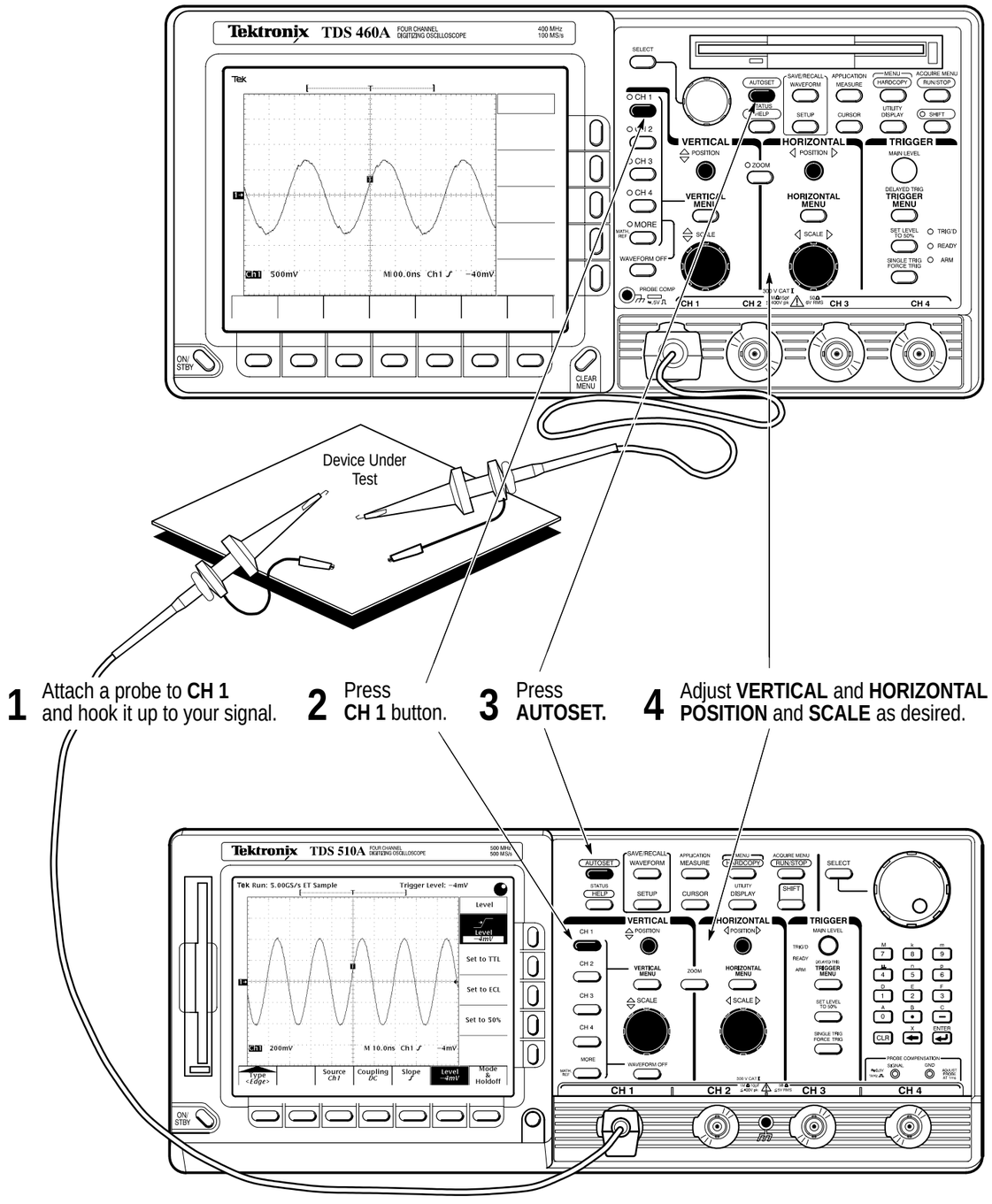
Reference

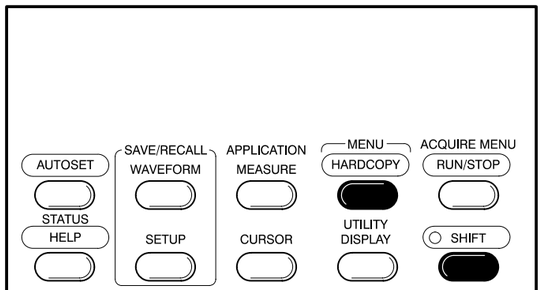
TDS 420A, TDS 430A, TDS 460A & TDS 510A Digitizing Oscilloscopes

