

# Plug-in Oscilloscopes for Performance Flexibility,Expandability 



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Tektronix
offers you unmatched value in plug-in laboratory oscilloscopes.
The pioneering leader in plug-in laboratory oscilloscopes, Tektronix, Inc., has its main plant in the Tektronix Industrial Park in Beaverton, Oregon. Field Offices and Service Centers are located throughout the United States. Sales and service is provided from offices throughout the world. A company objective is to provide you with unmatched value in products, services and support. Our staff of Field Engineers is trained to give you expert pre-purchase consultation based on your application requirements. A nationwide network of Service Centers provides fast, competent calibration, maintenance, and repair. The Training and Support Program offers classes in Tektronix product theory, operation, and maintenance-at the main plant or at a location near you. Outside the U.S., services and support vary depending on the country and location. These services, and many others, add to the value of your Tektronix product.


## And two comprehensive product lines to choose from.

 The 7000 Series... more than an oscilloscopeThis is more true today than ever. The 7000 Series continues to offer unmatched value in oscil-loscopes-superior performance, wide-ranging flexibility and a strong commitment to your future needs.

With this family of eight oscilloscope mainframes, you can put together a high-performance laboratory instrument package based on your measurement needs.

- Bandwidths range from 25 to 500 MHz .
- Display modes include normal or three types of storage, bistable and fast mesh transfer, both developed by Tektronix, as well as variable persistence. The fast transfer technique, which makes multimode storage possible, provides the fastest writing rates available today.
- Single or dual beam models are available; the dual beam capability features 400 MHz bandwidth with full scan overlap.

With over 35 compatible plugins to choose from, you can configure a flexible scope package around your application; 7000-Series mainframes accept three or four plug-ins:

- Vertical amplifiers ... Select your system bandwidth, number of input channels, vertical sensitivity, input impedance, and single or differential inputs.
- Time bases . . Choose sweep speed, single or dual sweep, and now delta time capability.
- Digital plug-ins . . . Opt for unique and accurate solutions to complex measurement problems.
- Sampling and TDR plug-ins ... Choose single or dual channel sampling plus time domain reflectrometry.
- Special-purpose plug-ins... Select logic analyzers, spectrum analyzers, and curve tracers.

The newest additions to the line include the highest writing rate storage scopes available today and a formatter for logic state and timing analysis in a single instrument. Whatever your measurement requirements, now and in the future, the 7000 Series will continue to meet your state-of-the-art instrumentation needs.

## The 5000 Series... for an extra margin of value

The 5100 Series, for low-frequency applications such as medical and mechanical measurements requiring up to 2 MHz bandwidth, gives you unequalled choices in measurement flexibility. Mainframes include single or dual beam units as well as bistable storage scopes featuring split-screen capability. Plug-ins include:

- High-gain differential amplifiers, single, dual, and 4-trace units, and a differential comparator amplifier.
- Time bases with single, dual, and delayed sweep.
- Special-purpose units for spectrum analysis in the 0 to 100 kHz frequency range; curve tracing; and sampling to 1 GHz .

The 5400 Series, providing an alternative to the monolithic scope, is designed for the costconscious user who needs the capability and versatility of a plug-in scope.
The 60 MHz bandwidth mainframes include a single beam nonstorage unit and a variable persistence storage instrument. Both feature crt readout of plugin scale factors.
In addition to the 5100-Series plug-ins, seven others are compatible with 5400-Series mainframes. Among them are a digital delay time base and dual-trace amplifiers.

With the 5000 Series, you can configure a flexible plug-in scope package, then add to it as your needs change or grow for maximum value and versatility. And you can depend on new products becoming available to fill your future needs in the 5000 Series.

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One of our most important objectives is responsiveness to your measurement needs. Please use the reply card in the back of the booklet to indicate the type of measurement you'd like to be able to make in the future with a plug-in scope.


## Performance: Select a basic plug-in scope system .

Selecting a plug-in scope isn't difficult, but it does depend on several factors. The most important are: what bandwidth or rise time your signals require, whether they are to be stored or not, and whether they will be best displayed with single or dual beam.

This discussion will help you determine which basic scope package suits your performance needs. For plug-in scope systems with additional capability, spe-cial-purpose plug-ins are described starting on p. 17.

As you read the following pages, note your bandwidth requirements, and your requirements for nonstorage or storage, and for single or dual beam capability, on the chart on the next page.

Should you need further assistance, your Tektronix Field Engineer will be able to give you more detailed advice about the instrument best suited for your particular application.

The page guide on the foldout page (overleaf) will help you in your selection of a plug-in scope. As you read through pages 6 and 7, check the appropriate boxes for your required bandwidth range and your choices of storage or nonstorage and single or dual beam.


Bistable, the least expensive type of storage, features the longest view times possible-at least half an hour. It characteristically produces bright, well-defined traces for clear displays, and is particularly good for displaying slow, low-rep-rate, or single-shot signals.

The unique split-screen feature allows you to display a reference trace on one half of the crt for comparison with an incoming trace on the other. Each trace is stored and erased independently.
Variable persistence produces continuous gradations between the bright written level and the dark reference. The length of time a waveform is stored is variable: the trace can be made to last up to 5
minutes at maximum writing speed and normal intensity.

Variable persistence is invaluable for many types of displays: building up a complex image over a period of time, for example; or viewing changes in signal response in the same display.

Variable persistence also simplifies many measurement tasks. For instance, it can be used to increase the brightness of a repetitive signal by writing over one pass before the last one fades, thus making the trace easier to view in normal ambient light.

Variable persistence is a good choice for photography because of the high contrast between bright waveform and dark background.

## STEP RISE TIME



Fast mesh transfer makes it possible to combine the bistable and variable persistence techniques in one instrument, and to increase stored writing rates by at least ten times.

The 7834, a new multimode storage scope with a fastest writing rate of $2500 \mathrm{~cm} / \mu \mathrm{s}$, captures rise times as fast as 1.4 ns at reduced scan. The 7633 provides a writing rate of up to $1000 \mathrm{~cm} / \mu \mathrm{s}$. This fast capability is essential for working with very high-speed signals.

Figure 4 will help you determine the stored writing rate you need to display a given sine wave or step rise time at a particular amplitude.

Single or Dual Beam is the last major consideration in selecting a plug-in scope package.

Dual-beam capability is essential for capturing two simultaneous single-shot events that occur at high speeds; otherwise, the lessexpensive dual-trace scope may be able to handle the job, depending on the chopping rate selected. Figure 5 shows when dual-trace performance starts to drop off and dual beam would become desirable or necessary.

Now that you've read through this section, mark your selection of storage or nonstorage, single or dual beam, in the foldout chart.


