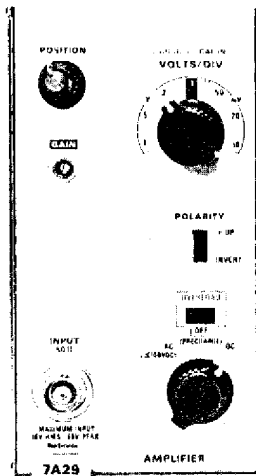
Very low input capacitance permits high frequency signal acquisition with minimum loading while high input resistance minimizes low frequency and dc loading. Requires probe power (either from scope or 1101A Probe Power Supply).

### ORDERING INFORMATION

P6201 1X, FET Probe.

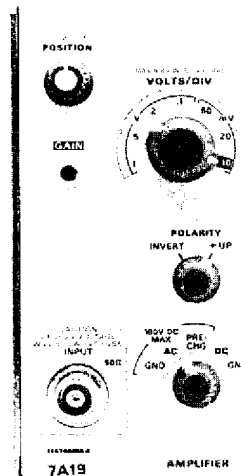
Order 010-6201-01 **\$1,220**

## 7A29



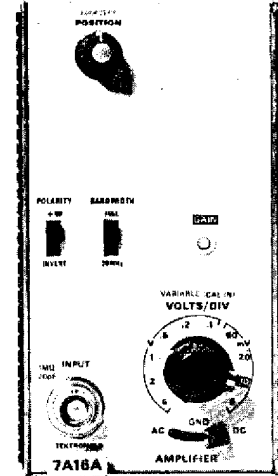
Dc to 1 GHz Amplifier

## 7A19



Dc to 600 MHz Amplifier

## 7A16A



Dc to 225 MHz Amplifier

## 7A19

Dc to 600 MHz Bandwidth

10 mV/div to 1 V/div  
Calibrated Deflection Factors

50 Ω Input

±500 ps Variable Delay Line (Option 04)

The 7A19 is a high-performance, wide-band, single-trace amplifier which provides a bandwidth of 600 MHz in the 7100 Series mainframes. Bandwidth is constant over the entire range of calibrated deflection sensitivities of 10 mV/div to 1 V/div. Input impedance is 50 Ω. An optional variable delay line (front-panel adjustable) permits matching the transit time of two 7A19s and/or probes to better than 50 ps.

### CHARACTERISTICS

**Bandwidth** — Dc Coupled: 600 MHz (10 mV/div to 1 V/div).

**Deflection Factor** — Calibrated: 10 mV/div to 1 V/div in seven steps (1-2-5 sequence). Accuracy is within 3%.

**Input Z** — 50 Ω.

**Option 04, Variable Signal Delay** — Permits matching the transit time of two preamps and probes to better than 50 ps. Range is ±500 ps.

**Maximum Input Voltage** — Dc Coupled: 50 V or 10 V RMS (whichever is less). Ac Coupled: 100 V additional.

**Dc Stability** — Drift with Ambient Temperature (Line Voltage Constant): 100 μV/°C or less.

### ORDERING INFORMATION

7A19 Amplifier **\$2,825**

Includes: Instruction manual (070-2199-00).

Option 04 — Variable Signal Delay. **+\$435**

## 7A16A

Dc to 225 MHz Bandwidth

5 mV/div to 5 V/div  
Calibrated Deflection Factors

1 MΩ Input

The 7A16A is a single-trace amplifier which provides a bandwidth of 225 MHz in the 7900 and 7100 Series mainframes. Bandwidth is constant over the entire range of deflection sensitivities of 5 mV/div to 5 V/div. Bandwidth may be limited to 20 MHz to reduce displayed noise in lower-frequency applications.

### CHARACTERISTICS

**Bandwidth** — Dc Coupled: 5 mV/div to 5 V/div; 250 MHz. Ac Coupled: 10 Hz or less to 250 MHz.

**Deflection Factor** — Calibrated: 5 mV/div to 5 V/div in 10 steps (1-2-5 sequence). Accuracy is within 2% with gain adjusted at 10 mV/div. Uncalibrated: Variable continuously between steps to at least 12.5 V/div.

**Input R and C** — 1 MΩ within 2%; ≈20 pF.

**Maximum Input Voltage** — Dc Coupled: 250 V (dc + peak ac), ac component 500 V p-p maximum, 1 kHz or less. Ac Coupled: 500 V (dc + peak ac), ac component 500 V p-p maximum, 1 kHz or less.

**Dc Stability** — Drift with Ambient Temperature (Line Voltage Constant): 0.02 div/°C. Drift with Time (Ambient Temperature and Line Voltage Constant): 0.02 div in any one minute after one hour warm-up.

**Displayed Noise** — ≤0.1 div at 5 mV/div (with a 7900 Series mainframe).

### ORDERING INFORMATION

7A16A Amplifier **\$1,275**

Includes: Instruction manual (070-1378-01).

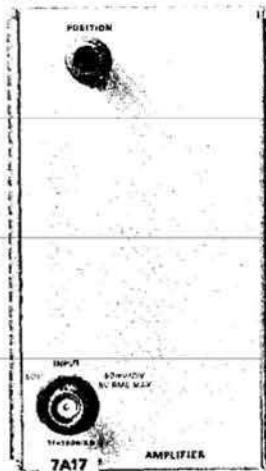
For recommended probes see pages 191 and 425.

For 7000 Series vertical system specifications see page 190.

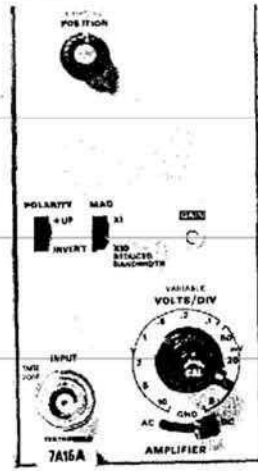


GPIB

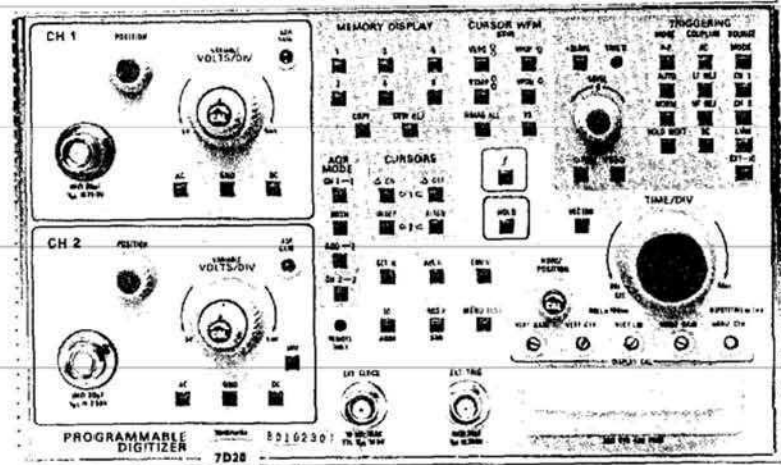
7A17



7A15A



7D20



Dc to 150 MHz Amplifier

Dc to 80 MHz Amplifier

Programmable Digitizer

### 7A17

- \_\_\_\_\_ Dc to 150 MHz Bandwidth
- \_\_\_\_\_ 50 mV/div Calibrated Deflection Factor
- \_\_\_\_\_ Low Cost
- \_\_\_\_\_ Easy to Customize

The 7A17 is a basic, 150 MHz single-channel amplifier with provision for the addition of user-developed circuitry for special unique applications.