070-9758-00

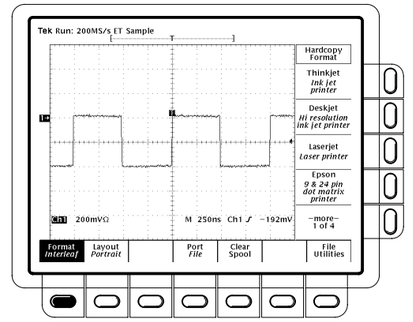
To Display a Waveform:



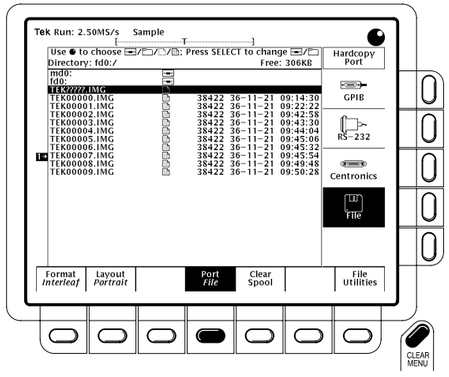
To Save a Hardcopy to the File System:



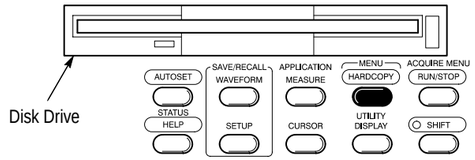
1 Press **SHIFT**, and then press **HARDCOPY**.



2 Press **Format** in the main menu, and select a hardcopy format from the side menu.



3 Press **Port** in the main menu, press **File** in the side menu, and then press **CLEAR MENU**.

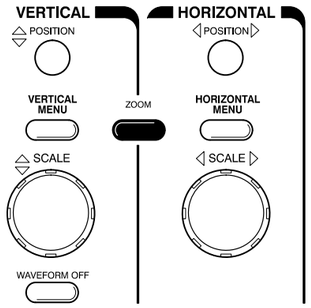


4 Press **HARDCOPY** anytime to save a copy of the current screen to a unique file in the oscilloscope file system.

To Perform Other File System Operations:

- Press **SAVE/RECALL WAVEFORM,** and use the menu buttons to save a waveform to a file or recall it from a file.
- Press **SAVE/RECALL SETUP,** and use the menu buttons to save a setup to a file or recall it from a file.
- Press **File Utilities** in the Save/Recall Waveform, Save/Recall Setup, or Hardcopy menus to access utilities that create directories, copy files, and do other operations in the oscilloscope file system.

To Zoom or Zoom Preview a Waveform:

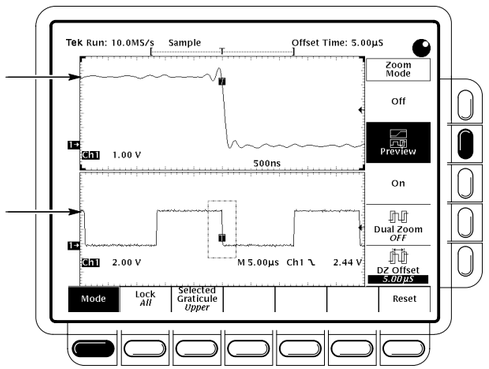


1 Press **ZOOM**.

2 TDS 400A only: press **Mode** in the main menu. Then press **Preview** in the side menu to turn on Dual Window Zoom.

Upper graticule zooms the boxed area on the selected waveform.