## 5110 Basic System

- Nonstorage
- Dc to 2 MHz
- 2 Vertical Channels-1 mV/div

Sensitivity

- Single Time Base—Triggering to 2 MHz
- X-Y Capability

5110 Mainframe only

- Single beam, nonstorage
- Large 61⁄2-in diagonal ( 1.27 cm / div) crt
- Dc to 2 MHz


5A18N Dual-Trace Amplifier

- Dual inputs- $1 \mathrm{M} \Omega$ paralleled by approx 47 pf
- $1 \mathrm{mV} / \mathrm{div}$ to $5 \mathrm{~V} / \mathrm{div}$ calibrated deflection factors
- Channel 2 invert Dc to 2 MHz

5B10N Time Base/Amplifier

- Single time base
- $5 \mathrm{~s} /$ div to $1 \mu \mathrm{~s}$ div calibrated sweep speeds, X10 mag to $100 \mathrm{~ns} / \mathrm{div}$
- Triggering to 2 MHz
- Single sweep, auto trigger, external horizontal input


## 5112 Basic System

- Dual Beam
- Dc to 2 MHz
- 2 Vertical Channels
- $1 \mathrm{mV} /$ div Sensitivity
- Single Time Base-Triggering to 2 MHz
5112 Mainframe only
- Dual beam, nonstorage
- 2 dedicated vertical systems, common horizontal system
- Dc to 2 MHz



## 5A15N Single-Channel

Amplifier

- Single input-1 $\mathrm{M} \Omega$ par-
alleled by approx 47 pf
- $1 \mathrm{mV} /$ div to $5 \mathrm{~V} / \mathrm{div}$.
sensitivity
- Dc to 2 MHz

5B10N Time Base/Amplifier

- Single time base
- $5 \mathrm{~s} /$ div to $1 \mu \mathrm{~s}$ div calibrated sweep speeds, X10 mag to $100 \mathrm{~ns} /$ div
- Triggering to 2 MHz
- Single sweep, auto trigger, external horizontal input


## 5440 Basic System

- Nonstorage
- Dc to 60 MHz
- 3 Vertical Channels
- $1 \mathrm{mV} /$ div at 25 MHz Sensitivity, $5 \mathrm{mV} /$ div at 60 MHz
- Delaying Time Base
- Triggering to 60 MHz

5440 Mainframe only

- Single beam, nonstorage
- Large $61 / 2$-in diagonal (1.22 cm/div) crt
- Crt readout
- Dc to 60 MHz


5A48 Dual-Trace Amplifier

- Dual inputs-1 $\mathrm{M} \Omega$ paralleled by approx 24 pf 1 mV to $10 \mathrm{~V} / \mathrm{div}$ calibrated deflection factors
- Channel 2 invert and add modes provide algebraic addition
- Crt readout capability


## 5A45 Single-Channel

Amplifier

- Single input $1 \mathrm{M} \Omega$ paralleled by approx 20 pf 1 mV to $10 \mathrm{~V} /$ div calibrated deflection factors
- Crt readout capability

5B42 Delaying Time Base

- Main sweep: $5 \mathrm{~s} / \mathrm{div}$ to $100 \mathrm{~ns} / \mathrm{div}$, X10 mag to $10 \mathrm{~ns} / \mathrm{div}$
- Delayed sweep: 0.5 s/div to $100 \mathrm{~ns} / \mathrm{div}$, X10 mag to $10 \mathrm{~ns} / \mathrm{div}$
- Delay range: 0.2 to 10 multiplied by main sweep time/div setting
- Triggering to 60 MHz
- Single sweep, auto trigger, external horizontal input
- External input band width: Dc to 2 MHz
- Crt readout capability


## 7603 Basic System

- Nonstorage
- Dc to 75 MHz
- 2 Vertical Channels-5 mV/ div Sensitivity
- Dual Time Base-Triggering to 100 MHz
7603 Mainframe only
- Single beam, nonstorage
- Large $8 \times 10$ div ( $1.22 \mathrm{~cm} / \mathrm{div}$ ) crt display
- 15 kV accelerating potential (optional 18 kV )


7A18 Dual-Trace Amplifier

- Dual inputs-1 M $\Omega$ paralleled by 20 pf
- $5 \mathrm{mV} /$ div to $5 \mathrm{~V} / \mathrm{div}$ calibrated deflection factors

7B53A Dual Time Base

- Triggering to at least 100 MHz
- Main sweep-0.05 $\mu \mathrm{s} /$ div to 5 s/div, X10 mag to $5 \mathrm{~ns} / \mathrm{div}$
- Delayed sweep-0.05 $\mu \mathrm{S} / \mathrm{div}$ to $0.5 \mathrm{~s} / \mathrm{div}, \mathrm{X} 10$ mag to $5 \mathrm{~ns} / \mathrm{div}$
- Calibrated mixed sweep
- Optional tv sync separator triggering
- Single sweep, auto trigger, external horizontal input


## 7704A Basic System

- Nonstorage
- Dc to 150 MHz
- 2 Vertical Channels- 5 mV / div Sensitivity
- Delaying and Delayed Time Bases
- Delta Time Crt Readout

7704A Mainframe only

- Single beam, nonstorage
- Greater than $15 \mathrm{~cm} / \mu \mathrm{s}$ enhanced writing speed with optional crt and writing speed enhancer
- Dc to 200 MHz available with 7A19 vertical amplifier


7A26 Dual-Trace Amplifier

- Dual inputs- $1 \mathrm{M} \Omega$ paralleled by 20 pf
- Dc to 200 MHz
- $5 \mathrm{mV} /$ div to $5 \mathrm{~V} /$ div calibrated deflection factors
- Bandwidth limit to 20 MHz


## 7B85 and 7B80 $\triangle$ Time Bases

each provide:

- $10 \mathrm{~ns} /$ div to $5 \mathrm{~s} / \mathrm{div}$ calibrated sweep speeds, X10 mag to 1 ns Triggering to at least 400 MHz
- Variable holdoff
- Peak-to-peak auto triggering


## - Lighted pushbuttons

Additionally, the 7B85 provides:

- Direct readout of delay time on crt
- Delta time readout on crt


## 7904 Basic System

- Nonstorage
- Dc to 500 MHz
- 3 Vertical Channels
- Dual Time Base-Triggering to 500 MHz
7904 Mainframe only
- Single beam, nonstorage
- $500 \mathrm{ps} / \mathrm{div}$ fastest calibrated sweep speed
- Greater than $15 \mathrm{~cm} / \mathrm{ns}$ enhanced writing speed with option
-1-GHz direct access plug-in
- Vertical trace separation between delayed sweeps


## R7903 Basic System

- Nonstorage
- $5^{11 / 4}$-in. Rackmount
- Dc to 500 MHz
- 2 Vertical Channels
- Dual Time Base-Triggering to 500 MHz
R7093 Mainframe only
- Single beam, nonstorage
- $500 \mathrm{ps} /$ div fastest calibrated sweep speed
- Greater than $15 \mathrm{~cm} / \mathrm{ns}$ enhanced writing speed with option
- 1-GHz direct access plug-in


7A26 Dual-Trace Amplifier

- 2 vertical input-1 $\mathrm{M} \Omega$ paralleled by 20 pf
- Dc to 200 MHz
- $5 \mathrm{mV} / \mathrm{div}$ to $5 \mathrm{~V} / \mathrm{div}$ calibrated deflection factors
- Bandwidth limit to 20 MHz

7A19 Single-Trace Amplifier

- Single input-50 $\Omega$
- Dc to 500 MHz
- 10 mV /div to $1 \mathrm{~V} /$ div calibrated deflection factors
- Optional $\pm 500$ ps variable delay line

7B92A Dual Time Base

- Triggering to at least 500 MHz
- $0.5 \mathrm{~ns} /$ div to $0.2 \mathrm{~s} / \mathrm{div}$ calibrated sweep speeds
- Alternate display of intensified delaying and delayed sweeps
- Contrast regulation between delaying and
delayed sweeps
- 4 display modes:

Normal (main) sweep,
intensified; delaying
sweep; delayed
sweep; alternate sweep

- Lighted pushbuttons


## 7844 Basic System

- Nonstorage

7844 Mainframe only

- Dual beam, nonstorage
- Full vertical crossover switching
- Dc to 400 MHz
- 3 Vertical Channels
- $8 \times 10 \mathrm{~cm}$ full scan overlap crt
- 1 ns/div max calibrated sweep
- 1 GHz direct-access plug-ins