The layout of the circuit board assembly provides a blank soldering pad matrix and ground plane surface totaling approximately 40 square inches. Circuits may be installed here. Mainframe power is identified and available on the circuit board. The front sub-panel is prepunched with holes of various sizes and shapes which allow for the mounting of connectors, switches, indicators, etc.

#### CHARACTERISTICS

- \_\_\_\_\_ **Deflection Factor** — Adjustable to 50 mV/div. There is no step attenuation.
- \_\_\_\_\_ **Input Z** — 50 Ω.
- \_\_\_\_\_ **Maximum Input Voltage** — 5 V RMS.

#### ORDERING INFORMATION

7A17 Amplifier \$455  
Includes: Instruction manual (070-1263-00).

### 7A15A

- \_\_\_\_\_ Dc to 80 MHz Bandwidth
- \_\_\_\_\_ 5 mV/div to 10 V/div
- \_\_\_\_\_ Calibrated Deflection Factors
- \_\_\_\_\_ 1 MΩ Input
- \_\_\_\_\_ 500 μV/div at 10 MHz (10X Gain)

The 7A15A is a single-trace amplifier which provides a bandwidth of 80 MHz in the 7800, 7900, and 7100 Series mainframes. Bandwidth is constant over the entire range of deflection sensitivities of 5 mV/div to 10 V/div. A 10X gain amplifier provides 500 μV sensitivity with a bandwidth of 10 MHz. Polarity of the display is selectable by a front-panel switch.

#### CHARACTERISTICS

- \_\_\_\_\_ **Bandwidth** — Dc Coupled: 80 MHz (5 mV/div to 10 V/div). Ac coupled: 10 Hz or less to 80 MHz.
- \_\_\_\_\_ **Deflection Factor** — Calibrated: 5 mV/div to 10 V/div in 11 steps (1-2-5 sequence). Accuracy is within 2% with gain adjusted at 10 mV/div. X10 mag (increases sensitivity to 500 μV) accuracy is within 10% at 10 MHz bandwidth throughout deflection factor settings. Uncalibrated: Variable continuously between steps to a maximum of at least 25 V/div.
- \_\_\_\_\_ **Input R and C** — 1 MΩ within 2%; ≈ 20 pF.
- \_\_\_\_\_ **Maximum Input Voltage** — Dc Coupled: 250 V (dc + peak ac), ac component 500 V p-p maximum, 1 kHz or less. Ac Coupled: 500 V (dc + peak ac), ac component 500 V p-p maximum, 1 kHz or less.
- \_\_\_\_\_ **Dc Stability** — Drift with Ambient Temperature (Line Voltage Constant): 0.01 div/C°. Drift with Time (Ambient Temperature and Line Voltage Constant): 0.02 div in any one minute after one hour warm-up.

#### ORDERING INFORMATION

7A15A Amplifier \$695  
Includes: Instruction manual (070-1210-00).

For floating measurements, order A6902B Isolator. See page 437 for complete description.

### 7D20

The 7D20 complies with IEEE Standard 488-1978, and with Tektronix Standard Codes and Formats.

- \_\_\_\_\_ Digital Storage for 7000 Series Mainframe
- \_\_\_\_\_ Totally Programmable
- \_\_\_\_\_ 70 MHz Bandwidth for Repetitive Signals
- \_\_\_\_\_ 10 MHz Single-Shot Bandwidth
- \_\_\_\_\_ Two Channels Simultaneous Acquisition
- \_\_\_\_\_ Pretrigger and Posttrigger
- \_\_\_\_\_ Storage of Six Independent Waveforms
- \_\_\_\_\_ Enveloping and Signal Averaging
- \_\_\_\_\_ Cursor Measurements

The 7D20 brings state-of-the-art digital performance to Tektronix 7000 Series mainframes and rackmounts. See page 315 for complete description. (Not recommended for use in the 7104 and R7103 mainframes).

#### ORDERING INFORMATION

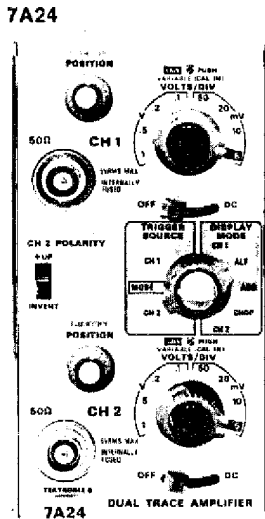
7D20 Programmable Digitizer \$7,265

#### RECOMMENDED PROBE

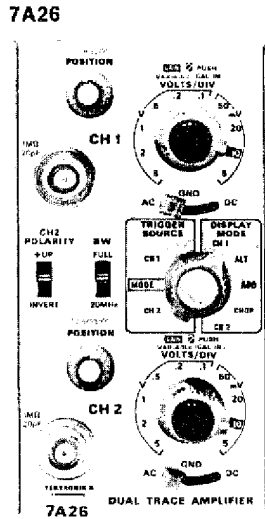
- \_\_\_\_\_ **P6053B Miniature 10X Probe** — Has a probe identification button which allows remote sequencing.
- \_\_\_\_\_ **3.5 Foot Cable** — Order 010-6053-11 \$170
- \_\_\_\_\_ **6.0 Foot Cable** — Order 010-6053-13 \$170
- \_\_\_\_\_ **9.0 Foot Cable** — Order 010-6053-15 \$170

7000 SERIES AMPLIFIERS

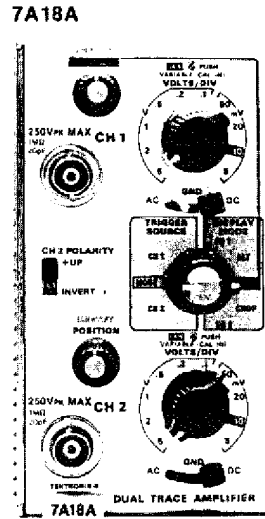
For recommended probes refer to pages 191 and 426. For 7000 Series vertical system specifications see page 190.



Dc to 400 MHz Amplifier



Dc to 200 MHz Amplifier



Dc to 75 MHz Amplifier

## 7A18A

Dc to 75 MHz Bandwidth

5 mV/div to 5 V/div  
Calibrated Deflection Factors

1 MΩ Input

Dc Offset (Option 06)

The 7A18A is a dual-trace amplifier which provides a bandwidth of 75 MHz in the 7800, 7900 and 7100 Series mainframes. Bandwidth is constant over the entire range of deflection sensitivities of 5 mV/div to 5 V/div. The 7A18A features five operating modes, trigger source selectability, and a trace-identify function.

### CHARACTERISTICS

**Bandwidth** — Dc Coupled: 75 MHz (5 mV/div to 5 V/div). Ac Coupled: 10 Hz or less to 75 MHz (5 mV/div to 5 V/div).

**Deflection Factor** — Calibrated: 5 mV/div to 5 V/div in ten steps (1-2-5 sequence). Accuracy is within 2% with gain adjusted to 10 mV/div. Uncalibrated: Variable continuously between steps to a maximum of at least 12.5 V/div.

**Input R and C** — 1 MΩ within 2%; ≈20 pF.

**Maximum Input Voltage** — Dc Coupled: 250 V (dc + peak ac), ac component 500 V p-p maximum, 1 kHz or less. Ac Coupled: 500 V (dc + peak ac), ac component 500 V p-p maximum, 1 kHz or less.