Lower graticule displays the selected waveform unzoomed with the zoomed area in box.



TDS 400A

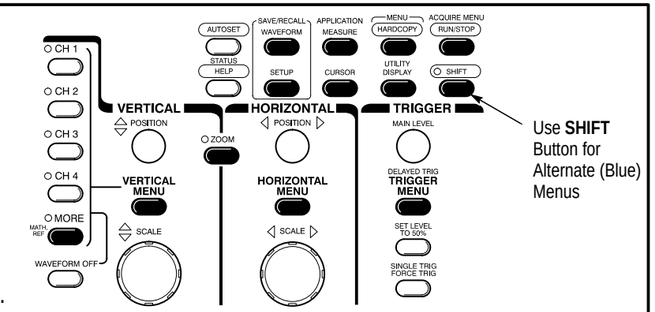
3 TDS 400A only: use the **Selected Graticule** menu to select the upper or lower waveform.

4 Use the vertical and horizontal knobs to adjust the waveform.

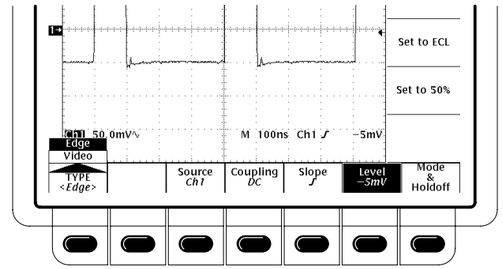
To Perform Other Zoom Operations:

- Turn the Vertical and Horizontal **SCALE** and **POSITION** knobs to adjust the scale and position factors of the acquisition or the zoomed waveforms.
- Press **Lock** (TDS 400A) or **Horizontal Lock** (TDS 510A) to choose which waveform group to zoom horizontally.
- TDS 400A only: press **Selected Graticule**, and use the menu buttons to direct the scale and position knobs to the upper (zoomed waveforms) or lower (acquisition waveforms) graticule.
- Press **Reset Zoom Factors** (TDS 510A) or **Reset** and use the menu buttons (TDS 400A) to reset zoom Factors.

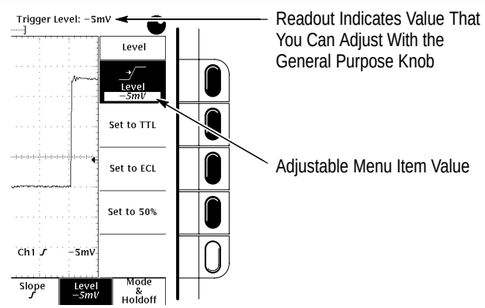
To Set Up Using a Menu:



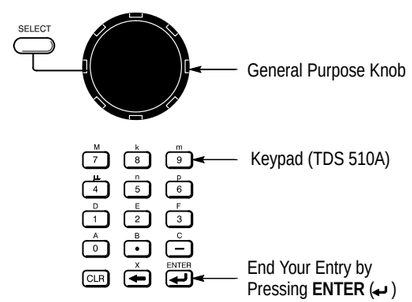
1 Press any of the front panel menu buttons.