7A26 Dual-Trace Amplifier

- Dual inputs- $1 \mathrm{M} \Omega$ paralleled by 20 pf
- Dc to 160 MHz
- $5 \mathrm{mV} / \mathrm{div}$ to $5 \mathrm{~V} / \mathrm{div}$ calibrated deflection factors
- Bandwidth limit to 20 MHz

7A19 Single-Trace Amplifier

- Single input-50 $\Omega$
- Dc to 400 MHz
- $10 \mathrm{mV} /$ div to $1 \mathrm{~V} / \mathrm{div}$ calibrated deflection factors
- Optional $\pm 500$ ps variable delay line

7B85 and 7B80 $\triangle$ Time Bases each provide:

- $10 \mathrm{~ns} /$ div to 5 s/div calibrated sweep speeds, X10 mag to 1 ns
- Triggering to at least 400 MHz
- Variable holdoff
- Peak-to-peak auto triggering
- Lighted pushbuttons

Additionally, the 7B85 provides:

- Direct readout of delay time on crt
- Delta time readout on crt
- Vertical trace separation between delayed sweeps

For additional plug-ins, see the Flexibility Section, page 17.

| storage oscilloscopes | 5111 Basic System <br> - Bistable Storage <br> - Dc to 2 MHz <br> - 3 Vertical Channels <br> - $1 \mathrm{mV} / \mathrm{div}$ Sensitivity <br> - Dual Time Base-Triggering to 2 MHz <br> - X-Y capability <br> 5111 Mainframe only <br> - Split-screen bistable storage <br> - $20 \mathrm{div} / \mathrm{ms}$ stored writing speed <br> ( $1.27 \mathrm{~cm} / \mathrm{div}$ ) <br> - Save stored traces up to 10 hours <br> - Dc to 2 MHz |  |
| :---: | :---: | :---: |

## 5A18N Dual-Trace Amplifier

- Dual inputs- $1 \mathrm{M} \Omega$ paralleled by approx 47 pf
- $1 \mathrm{mV} /$ div to $5 \mathrm{~V} /$ div calibrated deflection factors
- Dc to 2 MHz
- Channel 2 invert

5A15N Single-Channel Amplifier

- Single input-1 $\mathrm{M} \Omega$ paralleled by approx 47 pf
- $1 \mathrm{mV} /$ div to $5 \mathrm{~V} /$ div sensitivity
- Dc to 2 MHz


## 5B12N Dual Time Base

- A sweep: 5 s/div to 1 $\mu \mathrm{s} / \mathrm{div}, \mathrm{X} 10$ mag to 100 ns/div
- B sweep: 0.5 s/div to $0.2 \mu \mathrm{~s} / \mathrm{div}$
- Delay range- 0.2 to 10.2 multiplied by A sweep time/div setting
- Triggering to 2 MHz
- Single sweep (A only), auto trigger, external horizontal input (A only)



## 5113 Basic System

- Dual Beam Bistable Storage
- Dc to 2 MHz
- 6 Vertical Channels
- $1 \mathrm{mV} / \mathrm{div}$ Sensitivity
- Single Time Base-

Triggering to 2 MHz

5113 Mainframe only

- Dual beam
- Split-screen bistable storage
- 2 dedicated vertical systems, common horizontal system
- $20 \mathrm{div} / \mathrm{ms}$ stored writing speed ( $1.27 \mathrm{~cm} / \mathrm{div}$ )
- Save stored traces up to 10 hours
- Dc to 2 MHz



## 5A18N Dual-Trace Amplifier

- Dual inputs- $1 \mathrm{M} \Omega$ paralleled by approx 47 pf
- $1 \mathrm{mV} /$ div to $5 \mathrm{~V} /$ div calibrated deflection factors
- Channel 2 invert
- DC to 2 MHz

5A14N Four-Trace Amplifier

- 4 inputs- $1 \mathrm{M} \Omega$ paralleled by approx 47 pf
- $1 \mathrm{mV} /$ div to $5 \mathrm{~V} /$ div sensitivity
- Dc to 2 MHz
- Internal trigger from channel 1 only

5B10N Time Base/Amplifier

- Single time base
- $5 \mathrm{~s} / \mathrm{div}$ to $1 \mu \mathrm{~s} /$ div calibrated sweep speeds, X10 mag to $100 \mathrm{~ns} /$ div
- Triggering to 2 MHz
- Single sweep, auto trigger, external horizontal input
- Variable Persistence Storage
- Dc to 60 MHz
- 2 Vertical Channels
- 1 mV at 25 MHz Sensitivity, 5 mV at 60 MHz
- Single Time Base
- Triggering to 60 MHz


## 5441 Basic System

5441 Mainframe only

- Single beam, variable persistence storage
- $5 \mathrm{div} / \mu$ s.stored writing speed for a 15 s view time ( $0.9 \mathrm{~cm} / \mathrm{div}$ )
- Save stored traces up to 60 minutes
- Illuminated internal graticule
- Crt readout
- Dc to 60 MHz



## 5A48 Dual-Trace Amplifier

- Dual inputs- $1 \mathrm{M} \Omega$ paralleled by approx 24 pf
- 1 mV to $10 \mathrm{~V} / \mathrm{div}$ calibrated deflection factors
- Channel 2 invert and add modes provide algebraic addition
- Crt readout capability

5B40 Single Time Base

- 5 s/div to $100 \mathrm{~ns} /$ div calibrated sweep speeds, X10 mag to 10 ns/div
- Triggering to 60 MHz
- Single sweep, auto trigger, external horizontal input

For additional plug-ins, see the Flexibility Section, page 17.

## 7313 Basic System

- Bistable Storage
- Dc to 25 MHz
- 2 Vertical Channels- $5 \mathrm{mV} / \mathrm{div}$ Sensitivity
- Dual Time Base-Triggering to 100 MHz
7313 Mainframe only
- Split-screen bistable storage
$-4.9 \mathrm{~cm} / \mu \mathrm{S}$ stored writing speed
- Save stored traces up to 4 hours



## 7A18 Dual-Trace Amplifier

- Dual inputs- $1 \mathrm{M} \Omega$ paralleled by 20 pf
- $5 \mathrm{mV} /$ div to $5 \mathrm{~V} /$ div calibrated deflection factors


## 7B53A Dual Time Base

- Triggering to at least 100 MHz
- Main Sweep: $0.05 \mu \mathrm{~s} / \mathrm{div}$ to $5 \mathrm{~s} / \mathrm{div}$, X10 mag to 5 ns/div
- Delayed sweep: 0.05 $\mu \mathrm{s} / \mathrm{div}$ to $0.5 \mathrm{~s} / \mathrm{div}, \mathrm{X} 10$ mag to $5 \mathrm{~ns} / \mathrm{div}$
- Calibrated mixed sweep
- Optional tv sync separator triggering
- Single sweep, auto triggering, external horizontal input


## 7613 Basic System

- Variable Persistence Storage
- Dc to 75 MHz
- 2 Vertical Channels- $5 \mathrm{mV} /$ div Sensitivity
- Dual Time Base-Triggering to 100 MHz
7613 Mainframe only
- Single beam, variable persistence storage
- $5 \mathrm{~cm} / \mu \mathrm{s}$ stored writing speed
- Burn resistant crt
- Save stored traces up to 60 minutes