**Dc Stability** — Drift with Ambient Temperature (Line Voltage Constant): 0.01 div/°C. Drift with Time (Ambient Temperature and Line Voltage Constant): 0.02 div in any one minute after one hour warm-up.

**Displayed Noise** — 0.06 div or less.

**Common-Mode Rejection Ratio (Add, CH 2 Invert)** — At least 10:1, dc to 50 MHz.

### DC OFFSET OPTION

**Option 06, Dc Offset** — Allows small signals riding on larger signals, such as power supply ripple, to be analyzed. Separate Channel 1 and Channel 2 variable offset controls are concentric with the position controls replacing the identify push-buttons of the standard 7A18A. The ac-dc-ground switch of each channel is expanded to accommodate a fourth position for dc offset.

**Offset Range Display** — ±200 division maximum, equivalent to ±1 V at 5 mV/div.

**Accuracy** — When in dc Offset the deflection accuracy is derated by 1%.

### ORDERING INFORMATION

7A18A Amplifier **\$1,395**  
Includes: Instruction manual (070-4329-00).  
Option 06 — Dc Offset **+ \$210**

For floating measurements, order A6902B Isolator. See page 437 for complete description.

## 7A24

Dc to 400 MHz Bandwidth

5 mV/div to 1 V/div  
Calibrated Deflection Factors

50 Ω Input

The 7A24 is a high-performance, wide-band, dual-trace amplifier which provides 400 MHz bandwidth in the 7100 Series mainframes. Bandwidth is constant over the entire range of deflection sensitivities from 5 mV/div to 1 V/div. Input impedance is 50 Ω. The 7A24 features five operating modes, trigger source selectability and trace identify.

### CHARACTERISTICS

**Bandwidth** — Dc Coupled: 400 MHz (5 mV/div to 1 V/div).

**Deflection Factor** — Calibrated: 5 mV/div to 1 V/div in eight steps (1-2-5 sequence). Accuracy is within 2% with gain adjusted to 5 mV/div. Uncalibrated: Variable continuously between steps to a maximum of at least 2.5 V/div.

**Input Z** — 50 Ω within 0.5%; vswr 1.25:1 or less at 5 mV/div and 10 mV/div, 1.15:1 or less from 20 mV/div to 1 V/div at 250 MHz.

**Maximum Input Voltage** — Dc Coupled: 5 V RMS.

**Dc Stability** — Drift with Ambient Temperature (Line Voltage Constant): 0.02 div/°C. Drift with Time (Ambient Temperature and Line Voltage Constant): 0.02 div in any one minute after one hour warm-up.

**Displayed Noise** — 0.7 div or less at 5 mV/div (with a 7900 Series mainframe).

**Common-Mode Rejection Ratio** — At least 10:1, dc to 50 MHz.

### ORDERING INFORMATION

7A24 Amplifier **\$2,590**  
Includes: Instruction manual (070-1485-00).

## 7A26

Dc to 200 MHz Bandwidth

5 mV/div to 5 V/div  
Calibrated Deflection Factors

1 MΩ Input

The 7A26 is a dual-trace amplifier which provides a bandwidth of 200 MHz in the 7900 and 7100 Series mainframes. Bandwidth is constant over the entire range of deflection sensitivities of 5 mV/div to 5 V/div. Bandwidth may be limited to 20 MHz to reduce displayed noise in lower-frequency applications. The 7A26 features five operating modes, trigger source selectability and trace-identify.

### CHARACTERISTICS

**Bandwidth** — Dc Coupled: 200 MHz (5 mV/div to 5 V/div). Ac Coupled: 10 Hz or less to 200 MHz (5 mV/div to 5 V/div).

**Deflection Factor** — Calibrated: 5 mV/div to 5 V/div in ten steps (1-2-5 sequence). Accuracy is within 2% with gain adjusted at 10 mV/div. Uncalibrated: Variable continuously between steps to a maximum of at least 12.5 V/div.

**Input R and C** — 1 MΩ within 2%; ≈20 pF.

**Maximum Input Voltage** — Dc Coupled: 250 V (dc + peak ac), ac component 500 V p-p maximum, 1 kHz or less. Ac Coupled: 500 V (dc + peak ac), ac component 500 V p-p maximum, 1 kHz or less.

**Dc Stability** — Drift with Ambient Temperature (Line Voltage Constant): 0.02 div/°C. Drift with Time (Ambient Temperature and Line Voltage Constant): 0.02 division in any one minute after one hour warm-up.

**Displayed Noise** — 0.1 div or less at 5 mV/div (with a 7900 Series mainframe).

**Common-Mode Rejection Ratio (Add, CH 2 Invert)** — At least 10:1, dc to 50 MHz.

### ORDERING INFORMATION

7A26 Amplifier **\$2,295**  
Includes: Instruction manual (070-1484-01).

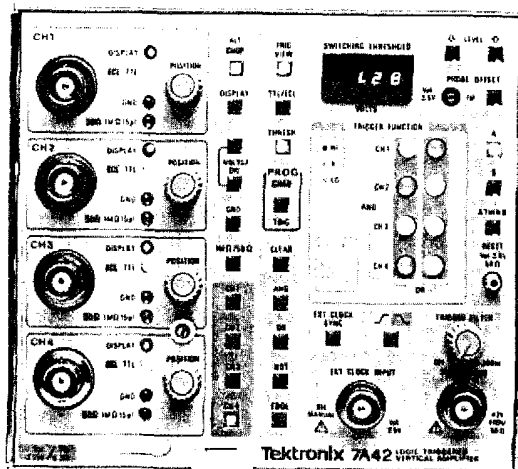
For recommended Probes see pages 131 and 426.

For 7000 Series vertical system specifications see page 190.



## 7A42

- Up to 350 MHz Bandwidth (7100 Family)
- Four Input Channels
- Boolean Logic Triggering
- Nested Trigger Functions
- Variable Switching Thresholds
- Precise Amplitude and Timing Measurement
- External Clock Synchronization
- 1 M $\Omega$ /50  $\Omega$  Switchable Inputs
- Variable/Bias Offset Probe Compatibility
- 7000 Series Mainframe Compatible



## CHARACTERISTICS VERTICAL SYSTEM

**Input** — Four channels, BNC connectors.

**Deflection Factor** — Calibrated Through 10X Probe: TTL (CMOS) family is 1, 2, 5 V/div. ECL family is 0.2, 0.5, 1 V/div. Gain Accuracy: Within 3%.

**Bandwidth** — To 350 MHz maximum. See 7000 Series Vertical System Specifications on page 190 for frequency response in specific mainframes.

**Input Impedance** — Selectable between 1 M $\Omega$  and 50  $\Omega$ . High Impedance: 1 M $\Omega$   $\pm$  1%, in parallel with  $\approx$  15 pF. Low Impedance: 50  $\Omega$   $\pm$  1  $\Omega$  at dc. Vswr is  $\leq$  1.15:1, dc to 300 MHz.

**Maximum Input Voltage** — 1 M $\Omega$ : 25 V (dc + peak ac) 36 MHz or less, derated linearly to 3 V (peak ac) at 300 MHz. 50  $\Omega$ : 5 V RMS during any 1 ms time interval. Active internal protection opens all inputs if overvoltage is applied to any channel.