2 Select an item from the main (bottom) menu.

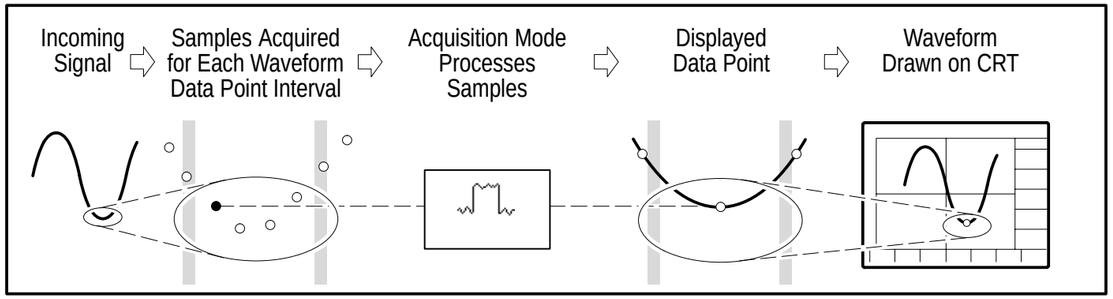


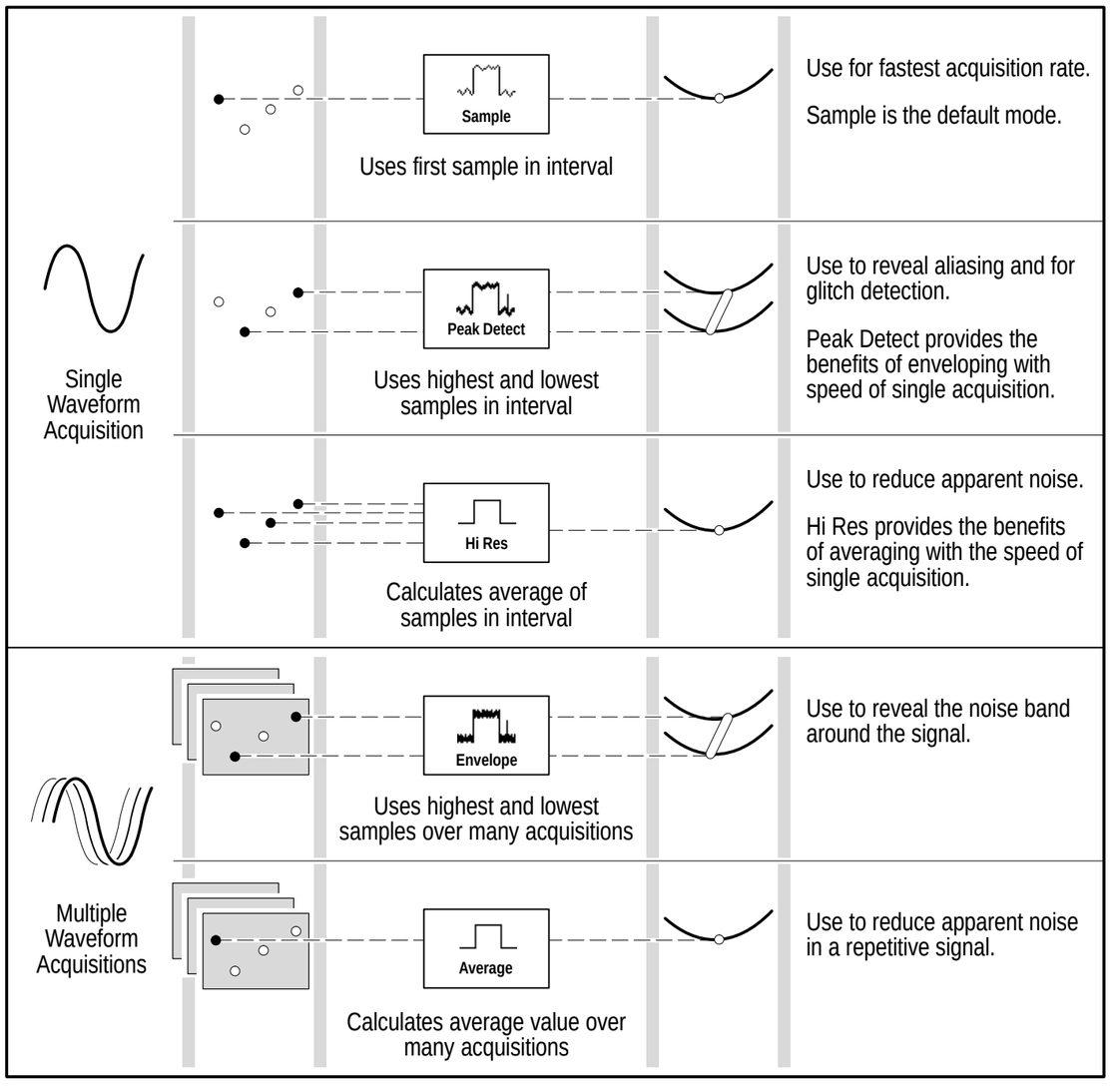
3 Select any displayed item from the side menu.