## 7A18 Dual-Trace Amplifier

- Dual inputs-1 M $\Omega$ paralleled by 20 pf
- $5 \mathrm{mV} / \mathrm{div}$ to $5 \mathrm{~V} / \mathrm{div}$ calibrated deflection factors


## 7B53A Dual Time Base

- Triggering to at least 100 MHz
- Main Sweep: $0.05 \mu \mathrm{~s} / \mathrm{div}$ to $0.5 \mathrm{~s} / \mathrm{div}, \mathrm{X} 10 \mathrm{mag}$ to $5 \mathrm{~ns} / \mathrm{div}$
- Delayed sweep: 0.05 $\mu \mathrm{s} / \mathrm{div}$ to $0.5 \mathrm{~s} / \mathrm{div}$, X10 mag to $5 \mathrm{~ns} / \mathrm{div}$
- Calibrated mixed sweep
- Optional tv sync separator triggering
- Single sweep, auto trigger, external horizontal input


## 7623A Basic System

- Multimode Storage
- Dc to 100 MHz
- 2 Vertical Channels- 5 mV /div Sensitivity
- Dual Time Base-Triggering to 100 MHz
7623A Mainframe only
- Multimode storage-bistable, variable persistence, fast bistable, fast variable persistence
- $135 \mathrm{~cm} / \mu \mathrm{s}$ stored writing speed
- Lona view time



## 7A26 Dual-Trace Amplifier

- Dual inputs-1 $\mathrm{M} \Omega$ paralleled by 20 pf
- $5 \mathrm{mV} /$ div to $5 \mathrm{~V} /$ div calibrated deflection factors
- Bandwidth limit to 20 MHz


## 7B53A Dual Time Base

- Triggering to at least 100 MHz
- Main sweep: $0.05 \mu \mathrm{~s} / \mathrm{div}$ to $5 \mathrm{~s} / \mathrm{div}$, X10 mag to $5 \mathrm{~ns} /$ div
- Delayed sweep: 0.05 $\mu \mathrm{s} / \mathrm{div}$ to $0.5 \mathrm{~s} / \mathrm{div}$, X10 mag to $5 \mathrm{~ns} / \mathrm{div}$
- Calibrated mixed sweep
- Optional tv sync separator triggering
- Single sweep, auto trigger, external horizontal input


## 7633 Basic System

- Multimode Storage
- Dc to 100 MHz
- 2 Vertical Channels- 5 mV /div Sensitivity
- Dual Time Base-Triggering to 100 MHz
7633 Mainframe only
- $1000 \mathrm{~cm} / \mu \mathrm{s}$ stored writing speed
- Multimode storage-bistable, variable persistence, fast bistable, fast variable persistence
- Reduced scan mode
- Long view time

- Dual inputs- $1 \mathrm{M} \Omega$ paralleled by 20 pf
- $5 \mathrm{mV} / \mathrm{div}$ to $5 \mathrm{~V} /$ div cali-
brated deflection factors
- Bandwidth limit to 20 MHz

7B53A Dual Time Base

- Triggering to at least 100 MHz
- Main sweep: $0.05 \mu \mathrm{~s} / \mathrm{div}$ to $5 \mathrm{~s} / \mathrm{div}, \mathrm{X} 10$ mag to $5 \mathrm{~ns} /$ div
- Delayed sweep: 0.05 $\mu \mathrm{s} / \mathrm{div}$ to $0.5 \mathrm{~s} / \mathrm{div}$, X10 mag to $5 \mathrm{~ns} / \mathrm{div}$ - Calibrated mixed sweep
- Optional tv sync separator triggering
- Single sweep, auto trigger, external horizontal input


## 7834 Basic System

- Multimode Storage
- Dc to 400 MHz
- 3 Vertical Channels
- Delaying and Delayed

Time Bases

- Delta Time Crt Readout


## 7834 Mainframe only

- $2500 \mathrm{~cm} / \mu \mathrm{s}$ stored writing speed
- Multimode storage-bistable, variable persistence, fast bistable, fast variable persistence
- Reduced scan mode
- Multitrace delay control
- Remote-save, transfer store, reset
- Long view time


7A26 Dual-Trace Amplifier

- Dual inputs- $1 \mathrm{M} \Omega$ paralleled by 20 pf
- Dc to 160 MHz
- $5 \mathrm{mV} /$ div to $5 \mathrm{~V} /$ div calibrated deflection factors
- Bandwidth limit to 20 MHz


## 7A19 Single-Trace Amplifier

- Single input-50 $\Omega$
- Dc to 400 MHz
- $10 \mathrm{mV} /$ div to $1 \mathrm{~V} / \mathrm{div}$ calibrated deflection factors
- Optional $\pm 500$ ps variable delay line

7B85 and 7B80 $\triangle$ Time Bases each provide:

- $10 \mathrm{~ns} /$ div to 5 s/div calibrated sweep speeds, X10 mag to 1 ns
- Triggering to at least 400 MHz
- Variable holdoff
- Peak-to-peak auto triggering
- Lighted pushbuttons

Additionally, the 7B85 provides:

- Direct readout of delay time on crt
- Delta time readout on crt
- Vertical trace separation between delayed sweeps



## Flexibility: <br> Add specialized plug-ins to your basic scope package .

One of the best things about a plug-in scope is that you don't have to dedicate it to just a few measurement tasks.

After selecting a plug-in scope from the preceding pages, you may decide that you need additional capabilities now . . . or you may want to start with the basics and build in other capabilities later on.

Suppose you want to configure a scope system that can handle realtime electrical troubleshooting and logic analysis. As an example, you might first choose the 7603/7A18/ 7B53A package shown on p. 9. Then, for logic state, logic timing, and map displays in a single instrument, add the 7D01/DF1 Logic Analyzer/Display Formatter plugins. What you end up with is a complete troubleshooting tool.
Or suppose you need both scope and sampling functions. Choose, for example, the general-purpose 5110 scope package shown on p. 8. Then add the 5 S 14 N Sampling plug-in for dual-trace sampling and two-dot time interval measurements.

The following pages describe the wide variety of 7000 and 5000 -Series amplifiers, time bases, and specialpurpose plug-ins you have to choose from.

Included on the inside back cover are charts to help you select appropriate cameras and accessories. Should you need more information, return the reply card at the back or talk to your local Tektronix Field Engineer
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## 7000-Series Plug-ins

## Amplifiers

Eleven vertical amplifiers offer choices in system bandwidth, number of input channels, vertical sensitivity, input impedance, and differential inputs.