**Dc Stability** — Drift with Time (Ambient Temperature and Line Voltage Constant): Not more than 0.2 division in any 10 minute after 20 minute warm-up. Drift with Ambient Temperature (Line Voltage Constant): Not more than 0.2 div for 10°C ambient change.

**Differential Delay** — 200 ps maximum between the four input channels.

**Trigger View or External Clock View** — Time Coincidence with Channel Display: Trigger View is within 3 ns. External Clock View is within 5 ns.

## TRIGGER SYSTEM

**Switching Threshold** — Voltage Range\*: TTL (CMOS) family is +12.8 V to -12.7 V. ECL family is +2.56 V to -2.54 V. Accuracy\*: TTL (CMOS) family is  $\pm$  50 mV  $\pm$  2% of setting. ECL family is  $\pm$  10 mV  $\pm$  2% of setting.

Presets\*: TTL (CMOS) is +1.4 V. ECL is -1.3 V. Probe Offset activated is 0 V.

**Tip (Probe Offset) Input** — Maximum Voltage Range: +5.1 V to -5.1 V, dc only. DVM Accuracy:  $\pm$  20 mV  $\pm$  2% of reading.

**Trigger Filter** — Range: Off, or adjustable from < 15 ns to > 300 ns. Match, Trigger Function A to Trigger Function B: Within 20% at maximum setting.

**External Clock Input** — Maximum Voltage Range: +5 V to -5 V (dc + peak ac). Threshold: Two External Clock Input modes are available, TTL or ECL. TTL level at logic zero is  $\leq$  0.8 V; at logic one is  $\geq$  2 V. ECL level at logic zero is  $\leq$  -1.5 V; at logic one is  $\geq$  -1.1 V. Input Impedance: TTL level is  $\approx$  10 K $\Omega$  in parallel with  $\approx$  55 pF, terminated to +5 V, compatible with a 1X probe. ECL level is  $\approx$  50  $\Omega$ , terminated to -2 V. Pulse Width: TTL level is 20 ns minimum, either pulse transition selected. ECL level is 5 ns minimum, leading pulse transition selected; or 10 ns minimum, trailing pulse transition selected. Setup Time: 10 ns minimum. Hold Time: 10 ns minimum.

**Channel Edge Sensitivity** — Setup Time, Channel to Channel: 5 ns minimum (time that level sensitive portion of trigger function must be true before Edge Sensitive Channel transition).

\* At tip of 10X probe with readout compensation.

The 7A42 Four Channel Logic Triggered Vertical Amplifier is a two-wide 7000 Series plug-in that provides a significant new dimension to oscilloscope measurements through the combination of amplifier and triggering technologies. The 7A42 triggering permits all signals to be displayed in analog form for high resolution measurements of both time and amplitude characteristics.

### High Resolution Analog Display of Digital Signals

Very accurate analog representations of digital signals are displayed. Input attenuators can be optimized for either TTL or ECL logic families. A 1 ns risetime with 200 ps or less delay difference between the four input channels provides precise, high resolution timing measurements. The 7A42 accurately displays risetimes and falltimes, allows pulse width to be precisely measured, enables pulse aberrations to be viewed and quantified, and amplitude to be measured with confidence.

### Advanced Triggering

Triggers are generated by the 7A42 upon recognition of user-programmed Boolean combinations of logic levels and transitions at any or all of its input channels. Independent variable switching thresholds and edge sensitivity make triggering on digital signals an easy task.

### Nested Triggering Functions

One level of nested triggering is implemented in the 7A42. Triggers may be generated on event "A", event "B", or on "A then B". In "A then B" mode, the 7A42 arms on event A, and generates a trigger to a time base on the next occurrence of event B. A reset input disarms the 7A42 in nested triggering mode at any time. Nested triggering provides the flexibility needed to trigger on even the most complex event.

### See The Trigger Event

Delay lines in the 7A42 permit the trigger event to be displayed in its entirety. A representation of the 7A42 Trigger Out signal can be displayed on the mainframe CRT. This Trigger View trace shows where the trigger event occurred and how long it lasted.

### Trigger Filtering Prevents Inadvertent Triggering

A continuously variable (equal to or greater than 300 ns) trigger filter control eliminates unnecessary or inadvertent triggering by requiring that a trigger function remain true longer than the Trigger Filter setting.

### External Clock Synchronization

An external clock input allows further qualification of a triggering event to coincide with either a positive or negative transition of an external clock signal. This input is compatible with either TTL or ECL levels.

### Special Probe Features

The 7A42 Probe Offset accommodates the P6230 Variable Bias/Offset Probe, which is ideal for probing ECL circuits with reduced loading. The P6230 is a 1.5 GHz, 450  $\Omega$  probe with the ability to place bias voltage at its tip. A wide variety of accessories, including very flexible grounding schemes, make the P6230 ideal for high speed digital circuit testing. The P6131 10X high impedance probe is the recommended probe for TTL, high speed TTL, CMOS and other high impedance logic families.

### Easy Setup

CRT readout of attenuator settings and the display of error messages designed to guide a user through the process of setting up the instrument make the 7A42 easy to operate. The use of multicolored LEDs communicate the status of other 7A42 functions at a glance. A battery backup system preserves the current settings when power is removed and re-applied, thus saving setup time.

Hold Time, Channel to Channel: 5 ns minimum, (time that level sensitive portion of trigger function must remain true after Edge Sensitive Channel transition). Setup Time, Edge Sensitive Channel: 10 ns minimum (time that level of Edge sensitive channel must be stable before transition). Hold Time, Edge Sensitive Channel: 5 ns minimum (time that level of Edge Sensitive Channel must remain stable after transition).

**Trigger Out Connector** — Output Voltage: 1 V into 50 Ω. Output Impedance: ≈50 Ω. Toggle Frequency: 125 MHz maximum. Propagation Delay: Channel Input to Trigger Output is 25 ns or less. A then B Mode: Time between A and B is 5 ns minimum (minimum setup time from event A to event B). Time from B to A is 5 ns minimum (minimum time after event B to next event A). Event Duration (minimum time to insure proper arming and

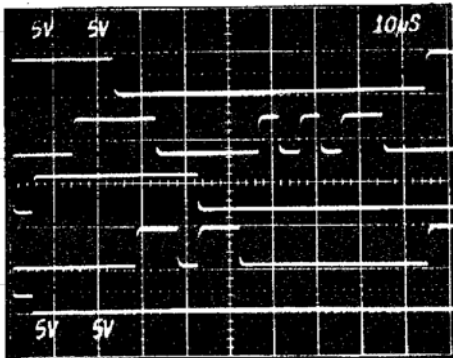
triggering): Event A is 5 ns minimum. Event B is 5 ns minimum. Front panel A then B Gate Output: Active only if selected and in the A then B mode.

**Mainframe A Then B Gate Output** — Active only in A then B mode. Pulse Width (Measured at the 50% Points): Greater than the time between event A and event B by 5 ns ± 2 ns.

**Reset Input** — Maximum Input Voltage: +5 V to -5 V (dc + peak ac). Input Impedance: ≈50 Ω. Logic Zero Level: ≤0.2 V. Logic One Level: ≥0.8 V. Pulse Width: 100 ns minimum. Timing (Post-Reset Inhibit Time to Next Trigger): 10 ns minimum (time from falling edge of Reset to next recognizable event).