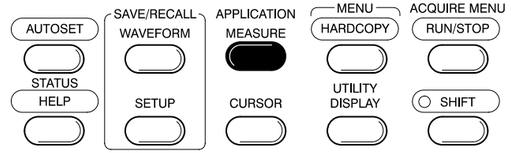
4 Adjust menu item values using the general purpose knob or by entering numbers on the keypad.

How the Acquisition Modes Work:

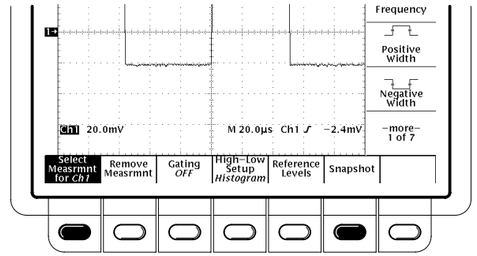




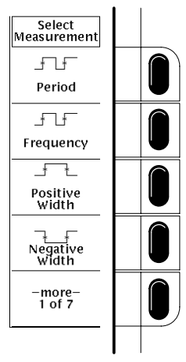
To Take Measurements Automatically:



1 Press the **MEASURE** button.



2 Press **Select Measrmnt** or **Snapshot** in main menu.

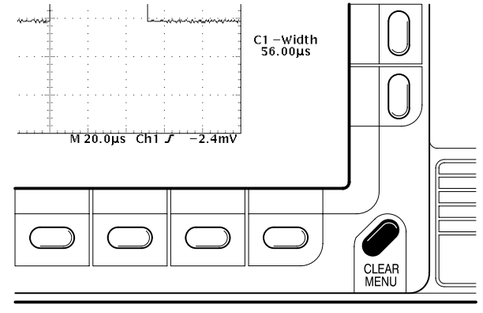


3 Select up to four measurements.

Automated Measurement Selections

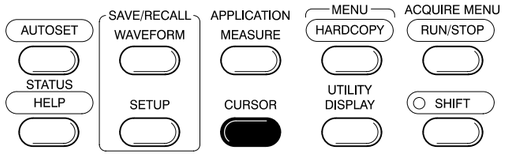
Select Measurement

Period	Rise Time	Delay	High	Pk–Pk	Mean	Area
Frequency	Fall Time	Phase	Low	Amplitude	Cycle Mean	Cycle Area
Positive Width	Positive Duty Cycle	Burst Width	Max	Positive Overshoot	RMS	—more— 7 of 7
Negative Width	Negative Duty Cycle		Min	Negative Overshoot	Cycle RMS	To 1 of 7
—more— 1 of 7	—more— 2 of 7	—more— 3 of 7	—more— 4 of 7	—more— 5 of 7	—more— 6 of 7	

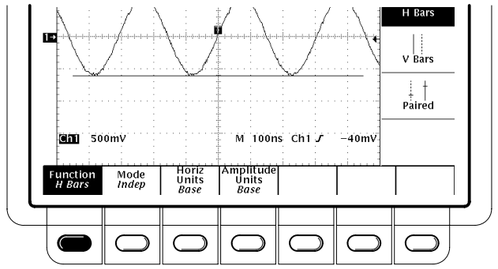


4 Press the **CLEAR MENU** button to move measurement readouts away from graticule.

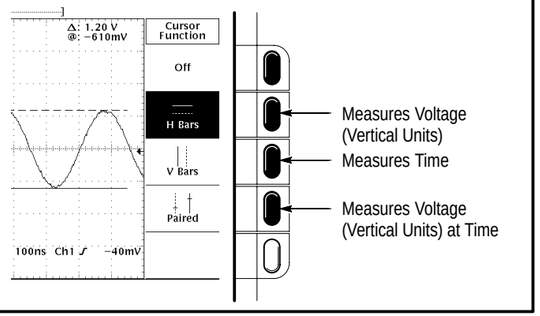
To Take Measurements With Cursors:



1 Press **CURSOR** button.



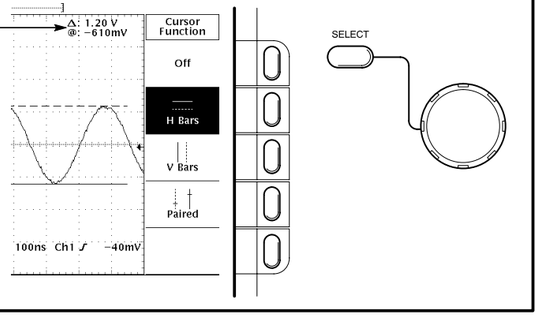
2 Press **Function** in the main menu.



3 Select from the side menu.

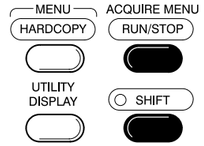
Δ Difference Between Cursors

@ Position of Active Cursor Relative to Ground (Horizontal Bars) or Trigger (Vertical Bars)

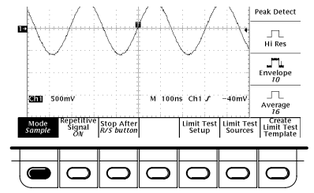


4 Move cursor with the general purpose knob.
Press **SELECT** to switch between cursors.
Press **SHIFT** to speed up/slow down cursor movement.

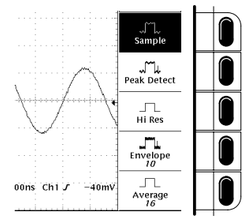
To Choose an Acquisition Mode:



1 Press **SHIFT**, and then press **ACQUIRE MENU**.

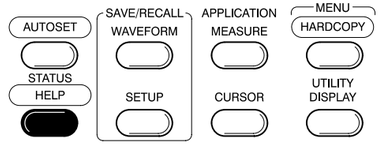


2 Press **Mode** in main menu.

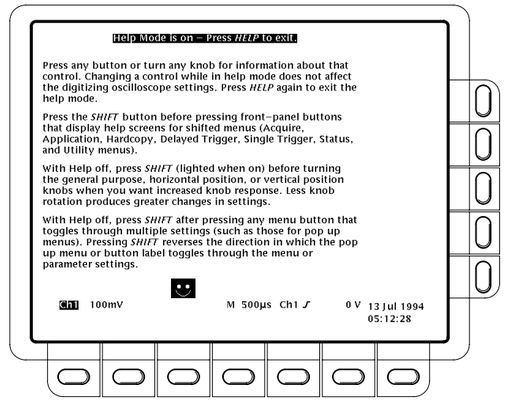


3 From side menu, select an acquisition mode that will serve your application.

To Display Help On Screen:

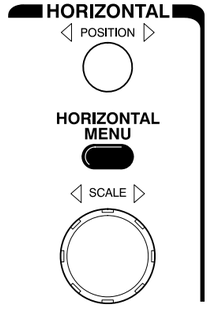


1 Press the **HELP** button.

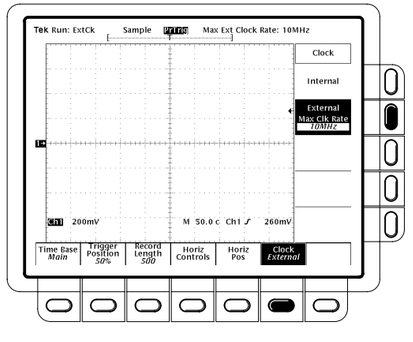


2 Now turn any knob or press any button and read a description of it on the display.
Press the **HELP** button again to exit help.