## 7A11 FET Input Amplifier

- Single input— 5.8 pf at $5 \mathrm{mV} / \mathrm{div}$
- Built-in FET probe
- Dc to 250 MHz
- 5 mV /div to $20 \mathrm{~V} /$ div calibrated deflection factors
- Dc offset
- Lighted pushbuttons



## 7A15A Amplifier

- Single input-1 $\mathrm{M} \Omega$ paralleled by 20 pf
- Dc to 80 MHz
- 5 mV div to $10 \mathrm{~V} /$ div calibrated deflection factors
- $500 \mu \mathrm{~V} /$ div at 10 MHz (X10 gain)



## 7A16A Amplifier

- Single input-1 $\mathrm{M} \Omega$ paralleled by 20 pf
- Dc to 225 MHz
- $5 \mathrm{mV} /$ div to $5 \mathrm{~V} /$ div calibrated deflection factors
- Bandwidth limit to 20 MHz (selectable)



## 7A17 Low-Cost Amplifier

- Single input-50 $\Omega$
- Dc to 150 MHz
- $50 \mathrm{mV} /$ div calibrated deflection factor
- Soldering pad matrix for custom circuitry



## 7A19 Amplifier

- Single input- $50 \Omega$
- Dc to 500 MHz
- $10 \mathrm{mV} /$ div to $1 \mathrm{~V} /$ div calibrated deflection factors
- Optional $\pm 500 \mathrm{ps}$ variable delay line



## 7A21N DirectAccess Amplifier (Plug-in hard-wired to mainframe)

- Bandwidth to 1 GHz (7900 and 7800 family only)
- Less than $4 \mathrm{~V} /$ div deflection factor
- Single and differential inputs - $50 \Omega$
- Positioning control
- Direct access unit



## 7A18 Dual-Trace Amplifier

- Dual inputs-1 $\mathrm{M} \Omega$ paralleled by 20 pf
- Dc to 75 MHz
- $5 \mathrm{mV} /$ div to $5 \mathrm{~V} /$ div calibrated deflection factors



## 7A24 Dual-Trace Amplifier

- Dual inputs- $50 \Omega$
- Dc to 350 MHz
- $5 \mathrm{mV} /$ div to $1 \mathrm{~V} /$ div calibrated deflection factors


ORDERING INFORMATION
Effective March 7, 1977


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P. O. Box 500, Beaverton, Oregon 97077

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Phone (804)826-4020
WASHINGTON
*Seattle 98188
641 Industry Drive Phone (206)575-0180

The plug-in scope system I have selected is $\qquad$

I plan to use it for $\qquad$

I intend to place an order by: $\qquad$
Name
Department $\qquad$
Company $\qquad$
Address $\qquad$

## Phone Number

$\qquad$
$\square$ I would like a demonstration. Please have a Field Engineer contact me.
$\square$ I would like confirmation of the system I've selected.

TEKTRONIX
committed to

Here's the measurement l'd like to be able to make with a plug-in scope: $\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
Name $\qquad$ Department

Company

## Address

$\qquad$
Phone Number $\qquad$




## Differential Amplifiers

## 7A13 Differential Comparator Amplifier

- Dc to 105 MHz
- Inputs- $1 \mathrm{M}^{2}$ paralleled by 20 pf
- $1 \mathrm{mV} /$ div to $5 \mathrm{~V} /$ div calibrated deflection factors 20,000:1 Cmrr
- 10,000 cm effective screen height
- Lighted pushbuttons



## 7A22 Differential Amplifier

- Dc to 1 MHz
- Input-1 $\mathrm{M} \Omega$ paralleled by 47 pf
- $10 \mu \mathrm{~V} /$ div to $10 \mathrm{~V} /$ div calibrated deflection factors 10,000:1 Cmrr
- Selectable upper and lower -3 dB points
- Dc offset



## 7B50A Single Time Base

## Time Bases

Five horizontal time bases offer choices in sweep speeds, single or dual sweeps, and digital delta delay measurements.

5 ns/div to 5 s/div calibrated sweep speeds

- Triggering to 150 MHz
- Variable trigger holdoff
- Peak-to-peak auto triggering
- Single-sweep operation



## 7B53A Dual Time Base

- Triggering to at least 100 MHz
- Main sweep: $0.05 \mu \mathrm{~s} / \mathrm{div}$ to 5 s/div, X10 Mag to 5 ns/div
- Delayed sweep: $0.05 \mu \mathrm{~s} /$ div to $0.5 \mathrm{~s} / \mathrm{div}$, X10 Mag to $5 \mathrm{~ns} / \mathrm{div}$
- Calibrated mixed sweep
- Optional tv sync separator triggering
- Single sweep, auto trigger, external horizontal input



## 7B85 and 7B80 DeltaTime Bases

Additionally, the 7B85 provides:

- Direct readout of delay time on crt
- Delta time readout on crt
- Vertical trace separation between delayed sweeps


## 7B85 and 7B80 $\triangle$ Time Bases each provide:

- $10 \mathrm{~ns} /$ div to $5 \mathrm{~s} /$ div calibrated sweep speeds, X10 mag to $1 \mathrm{~ns} / \mathrm{div}$
- Triggering to at least 400 MHz
- Variable holdoff
- Peak-to-peak auto triggering
- Lighted pushbuttons



## 7B92A Dual Time Base

- Triggering to at least 500 MHz $0.5 \mathrm{~ns} /$ div to $0.2 \mathrm{~s} /$ div calibrated sweep speeds
- Alternate display of intensified delaying and delayed sweeps
- 4 display modes: normal (main) sweep, intensified; delaying sweep; delayed sweep; alternate sweep
- Lighted pushbuttons



## Digital Plug-ins

Six digital instruments, one with three interchangeable modules, offer unique solutions to complex measurement problems. Timing and amplitude measurement instruments interact with the oscilloscope to easily obtain accurate measurements of complex signals.

## 7D11 Digital Delay Time Base

- Delay by time or events
- Digital delay readout to $71 / 2$ digits
- 100 ns to 1 s delay time
- 1 ns resolution
- Less than 2.2 ns jitter
- 0.5 ppm ( $\pm 2 \mathrm{~ns}$ ) accuracy



## 7D10 Digital Delay Time Base

- Delay by events only
- Specifications same as 7D11



## 7D12/M1

 Multifunction Module- Temperature mode
- $41 / 2$ digit crt readout
- $100 \mu \mathrm{~V}$ resolution
- Probe measures temperature and voltage



## 7D12/M2 Sample and Hold Module

- Oscilloscope-controlled sampling DVM
- $31 / 2$ digit crt dispiay
- Approaching $0.25 \%$ accuracy 1 mV resolution
- 25 MHz bandwidth
- 0 to 2 V and 0 to 20 V input range
- 200 V range with P6055 Probe



## 7D12/M3 RMS Volts Module

- True rms measurements with isolated-analog display
- 40 Hz to 100 kHz ac volt range $0.25 \%$ accuracy from 40 Hz to 40 kHz
- $31 / 2$ digit crt readout
- 1 mV resolution
- 500 V max peak common mode voltage



## 7D13 Digital Multimeter

- Resistance, 0 to $2 \mathrm{M} \Omega$
- Dc voltage, 0 to 1000 V
- Dc current, 0 to 2A
- Temperature, $-55^{\circ} \mathrm{C}$ to
$+150^{\circ} \mathrm{C}$
- $31 / 2$ digit crt readout



## 7D14 Digital Counter

- Frequency measurements directly to 525 MHz
- $50 \Omega$ and $1 \mathrm{M} \Omega$ inputs
- $10 \mu \mathrm{~V}$ sensitivity at 1 MHz with 7A22
- Lighted pushbuttons


7D15 Universal
Counter/Timer

- Oscilloscope-controlled time and frequency measurements
- 10 ns single-shot time interval measurement resolution
- Time interval averaging
- 10 ps period averaging resolution
- Frequency measurements directly to 225 MHz
- Lighted pushbuttons



## 7M11 Dual Delay Line

- 75 ns time delay
- Selectable trigger out
- 175 ps rise time
- $50 \Omega$ input



## Sampling and TDR

Five plug-in units offer a choice of single and dualchannel sampling, generalpurpose sampling combined with time domain reflectometry, sampling sweep, and dual delay line.