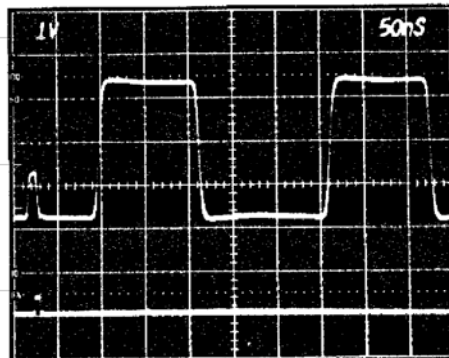
Response Time: Reset pulse must lead or be coincident with event recognition to inhibit trigger output. Event recognition must lead the Reset pulse by 10 ns to guarantee trigger output.

### Four Channel Analog Display with Trigger View



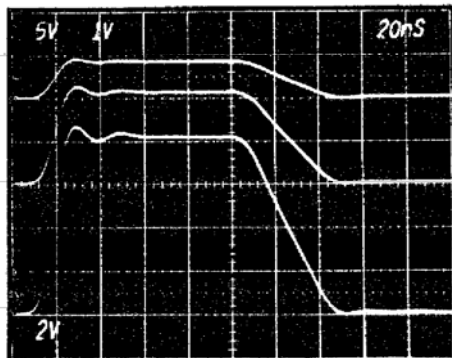
Up to four logic signals can be displayed by the 7A42 in true analog form. Additionally, the Trigger View trace provides the ability to view exactly when the programmed Trigger Function is satisfied.

### Selective Triggering on a Low Amplitude Pulse



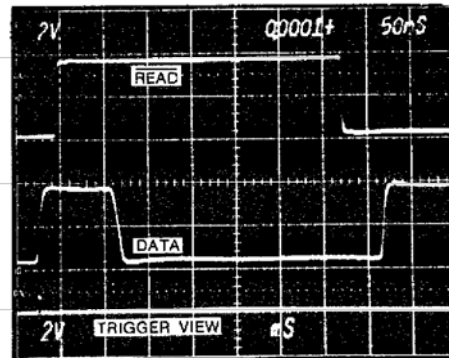
Independent and variable trigger thresholds for each of the four input channels allow selective triggering on an abnormally low amplitude pulse (indeterminate state) within a pulse train. Shown above, two channels are used to establish dual thresholds to bracket the low level pulse. The 7A42 triggers on any signal that remains between the two thresholds longer than the time set by the Trigger Filter.

### Range of Sensitivities



Three display sensitivities are available for each of the logic families. Select the most convenient display size for the application; small amplitudes for many traces on the screen, or large sizes when more signal detail is desired.

### Edge Sensitive Triggering



Data bus transitions are generally not allowed during a specified time at the end of a microprocessor read cycle. In the above display, the 7A42 has captured a positive transition of a data line during the time when data should have been stable (note trigger view pulse). The 7A42's Edge Sensitivity enhances its Boolean triggering by detecting rising or falling transitions of one signal during a time qualified by the states of the other channels.

### BATTERY BACKUP

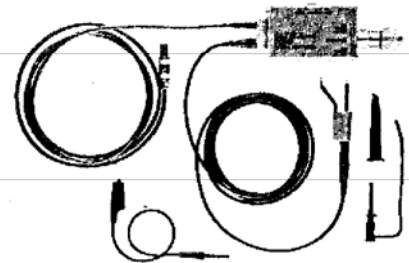
**Ni-Cad Battery (3.75 V)** — Provides power to preserve front panel control status a minimum of 200 hours while main power is off. Battery requires about 24 hours to fully charge from discharged condition.

### ORDERING INFORMATION

**7A42 Logic Triggered Vertical Amplifier \$6,050**  
Includes: Instruction manual (070-4285-00).

### OPTIONAL ACCESSORIES

#### P6230 Variable Bias/Offset 10X Probe

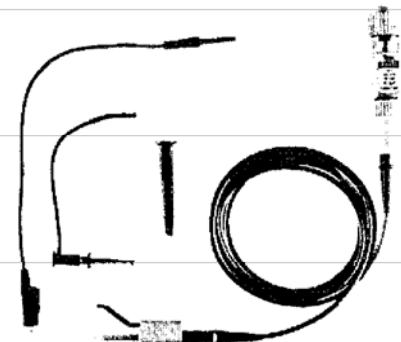


The P6230 probe is recommended for high speed ECL probing. It is a very low capacitance, high bandwidth, probe ideal for ECL and features a variable bias/offset that minimizes its dc loading on the circuit. See page 434 for details.

Order 010-6230-01

\$395

#### P6131 10X Passive Probe



The P6131 is a general purpose probe, ideal for use with TTL and CMOS circuits, and is recommended for use with the 7A42 for up to 300 MHz system bandwidth. Several subminiature and miniature accessories are also available including a probe-to-DIP for IC testing. See page 433 for details.

Order 010-6131-01

\$140

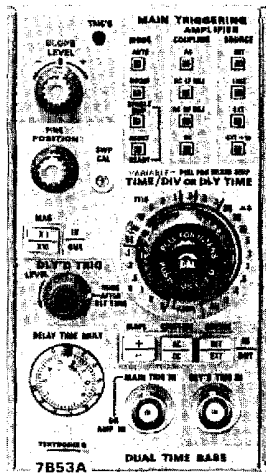
**KLIPKIT** — Provides hands-free connection to integrated circuits. See page 433 for complete description. Order 013-0197-00

\$40

For recommended probes see pages 101 and 425.  
For 7000 Series vertical system specifications see page 190.



7B53A



Dual Time Base

7B53A/7B50A

5 ns/div to 5 s/div Calibrated Time Base

Triggering to 100 MHz (7B53A) and 150 MHz (7B50A)

Variable Trigger Holdoff (7B50A)

P-P Auto Triggering (7B50A)

Single Sweep Operation

Calibrated Mixed Sweep (7B53A)

TV Sync Separator Triggering (7B53A Option 05)

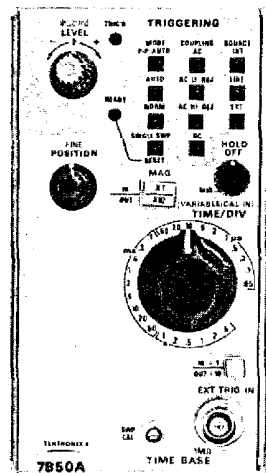
The easy-to-use 7B53A and 7B50A Time Bases are recommended for use with 7600 Series mainframes to provide optimum bandwidth/sweep speed compatibility. They may, however, be used in any 7000 Series mainframe to provide sweep rates of 5 ns/div.

The 7B53A provides normal, intensified delaying, delayed, and mixed sweep.

CHARACTERISTICS (7B53A)  
DELAYING SWEEP

**Sweep Rate** — Calibrated: 50 ns/div to 5 s/div in 25 steps (1-2-5 sequence). 5 ns/div, the fastest calibrated sweep rate, is obtained with the X10 Magnifier. Uncalibrated: Variable continuously between steps to at least 2.5 times the calibrated sweep rate. The variable control is internally switchable between main, delayed-sweep, and variable main-sweep holdoff.