To Use the External Clock (TDS 400A):

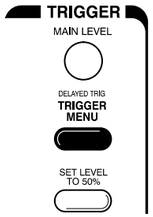


1 Press **HORIZONTAL MENU**.

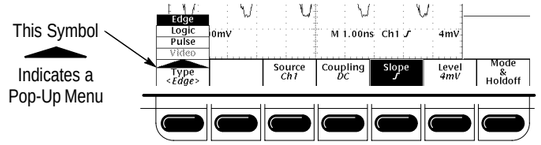


2 Press **Clock** in main menu,
and then press **External** in side menu.

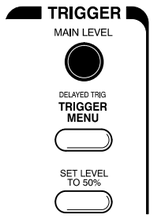
To Select a Trigger:



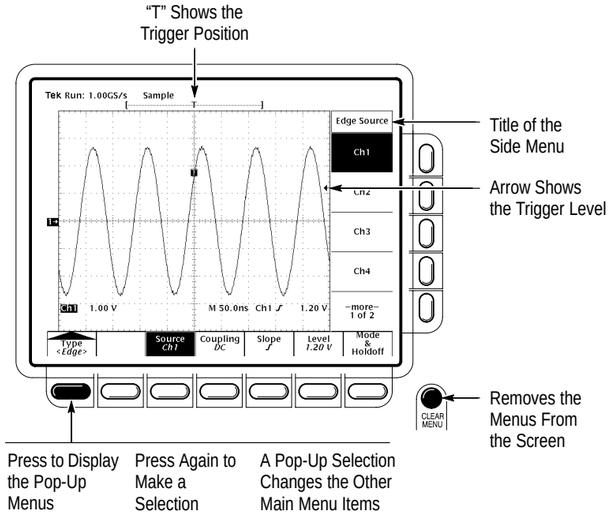
1 Press **TRIGGER MENU**.



2 Select a trigger type or parameter from the main menu.

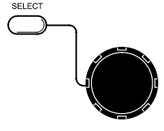


3 Set **TRIGGER MAIN LEVEL**.



To Speed Up Knob Adjustments:

Press the **SHIFT** button to change the rate that the **VERTICAL** and **HORIZONTAL POSITION** knobs and the general purpose knob make adjustments.



Trigger Selections

TYPE Edge		TYPE <Logic> (TDS 510A)				TYPE <Pulse> (TDS 510A)						TYPE Video (Optional on some models)	
		CLASS Pattern		CLASS State		CLASS Glitch		CLASS Runt		CLASS Width			
Source	Select any one of Ch 1 thru Ch 4, Line, or Auxiliary	Define Inputs	Define levels High, Low, or Don't Care for Ch 1 thru Ch 4	Define Inputs	Define levels High, Low, or Don't Care for Ch 1 thru Ch 3 Select edge for the clock (always Ch 4)	Source	Select any one of Ch 1 thru Ch 4	Source	Select any one of Ch 1 thru Ch 4	Source	Select any one of Ch 1 thru Ch 4	Source	Select any one of Ch 1 thru Ch 4
Slope	Positive Negative	Define Logic	AND OR NAND NOR	Define Logic	AND OR NAND NOR	Polarity & Width	Positive Negative Either Width	Polarity	Positive Negative Either	Polarity	Positive Negative	Sync Polarity	Negative Sync Positive Sync
Level	Level Set level or select preset level based on TTL or ECL logic	Set Thresholds	Set a threshold level for each of Ch 1 thru Ch 4 Set levels or select preset levels based on TTL or ECL logic	Set Thresholds	Set a threshold level for each of the pattern channels, Ch 1 thru Ch 3, and the clock, Ch 4	Level	Level Set level or select preset level based on TTL or ECL logic	Thresholds	Runt Upper Runt Lower	Level	Level Set level or select preset level based on TTL or ECL logic	Field/Line	Set video field, line number, and, on TDS 400A, time
Coupling	DC AC HF Reject LF Reject Noise Rej (DC Low Sensitivity)	Trigger When	Goes TRUE Goes FALSE TRUE for less than[1] TRUE for more than[1]	Trigger When	Goes TRUE Goes FALSE	Glitch (Filter)	OFF Accept Glitch ON Reject Glitch		[2]Qualification by width	Trigger When	Within Limits Out of Limits Set Lower and Upper Limits	Standard	NTSC PAL SECAM HDTV (TDS 510A) FlexFmt (TDS 510A) Custom (TDS 400A)

[1]Qualification by time