7S11 Single-Channel Sampling Unit

- $2 \mathrm{mV} /$ div to $200 \mathrm{mV} /$ div calibrated deflection factors
- Accepts plug-in sampling heads ranging in bandwidth from 350 MHz to 14 GHz



## 7T11 Sampling Time Base

- $10 \mathrm{ps} /$ div to $5 \mathrm{~ms} /$ div calibrated sweep speeds
- Random or sequential sampling
- Equivalent or real-time sampling
- Trigger range from approx 10 Hz to above 12.4 GHz
- No pretrigger required



## $7 S 1245$ psTDR or 30 ps GeneralPurpose Sampler

- Accepts plug-in sampling head
- Combination vertical-horizontal double wide plug-in for high resolution TDR or general-purpose sampling measurements



## 7S14 Dual Trace, Delayed Sweep Sampler

- Calibrated delayed sweep
- 2 mV sensitivity
- $50 \Omega$ input
- Dc to 1 GHz bandwidth
- 350 ps rise time
- Accuracy within $\pm 3 \%$


- Dc to 1 GHz bandwidth
- 350 ps rise time
- Compact $4.5 \mathrm{ft}, 100 \mathrm{k} \Omega$ paralleled by 2.3 pf probe
- Dc to 1 GHz bandwidth
- 350 ps rise time
- $50 \Omega$ input
- Provides trigger signal output


## S-3A

## Sampling Heads S-1

## S-2

- Dc to 4.6 GHz bandwidth
- 75 ps rise time
- $50 \Omega$ input
- Provides trigger signal output

Ten sampling heads offer choices in input impedance, equivalent bandwidth, and triggering for a matched sampling system.
$\qquad$

## S-4

- Dc to 14 GHz bandwidth
- 25 ps rise time
- $50 \Omega$ input
- Provides trigger signal output


## S-5

- Dc to 350 MHz bandwidth
- 1 ns rise time
- Input-1 $\mathrm{M} \Omega$ paralleled by 15 pf
- Passive probe
- Internal trigger pickoff


## S-6

- Dc to 11.5 GHz
- 30 ps rise time
- $50 \Omega$ input
- Loop-through input



## S-51 Trigger Countdown Head <br> S-52 Pulse <br> Generator Head

- 1 GHz to 18 GHz bandwidth
- $50 \Omega$ input
ps rise time
- Front-panel sync control


## S-53 Trigger Recognizer Head

- Dc to 1 GHz bandwidth
- 10 mV sensitivity
- $50 \Omega$ input
- Trigger output connector
- 25 ps rise time
- 200 mV into $50 \Omega$
- $50 \Omega$ source
- Pretrigger output


## S-54 Pulse <br> Generator Head

- 1 ns rise time
- 400 mV into $50 \Omega$
- $50 \Omega$ source
- Variable pretrigger lead time



## Special-Purpose Plug-ins.

Eight plug-ins offer a choice of spectrum analysis, curve tracer, preamplifier, readout unit capabilities, and logic analysis.

Spectrum Analyzers

## 7L5 (Dual Wide Plug-In)

- 0 to 5 MHz bandwidth
- Digital storage and averaging
- Absolute calibration
- Preset reference level
- Changeable input impedance modules
- $10 \mathrm{~s} / \mathrm{div}$ to $0.1 \mathrm{~ms} /$ div sweep speeds
- Crt readout



## 7L12 (Dual Wide Plug-In)

- 100 kHz to 1800 MHz bandwidth
- 300 Hz to 3 MHz resolution
- 70 dB dynamic range
- Automatic phase lock
- -115 dBm sensitivity
- Crt readout



## 7L13 (Three Wide Plug-In)

- 1 kHz to 1800 MHz bandwidth
- 30 Hz to 3 MHz resolution
- 70 dB dynamic range
- Auto phase lock
-     - 128 dBm sensitivity
- Crt readout



## 7L18 Spectrum Analyzer

- 30 Hz Resolution to 12 GHz
- Digital Display and Signal Processing
- Internal Preselection and Amplitude Calibration
- 60 GHz with Optional Waveguide Mixers
- Transportable at only 48 lb . (including 7603 mainframe)



## 7D01F (ThreeWide Plug-In)

7D01 Provides: $\cdot 16$ parallel inputs with word recognition

- 4096 bits formattable memory
- Synchronous/asynchrous operation up to 100 MHz
- High impedance active probes
DF1 Provides: •Five display modes: Timing, State Tables in Hexadecimal, Octal or Binary, and Mapping
- Exclusive OR feature
- All modes formattable



## 5A23N Amplifier

- Single input-1 $\mathrm{M} \Omega$ paralleled by approx 47 pf
- Dc to 2 Hz
- $10 \mathrm{mV} /$ div to $10 \mathrm{~V} /$ div calibrated deflection factors
- X-Y or Y-T displays



## 5A24N Low-Cost Amplifier

- Single input-approx 100 $k \Omega$ paralleled by approx 30 pf
- Dc to at least 2 MHz
- $50 \mathrm{mV} / \mathrm{div}$ reflection factor
- Soldering pad matrix for custom circuitry



## 5A38 Dual-Channel Amplifier (5400 Series Only)

- Dual inputs-1 $\mathrm{M} \Omega$ paralleled by approx 20 pf
- Dc to 35 MHz
- 10 mV /div to $10 \mathrm{~V} /$ div calibrated deflection factors



## 5A48 Dual-Channel Amplifier (5400 Series Only)

- Dual inputs-1 $\mathrm{M}^{2}$ paralleled by approx 24 pf
- Dc to 60 MHz
- $1 \mathrm{mV} / \mathrm{div}$ to $10 \mathrm{~V} / \mathrm{div}$ calibrated deflection factors
- Selectable trigger source



## 5A45 SingleChannel Amplifier (5400 Series Only)

- Single input- $1 \mathrm{M} \Omega$ paralleled by approx 20 pf
- Dc to 60 MHz
- $1 \mathrm{mV} /$ div to $10 \mathrm{~V} /$ div calibrated deflection factors
- crt readout of deflection factors


> Differential Amplifiers

## 5A13N Differential Comparator Amplifier

- Single input-1 $M \Omega$ paralleled by approx 47 pf
- Dc to 2 MHz
- $1 \mathrm{mV} /$ div to $5 \mathrm{~V} /$ div calibrated deflection factors
- 10,000:1 Cmrr
- Comparison voltage 0 to $\pm 10 \mathrm{~V}$ and 0 to $\pm 1 \mathrm{~V}$
- 10 kHz bandwidth limit switch



## 5A19N Differential Amplifier

- Single input-1 $\mathrm{M} \Omega$ paralleled by approx 47 pf
- Dc to 2 MHz
- $1 \mathrm{mV} /$ div to $20 \mathrm{~V} /$ div calibrated deflection factors
- 1000:1 Cmrr
- Variable dc offset



## 5A20N Differential Amplifier

- Single input-1 $\mathrm{M}^{2}$ paralleled by approx 47 pf
- Dc to 1 MHz
- $50 \mu \mathrm{~V} /$ div to $5 \mathrm{~V} /$ div calibrated deflection factors
- 100,000:1 Cmrr
- 10 kHz bandwidth limit switch



## 5A21N SingleChannel Differential/Current Amplifier

- Single input-1 $\mathrm{M} \Omega$ paralleled by approx 47 pf
- Dc to 1 MHz
- $50 \mu \mathrm{~V} /$ div to $5 \mathrm{~V} / \mathrm{div}$ calibrated deflection factors
- 100,000:1 Cmrr
- 10 kHz bandwidth limit switch
- $0.5 \mathrm{~mA} / \mathrm{div}$ to $0.5 \mathrm{~A} / \mathrm{div}$ with P6021 Current Probe



## 5A22N SingleChannel Differential Amplifier

- Single input-1 $\mathrm{M} \Omega$ paralleled by approx 47 pf
- Dc to 1 MHz
- $10 \mu \mathrm{~V} /$ div to $5 \mathrm{~V} /$ div calibrated deflection factors
- 100,000:1 Cmrr
- Selectable upper and lower rolloff filters
- Variable dc offset



## 5A26 Dual-Channel Differential Amplifier

- Dual inputs- $1 \mathrm{M} \Omega$ paralleled by approx 47 pf
- Dc to 1 MHz
- $50 \mu \mathrm{~V} /$ div to $5 \mathrm{~V} /$ div calibrated deflection factors
- 100,000:1 Cmrr
- 210 kHz bandwidth limit switches
- Crt readout capability



## Time Bases

Seven time bases offer choices in sweep speeds, single or dual sweeps, and digital delay measurements.