7B50A



Time Base

**Sweep Accuracy** — Measured over the center eight divisions.

| Time/Div                  | Unmagnified    |              | Magnified      |              |
|---------------------------|----------------|--------------|----------------|--------------|
|                           | +15°C to +35°C | 0°C to +50°C | +15°C to +35°C | 0°C to +50°C |
| 5 s/div to 1 s/div        | 3%             | 4%           | Unspecified    | Unspecified  |
| 50 ms/div to 0.5 μs/div   | 2%             | 3%           | 2.5%           | 4%           |
| 0.2 μs/div to 0.05 μs/div | 3%             | 4%           | 3.5%           | 5%           |

**Delay Time Multiplier Range** — 0 to 10 times the Delay Time/Div setting from 5 s/div to 1 μs/div.

**Differential Delay Time Measurement Accuracy** — 5 s/div to 1 s/div: ±1.4% of measurement + 0.3% of full scale. 0.5 s/div to 1 μs/div: ±0.7% of measurement + 0.3% of full scale. Full scale is ten times the Delay Time/Div setting. Accuracy applies over the center 8 DTM div from +15°C to +35°C.

**Delay Time Jitter** — 0.05% or less of Time/Div setting.

TRIGGERING

Triggering Sensitivity

| Coupling               | Triggering Frequency Range | Min Signal Required |        |
|------------------------|----------------------------|---------------------|--------|
|                        |                            | Int                 | Ext    |
| Ac                     | 30 Hz to 10 MHz            | 0.3 div             | 100 mV |
|                        | 10 MHz to 100 MHz          | 1.5 div             | 500 mV |
| Ac LF Rej <sup>1</sup> | 30 kHz to 10 MHz           | 0.3 div             | —      |
|                        | 150 kHz to 10 MHz          | —                   | 100 mV |
| Ac HF Rej              | 10 MHz to 100 MHz          | 1.5 div             | 500 mV |
|                        | 30 Hz to 50 kHz            | 0.3 div             | 100 mV |
| Dc                     | Dc to 10 MHz               | 0.3 div             | 100 mV |
|                        | 10 MHz to 100 MHz          | 1.5 div             | 500 mV |

<sup>1</sup> Will not trigger on sinewaves of three division or less Int or 1.5 V Ext below 120 Hz.

**Single Sweep** — Triggering requirements are the same as normal sweep. When triggered, sweep generator produces one sweep only until reset.

**Internal Trigger Jitter** — 1 ns or less at 75 MHz.

**External Trigger Input** — Maximum Input Voltage: 500 V (dc + peak ac), 500 V p-p ac at 1 kHz or less. Input R and C: 1 MΩ within 2% and 20 pF within 2 pF. Level Range: At least +1.5 V to -1.5 V in Ext, at least +15 V to -15 V in Ext ÷ 10.

DELAYED SWEEP

**Sweep Rate** — Calibrated: 0.05 μs/div to 0.5 s/div in 22 steps (1-2-5 sequence). 5 ns/div, the fastest calibrated sweep rate, is obtained with the X10 Magnifier. Uncalibrated: Variable continuously between steps to at least 2.5 times the calibrated sweep rate. The variable control is internally switchable between main, delayed sweep, and variable main sweep holdoff.

**Sweep Accuracy** — Measured over the center eight divisions.

| Time/Div   | Unmagnified    |              | Magnified      |              |
|--|----------------|--------------|----------------|--------------|
|  | +15°C to +35°C | 0°C to +50°C | +15°C to +35°C | 0°C to +50°C |
| 0.5 s/div to 0.1 s/div and 0.2 μs/div to 0.05 μs/div | 4%             | 5%           | 4.5%           | 6%           |
| 50 ms/div to 0.5 μs/div                              | 3%             | 4%           | 3.5%           | 5%           |

**Delayed Sweep Gate** — Output Voltage: ≈ +3.5 V into at least 10 kΩ shunted by 100 pF or less, or 0.5 V into 50 Ω. Rise time: 50 ns or less. Output R is 350 Ω within 10%. Gate is available at the Dly'd Trig in connector when the delayed sweep source switch is set to Int.

Triggering Sensitivity

| Coupling | Triggering Frequency Range | Min Signal Required |        |
|----------|----------------------------|---------------------|--------|
|          |                            | Int                 | Ext    |
| Ac       | 30 Hz to 10 MHz            | 0.3 div             | 100 mV |
|          | 10 MHz to 100 MHz          | 1.5 div             | 500 mV |
| Dc       | Dc to 10 MHz               | 0.3 div             | 100 mV |
|          | 10 MHz to 100 MHz          | 1.5 div             | 500 mV |

**Internal Trigger Jitter** — 1 ns or less at 75 MHz.

**External Trigger Input** — Maximum Input Voltage: 500 V (dc + peak ac), 500 V p-p ac at 1 kHz or less. Input R and C: 1 MΩ within 2% and 20 pF within 2 pF. Level Range: At least +1.5 V to -1.5 V in Ext.

MIXED SWEEP

**Sweep Accuracy** — Within 2% plus measured main sweep error. Exclude the following portions of mixed sweep: First 0.5 div after start of main sweep display and 0.2 div or 0.1 μs (whichever is greater) after transition of main to delayed sweep.

EXT HORIZONTAL INPUT

**Deflection Factor** — 10 mV/div within 10% when in Ext, Mag X10; 100 mV/div within 10% when in Ext; 1 V/div within 10% when in Ext ÷ 10.

Bandwidth

| Coupling  | Bandwidth   |             |
|-----------|-------------|-------------|
|           | Lower -3 dB | Upper -3 dB |
| Ac        | 40 Hz       | 2 MHz       |
| Ac LF Rej | 16 kHz      | 2 MHz       |
| Ac HF Rej | 40 Hz       | 100 kHz     |
| Dc        | Dc          | 2 MHz       |

TV SYNC

**Option 05, TV Sync Separator Triggering** — Permits stable internal line or field rate triggering from displayed composite video or composite sync waveforms. Conventional waveform displays and measurements can be made from standard broadcast or closed circuit TV systems, domestic or international, with up to 1201-line, 60 Hz field rates. Individual lines may be displayed with delayed sweep features. The wide range of delayed sweeps permits accurate alternate-frame, color-burst observations in the PAL color system. Option 05 deletes ac line trigger and Ext ÷ 10 from trigger source.

**CHARACTERISTICS (7B50A)**

**Sweep Rates** — 0.05  $\mu$ s/div to 5 s/div in 25 steps (1-2-5 sequence). 5 ns/div, the fastest calibrated sweep rate, is obtained with the X10 Magnifier. Uncalibrated: Variable continuously between steps to at least 2.5 times the calibrated sweep rate.

**Sweep Accuracy** — Measured over center eight division, +15°C to +35°C, with any 7000 Series mainframe. Derate accuracies by an additional 1% each for 0°C to +50°C.

| Time/Div                            | Unmagnified | Magnified   |
|-------------------------------------|-------------|-------------|
| 5 s/div to 1 s/div                  | 4%          | Unspecified |
| 0.5 s/div to 0.5 $\mu$ s/div        | 2%          | 3%          |
| 0.2 $\mu$ s/div to 0.05 $\mu$ s/div | 3%          | 4%          |

**TRIGGERING**

**Trigger Holdoff Time**

|                              |  |
|------------------------------|--|
| Minimum                      | 2 times Time/Div setting or less   |
| 5 s/div to 1 $\mu$ s/div     |  |
| 0.5 $\mu$ s/div to 50 ns/div | 2.0 $\mu$ s or less  |
| Variable                     | Extends holdoff time through at least 2 sweep lengths for sweep rates of 20 ms/div or faster |

**Triggering Sensitivity\*1**

| Coupling    | Triggering Frequency Range*2 | Min Signal Required |        |
|-------------|------------------------------|---------------------|--------|
|             |                              | Int                 | Ext    |
| Ac          | 30 Hz to 50 MHz              | 0.3 div             | 50 mV  |
|             | 50 MHz to 150 MHz            | 1.5 div             | 250 mV |
| Ac LF Rej*3 | 30 kHz to 50 MHz             | 0.3 div             | 50 mV  |
|             | 50 MHz to 150 MHz            | 1.5 div             | 250 mV |
| Ac HF Rej   | 30 Hz to 50 kHz              | 0.3 div             | 50 mV  |
|             | 50 MHz to 150 MHz            | 0.3 div             | 50 mV  |
| Dc**        | Dc to 50 MHz                 | 0.3 div             | 50 mV  |
|             | 50 MHz to 150 MHz            | 1.5 div             | 250 mV |

\*1 Auto and Norm modes.

\*2 Triggering frequency ranges are limited to the frequency of the vertical system when operating in the Int mode.

\*3 Will not trigger on sinewaves of less than eight division internal, or 3 V External, at or below 60 Hz.

\*\* Triggering Frequency Range for dc coupling applies to frequencies above 30 Hz when operating in the Auto Triggering mode.

**Triggering Sensitivity (P-P Auto Mode)**

| Coupling | Triggering Frequency Range | Min Signal Required |        |
|----------|----------------------------|---------------------|--------|
|          |                            | Int                 | Ext    |
| Ac or dc | 200 Hz to 50 MHz           | 0.5 div             | 125 mV |
| Ac or dc | 50 MHz to 150 MHz          | 1.5 div             | 375 mV |

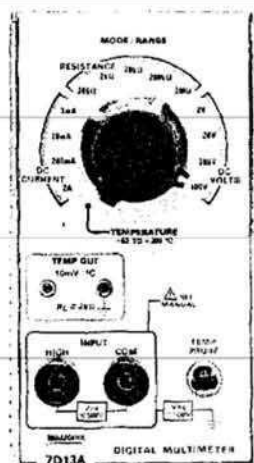
**Single Sweep** — Triggering requirements are the same as normal sweep. When triggered, sweep generator produces only one sweep until reset.

**Option 02, X-Y Display Capability** — A front panel switch selects either normal sweep displays or X-Y displays. In the X-Y mode, the X and Y signals are applied to the inputs of a dual-trace vertical amplifier or two single-trace vertical amplifiers. The X signal is routed via the amplifier/mainframe trigger path to the 7B50A Option 02, and then to the mainframe horizontal amplifier for display.

**ORDERING INFORMATION**

|  |                |
|--|----------------|
| <b>7B53A Dual Time Base</b>                        | <b>\$1,685</b> |
| <b>Includes:</b> Instruction manual (070-1342-01)  |                |
| <b>Option 05 — TV Triggering.</b>                  | <b>+\$160</b>  |
| <b>Includes:</b> Instruction manual (070-1471-00). |                |
| <b>7B50A Time Base</b>                             | <b>\$1,075</b> |
| <b>Includes:</b> Instruction manual (070-1986-00). |                |
| <b>Option 02 — X-Y Display Capability</b>          | <b>+\$105</b>  |

**7D13A**



**Digital Multimeter**

**7D13A**

3 1/2 Digit CRT Readout

500 V Maximum Common-Mode Voltage

Temperature Mode

The 7D13A Digital Multimeter is designed for use in all 7000 Series oscilloscope mainframes with CRT readout. The 7D13A functions in any compartment.

The 7D13A measures dc volts, dc current, and resistance. It also measures temperature from a temperature sensor on the tip of the P6601 temperature probe. The temperature probe functions regardless of 7D13A mode or range setting and provides a front-panel analog signal output of 10 mV/°C (0°C = 0 V). Temperature may be measured simultaneously along with any other function.

When the 7D13A is used, the character generator traces out a 3 1/2-digit display on the CRT and a legend for units such as k $\Omega$ , mA, °C.

**CHARACTERISTICS**

**Dc Voltage Range** — 0 V to 500 V in four ranges. 3 1/2-digit presentation of 1.999 V, 19.99 V, 199.9 V, and 500 V full scale. Accuracy is  $\pm$ 0.1% of reading  $\pm$ 1 count from +15°C to +35°C,  $\pm$ 0.2% of reading  $\pm$ 2 counts from 0°C to +50°C. Input impedance is 10 M $\Omega$  on all ranges. Maximum safe input is 500 V peak between either contact and ground, 500 V peak between voltage contacts.

**Dc Current Range** — 0 A to 2 A in four ranges. 3 1/2-digit presentation of 1.999 mA, 19.99 mA, 199.9 mA, and 1999 mA full scale. Accuracy is  $\pm$ 0.5% of reading  $\pm$ 2 counts from +15°C to +35°C,  $\pm$ 0.7% of reading  $\pm$ 4 counts from 0°C to +50°C. Maximum input is 3 A (fuse protected).

**Resistance Range** — 0  $\Omega$  to 2 M $\Omega$  in five ranges. 3 1/2-digit presentation 199.9  $\Omega$ , 1999  $\Omega$ , 19.99 k $\Omega$ , 199.9 k $\Omega$ , and 1999 k $\Omega$  full scale. Accuracy is  $\pm$ 0.5% of reading  $\pm$ 1 count from +15°C to +35°C,  $\pm$ 0.8% of reading  $\pm$ 2 counts from 0°C to +50°C. Input is fuse protected.

**Temperature Measurement Range** — -62°C to +200°C in one range. 3 1/2-digit presentation to +200°C.

**Temperature Measurement Accuracy\*1**

| 7D13A Operating Conditions        | Temperature Value Measured | Measurement Accuracy                           |
|-----------------------------------|----------------------------|--|
| +18°C to +28°C (room temperature) | -62°C to +150°C            | $\pm$ 2°C                                      |
|                                   | +150°C to +200°C           | 0°C, -8°C                                      |
| 0°C to +18°C                      | -62°C to +200°C            | Add 1.5°C to above tolerance in each direction |
| +28°C to +50°C                    |                            |  |

\*1 Probe calibrated to the instrument.

**Settling Time** — 1 s or less (voltage, current, and resistance modes).

**Polarity** — Automatic indication.

**Maximum Common-Mode Voltage** — 500 V peak between two terminals and ground.

**Normal-Mode Rejection Ratio** — At least 30 dB at 60 Hz.

**Common-Mode Rejection Ratio** — With a 1 k $\Omega$  imbalance, at least 100 dB at dc; 80 dB at 60 Hz.

**Over Range Indication** — When over range occurs, the readout blinks and the most significant digit displays a three.

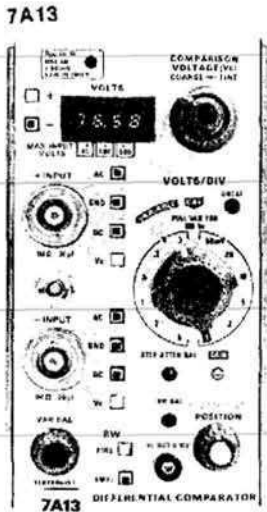
**Temperature Out** — 10 mV/°C into a load of at least 2 k $\Omega$ .

**ORDERING INFORMATION**

**7D13A Digital Multimeter \$1,280**  
Includes: Pair of test leads (003-0120-00); P6601 Temperature Probe package (010-6601-01); instruction manual (070-3972-00)

For recommended probes see pages 131 and 435.