## 5B13N Low-Cost Time Base

- $1 \mu \mathrm{~s} / \mathrm{div}$ to $100 \mathrm{~ms} /$ div calibrated sweep speeds
- Triggering to 100 kHz
- $50 \mathrm{mV} /$ div deflection factor
- Auto trigger, external horizontal input



## 5B10N SingleSweepTime Base/Amplifier

- $5 \mathrm{~s} /$ div to $1 \mu \mathrm{~s} /$ div calibrated sweep speeds, X10 mag to $100 \mathrm{~ns} / \mathrm{div}$
- Triggering to 2 MHz
- Auto trigger, external horizontal input
- $50 \mathrm{mV} / \mathrm{div}$ and $500 \mathrm{mV} / \mathrm{div}$ calibrated external input



## 5B12N Single, Dual, or Delayed-Sweep Time Base

- $5 \mathrm{~s} /$ div to $100 \mathrm{~ns} /$ div calibrated sweep speeds, X10 mag to $100 \mathrm{~ns} / \mathrm{div}$
- 4 display modes: A sweep; B sweep; A intensified-B delayed; dual sweep
- Auto trigger, external horizontal input



## 5B40 Low-Cost Time Base (5400 Series Only)

- $5 \mathrm{~s} /$ div to $0.1 \mu \mathrm{~s} /$ div calibrated sweep speeds, X10 mag to $10 \mathrm{~ns} / \mathrm{div}$
- Triggering to 60 MHz
- External horizontal input
- Crt readout of sweep speed



## 5B42 Dual Time Base (5400 Series Only)

- $5 \mathrm{~s} /$ div to $0.1 \mu \mathrm{~s} / \mathrm{div}$ calibrated sweep speeds, X10 mag to $10 \mathrm{~ns} / \mathrm{div}$
- Triggering to 60 MHz
- Delayed sweep
- External horizontal input

- $5 \mathrm{~s} / \mathrm{div}$ to $50 \mathrm{~ns} /$ div calibrated sweep speeds, X10 mag to $5 \mathrm{~ns} / \mathrm{div}$
- Triggering to 60 MHz
- Auto trigger, external horizontal input, $50 \mathrm{mV} / \mathrm{div}$ deflection factor



## 5B31 Digital Delay Time Base (5400 Series Only)

- $5 \mathrm{~s} /$ div to $0.2 \mu \mathrm{~s} / \mathrm{div}$ calibrated sweep speeds, X10 mag to $20 \mathrm{~ns} / \mathrm{div}$
- Triggering to 60 MHz
- Delay by time or events from $1 \mu \mathrm{~s}$ to $99,999 \mu \mathrm{~s}$ or from 1 to 99,999 events
- External horizontal input $50 \mathrm{mV} / \mathrm{div}$ deflection factor



## Special-Purpose Plug-ins

A general-purpose plug-in unit offers dual-channel, delayed sweep sampling. Two plugs-ins offer a choice of spectrum analysis and curve tracing.

5S14N Sampling Plug-in

- Sampling to 1 GHz
- Dual trace
- $2 \mathrm{mV} /$ div to $0.5 \mathrm{~V} /$ div calibrated deflection factors
- Delayed sweep
- Two-dot time measurements


## 5L4N Spectrum Analyzer Plug-in

- 0 to 100 kHz frequency range
- 10 Hz to 3 kHz resolution bandwidth




## 5CT1N Curve Tracer Plug-in

- Low-cost, low-power semiconductor curve tracer


PROBE SELECTION CHART 7000 SERIES


DIMENSIONS AND WEIGHTS 7000 SERIES MAINFRAMES AND PLUG-INS

| Dimensions |  | 7904 | R7903 | 7844 | R7844 | 7834 | 7704A | R7704 | 7603 | R7603 | $\begin{aligned} & \text { 7603N } \\ & \text { OPT 11S } \end{aligned}$ | $\begin{aligned} & \text { 7603N } \\ & \text { OPT } 11 \end{aligned}$ | 7633, 7613, 7313 | R7633, R7623A, R7613,R7313 R731 | PLUG-INS |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SINGLE | DOUBLE |
| Height | in | 13.5 | 5.3 | 12.9 | 7.0 | 13.6 | 13.6 | 7.0 | 11.4 | 5.25 | 11.5 | 11.5 | 12.0 | 5.25 | 5.0 | 5.0 |
|  | cm | 34.3 | 13.5 | 32.8 | 17.8 | 34.5 | 34.5 | 17.8 | 29.0 | 13.3 | 29.2 | 29.2 | 30.5 | 13.3 | 12.7 | 12.7 |
| Width | in | 12.0 | 19.0 | 12.0 | 19.0 | 12.0 | 12.0 | 19.0 | 8.7 | 19.0 | 9.7 | 9.7 | 8.7 | 19.0 | 2.8 | 5.5 |
|  | cm | 30.5 | 48.3 | 30.5 | 48.3 | 30.5 | 30.5 | 48.3 | 22.1 | 48.3 | 24.6 | 24.6 | 21.2 | 48.3 | 7.1 | 14.0 |
| Length | in | 23.3 | 22.8 | 23.8 | 24.8 | 23.2 | 22.7 | 22.4 | 24.0 | 24.7 | 25.2 | 23.5 | 23.5 | 22.3 | 14.5 | 14.5 |
|  | cm | 59.2 | 57.9 | 60.5 | 63.0 | 58.9 | 57.7 | 56.9 | 61.0 | 62.7 | 64.0 | 59.7 | 59.7 | 56.6 | 36.8 | 36.8 |

Weights (approx)

|  | Ib | 32 | 27 | 36 | 33 | 35.5 | 30 | 44 | 30 | 30 | 45 | 36 | 30 | 32 | 2 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Net | kg | 14.5 | 12.2 | 16.3 | 15.0 | 16.1 | 13.6 | 20.0 | 13.6 | 13.6 | 20.4 | 16.3 | 13.6 | 14.5 | 0.9 | 4.1 |
|  | lb | 44 | 52 | 47 | 63 | 47 | 43 | 77 | 46 | 62 | 72 | 42 | 42 | 62 | 5 | 12 |
| Shipping | kg | 20 | 23.6 | 21.3 | 28.5 | 21.3 | 19.5 | 35.0 | 20.8 | 28.2 | 32.7 | 19.0 | 19.0 | 28.2 | 2.3 | 5.4 |