Differential Comparator Amplifier

7A13

Dc to 105 MHz Bandwidth

1 mV/div to 5 V/div  
Calibrated Deflection Factors

1 MΩ Input Switchable to ∞

20,000:1 CMRR

10,000 cm Effective Screen Height

The 7A13 is a differential comparator amplifier which provides dc to 105 MHz bandwidth in all the 7100 and 7900 Family instruments. It incorporates a number of features which make it particularly versatile, especially in multitrace combination with other 7000 Series vertical plug-ins.

The 7A13 has constant bandwidth over the 1 mV/div to 5 V/div deflection factor range. The bandwidth is selectable to Full or 5 MHz for best displayed noise conditions for low-frequency applications.

As a differential amplifier the 7A13 provides a balanced (+ and -) input for applications requiring rejection of a common-mode signal. The CMRR is 20,000:1 from dc to 100 kHz, derating to 200:1 at 20 MHz. The unit can reject up to 10 V of common-mode signal at a deflection factor setting of 1 mV/div, increasing to 100 V at 10 mV/div (X10 Vc pulled) and 500 V at 0.1 V/div.

As a comparator amplifier the 7A13 provides an accurate (0.1%) positive or negative internal offsetting voltage of up to ±10 V. This precision offset voltage effectively provides a screen height of 10,000 div at 1 mV/div. The offset voltage is also available as an output for external monitoring.

CHARACTERISTICS

Bandwidth — Dc Coupled: 105 MHz (1 mV/div to 5 V/div).

Input R and C — 1 MΩ within 0.15%; ≈20 pF. Rin ≈∞ is available in the 1 mV to 50 mV/div range, selectable by an internal switch.

Deflection Factor — Calibrated: 1 mV/div to 5 V/div in 12 steps (1-2-5 sequence). Accuracy is within 1.5% with gain adjusted at 1 mV/div. Uncalibrated: Variable continuously between steps to a maximum of at least 12.5 V/div.

Maximum Input Gate Current — 0°C to +35°C: 0.2 nA or less. +35°C to +50°C: 2 nA or less.

Dc Stability — Drift with Ambient Temperature (Line Voltage Constant): 2 mV/10°C to 0.2 div/10°C or less, (whichever is greater). Drift with Time (Ambient Temperature and Line Voltage Constant): Short term is 1 mV p-p or 0.1 div or less (whichever is greater) over any one minute interval after 20 minute warm-up. Long term is 1 mV p-p or 0.1 division or less (whichever is greater) during any one hour interval after 20 minute warm-up.

Signal Range

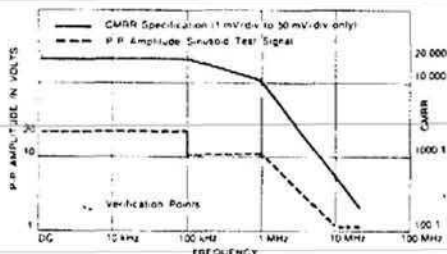
| Deflection Factor Settings                               | 1 mV to 50 mV/div | 10 mV to 50 mV/div (X10 Vc out) and 0.1 V to 0.5 V/div | 0.1 V to 0.5 V/div (X10 Vc out) and 1 V to 5 V/div |
|--|-------------------|--|--|
| Common-mode Signal                                       | ±10 V             | ±100 V   | ±500 V   |
| Maximum Dc Coupled Input (dc + peak ac at 1 kHz or less) | ±40 V             | ±400 V   | ±500 V   |
| Maximum Ac Coupled Input (dc voltage)                    |                   | ±500 V   |  |

Displayed Noise (Tangentially Measured) — With X10 Vc In: 400 μV (200 μV RMS) or less at 1 mV/div; 0.2 div or less at 2 mV/div to 5 mV/div; 0.05 div or less at 10 mV/div to 5 V/div. With X10 Vc Out: 0.4 div or less at 10 mV/div to 0.5 V/div.

Overdrive Recovery — 1 μs to recover to within 2 mV and 0.1 ms to recover to within 1 mV after a pulse of ±10 V or less at 1 mV/div only, regardless of pulse duration.

Internal Comparison Voltage — Range: 0 V to ±10 V. Accuracy: ±(0.1% of setting + 3 mV). Vc Output R: ≈15 kΩ.

Common-Mode Rejection Ratio



At least 2000:1, 10 mV/div to 50 mV (X10 Vc out) and 0.1 V/div to 5 V/div. Ac coupled input at least 500:1 at 60 Hz.

ORDERING INFORMATION

7A13 Amplifier \$3,320

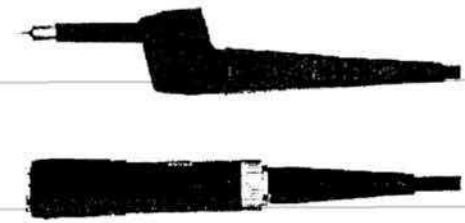
Includes: instruction manual (070-1940-02)

For floating measurements, order A6902B Isolator. See page 437 for complete description.

For recommended probes see pages 191 and 426. For 7000 Series vertical system specifications see page 190.

P6055

20,000:1 CMRR 10X with Readout



Dc to 60 MHz

Low Capacitance

High CMRR

Compact Size

The P6055 is a miniature, low-capacitance, 10X probe designed for use with Tektronix differential amplifiers with nominal input capacitances from 20 pF to 47 pF. The attenuation ratio is adjustable to compensate for differences in input resistance of the amplifier (the amplifier input resistance must be 1 MΩ ± 2%). A special locking type readout connector allows the probe to be used with instruments with or without readout capability.

When two P6055 Probes are used to drive the two inputs of a differential amplifier, the ability to change the attenuation ratio of one probe versus the other is helpful in maintaining the CMRR of the system. The use of a matched pair of P6055 differential probes provides the best possible system CMRR.

CHARACTERISTICS

Maximum Useful Bandwidth — 60 MHz.

Risetime — 5.8 ns.

Input Capacitance — ≈10 pF when used with instrument that has 20 pF input capacitance; 12.5 pF when used with instrument that has 47 pF input capacitance.

Attenuation — Adjustable to 10X.

Input Resistance — 1 MΩ ± 0.5%.

CMRR — 20,000:1 from dc to 1 kHz derating to 100:1 at 20 MHz.

Maximum Voltage — 500 V (dc + peak ac) from dc to 12 MHz. P-p voltage derates to 100 V at 70 MHz.

ORDERING INFORMATION

P6055 10X, 3.5 ft, Differential Probe.

Order 010-6055-01

\$275

Includes: Retractable hook tip (BB, 013-0107-05); 13 cm (5 inch) ground lead (175-0124-01); two electrical insulating sleeves (BP, 166-0404-01); two alligator clips (AS, 344-0046-00); probe holder (352-0090-00); adjustable tool (CP, 003-0675-01); hook tip (BU, 206-0114-00); 13 cm (6 inch) electrical ground lead (DF, 175-1256-00); 30 cm (12 inch) ground lead (175-0125-01); instruction manual (070-1115-00).

Matched Pair of P6055 Probes.

Order 015-0437-00

\$535

To order, call your local Tektronix Sales Office, or call Tek's National Marketing Center, toll free: 1-800-428-2200, Ext 99. In Oregon call collect: (503) 627-9000, Ext 99.