## DIMENSIONS AND WEIGHTS 5000 SERIES MAINFRAMES AND PLUG-INS

| Dimensions |  | $\begin{aligned} & \mathbf{5 1 1 0} \\ & 5111 \\ & 5112 \\ & 5113 \\ & 5115 \end{aligned}$ | $\begin{aligned} & \text { R5110 } \\ & \text { R511 } \\ & \text { R5112 } \\ & \text { R5113 } \\ & \text { R5115 } \end{aligned}$ | $\begin{aligned} & 5440 \\ & 5441 \end{aligned}$ | R5440 <br> R5441 | Plug-ins |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | Single | Double |
| Height | in | 11.9 | 5.3 | 11.9 | 5.3 | 5.0 | 5.0 |
|  | cm | 30.2 | 13.3 | 30.2 | 13.3 | 12.7 | 12.7 |
| Width | in | 8.4 | 19.0 | 8.4 | 19.0 | 2.6 | 5.2 |
|  | cm | 21.3 | 48.3 | 21.3 | 48.3 | 6.6 | 13.2 |
| Length | in | 20.4 | 19.0 | 20.4 | 19.0 | 12.0 | 12.0 |
|  | cm | 51.8 | 48.3 | 51.8 | 48.3 | 30.5 | 30.5 |
| Weights (approx) |  |  |  |  |  |  |  |
| Net | lb | 23.0 | 24.0 | 25.0 | 26.0 | 2.8 | 5.8 |
|  | kg | 10.4 | 10.9 | 11.3 | 11.8 | 1.3 | 2.6 |
| Shipping | lb | 32.0 | 43.0 | 34.0 | 45.0 | 10.0 | 10.8 |
|  | kg | 14.5 | 19.5 | 15.3 | 20.4 | 4.5 | 4.9 |

TEK Lab Cart Model 3
Model 3 Lab Cart accepts all 7000-Series Oscilloscopes. A lockable drawer for storage and a movable shelf for additional instrumentation are included. The shelf accepts TM 500 Test and Measurement instruments, 5000-Series Oscilloscopes, or 400 Series Oscilloscopes.

CAMERA SELECTION CHART

| TYPE OSCILLOSCOPE | RECOMMENDED CAMERA | USE* |
| :---: | :---: | :---: |
| 5100 Series | C-5A | LC |
| $\begin{aligned} & 5403 / D 40 \\ & 5440,5444 \end{aligned}$ | $\begin{aligned} & \text { C-59 } \\ & \text { C-5A Opt } 01 \end{aligned}$ | $\begin{aligned} & \text { GP } \\ & \text { LC } \end{aligned}$ |
| $\begin{aligned} & \text { 5403/D41, } \\ & 5441 \end{aligned}$ | $\begin{aligned} & \text { C-58 } \\ & \text { C-59 } \\ & \text { C-5A Opt } 01 \end{aligned}$ | $\begin{aligned} & \text { GP } \\ & 67 \\ & \text { LC } \end{aligned}$ |
| $\begin{aligned} & 7313,7503, \\ & 7504,7514,7613 \\ & 7623 A, 7633 \\ & 7704 A, 7904, \\ & \text { R7903, } 7834, \\ & 7844 \end{aligned}$ | $\begin{aligned} & \text { C-53, C-27 } \\ & \text { C-59 } \\ & \text { C-51 } \\ & \text { C-5A Opt } 01 \\ & \text { C-58 } \end{aligned}$ | $\begin{aligned} & \text { GP } \\ & 67 \\ & \text { HS } \\ & \text { LC } \\ & 45 \end{aligned}$ |
| $\begin{aligned} & 7403 N, 7603 \\ & 7603-N 11 S \end{aligned}$ | $\begin{aligned} & \text { C-59 } \\ & \text { C-5A Opt } 01 \end{aligned}$ | $\begin{aligned} & \text { GP } \\ & \text { LC } \end{aligned}$ |
| $\begin{aligned} * G P & =\text { General Purpose } \\ \text { LC } & =\text { Low Cost } \\ \text { HS } & =\text { High Speed } \\ 45 & =4 \times 5^{\prime \prime} \text { Sheet film } \\ 67 & =6 \times 7 \mathrm{~cm} \text { Roll film }(70 \mathrm{~mm}, 120,220, \text { etc. }) \end{aligned}$ |  |  |



## Expandability: Invest in a plug-in scope for the future.

Expandability—represented by Tektronix' ongoing commitment to two growing product lines-is also part of the plug-in scope package you select. Expandability assures you that the instrument you buy today will be able to incorporate the technological advances of tomorrow. That it will adapt to changing measurement needs. And that it won't become obsolete soon after you buy it.

Three of Tektronix' most recent developments in plug-in scope capability are shown on the next page: the 7834 Fast Storage Oscilloscope, the 7D01F Logic Analyzer Plug-in, and the 7L18 Spectrum Analyzer Plug-in.

Representing a breakthrough in fast pulse analysis, the 7834 features a stored writing speed of 2500 $\mathrm{cm} / \mu \mathrm{s}$, enabling you to capture sin-gle-shot rise times as fast as 1.4 ns . System bandwidths range up to 400 MHz , depending on plug-ins selected. Multimode storage . . . bistable and variable persistence, fast bistable and fast variable persistence ... covers a wide range of storage applications. The 7834 attains the state of the art in fast pulse analysis for laser fusion applications. . . single-shot or low-reprate fast pulse analysis, glitch detection, or ECL logic analysis in digital design ... and single-shot fast pulse analysis in destructive and nondestructive component testing.
The 7D01F represents a breakthrough of its own. The combination offers you logic timing and logic state analysis in a single instrument. The DF1 Display Formatter provides, in addition to the 16-channel 7D01 timing diagram, hex, octal, or binary state table displays as well as a map mode. The exclusive or feature makes it easy to compare new and reference state tables; the map mode, with 3 mapping speeds, makes it easy to track program flow and identify a word of interest. In both performance and versatility, the 7D01F is a powerful tool for logic analysis.

The 7L18, the newest addition to Tektronix' line of transportable spectrum analyzers, offers the high performance of the other 7000Series Spectrum Analyzers plus digital storage and processing ... at microwave frequencies.

The unit features 30 Hz resolution to 12 GHz (or 60 GHz with optional waveguide mixers), an 80 dB display dynamic range, and $\leq 10 \mathrm{~Hz}$ residual FM. Microprocessor-aided frontpanel controls make for easy operation. Like the 7D01F, this instrument operates in any 7000Series mainframe.

If you have a measurement you'd like to make, but haven't found the plug-in scope capability in this booklet, please let us know. Just write down your application on the attached reply card and mail it back to us. Expandability-designing for problems that haven't been solved yet-is an integral part of the plugin scope concept.

## 7834 Multimode Storage Oscilloscope

- DC to 400 MHz
- $2500 \mathrm{~cm} / \mu$ s stored writing speed
- Multimode storage—bistable, variable persistence, fast bistable, fast variable persistence
- Reduced scan mode
- Multitrace delay control
- Remote-save, transfer store, reset



## 7L18 Spectrum Analyzer

- 30 Hz Resolution to 12 GHz
- Digital Display and Signal Processing
- Internal Preselection and Amplitude Calibration
- 60 GHz with Optional Waveguide Mixers
- Transportable at only 48 lb . (including 7603 mainframe)



## 7D01 Logic Analyzer with DF1 Formatter

- 16 parallel inputs with word recognition
- 4096 bits formattable memory
- Synchronous/asynchrous operation up to 100 MHz
- High impedance active probes
- Five display modes:

Timing, State Tables in
Hexadecimal, Octal or
Binary, and Mapping

- Exclusive OR feature
- All modes formattable




