

Reference

**Tektronix**

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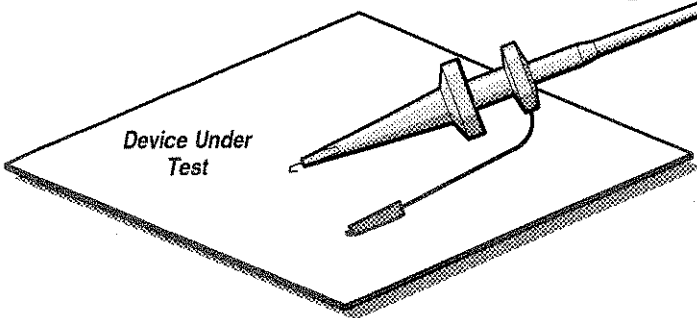
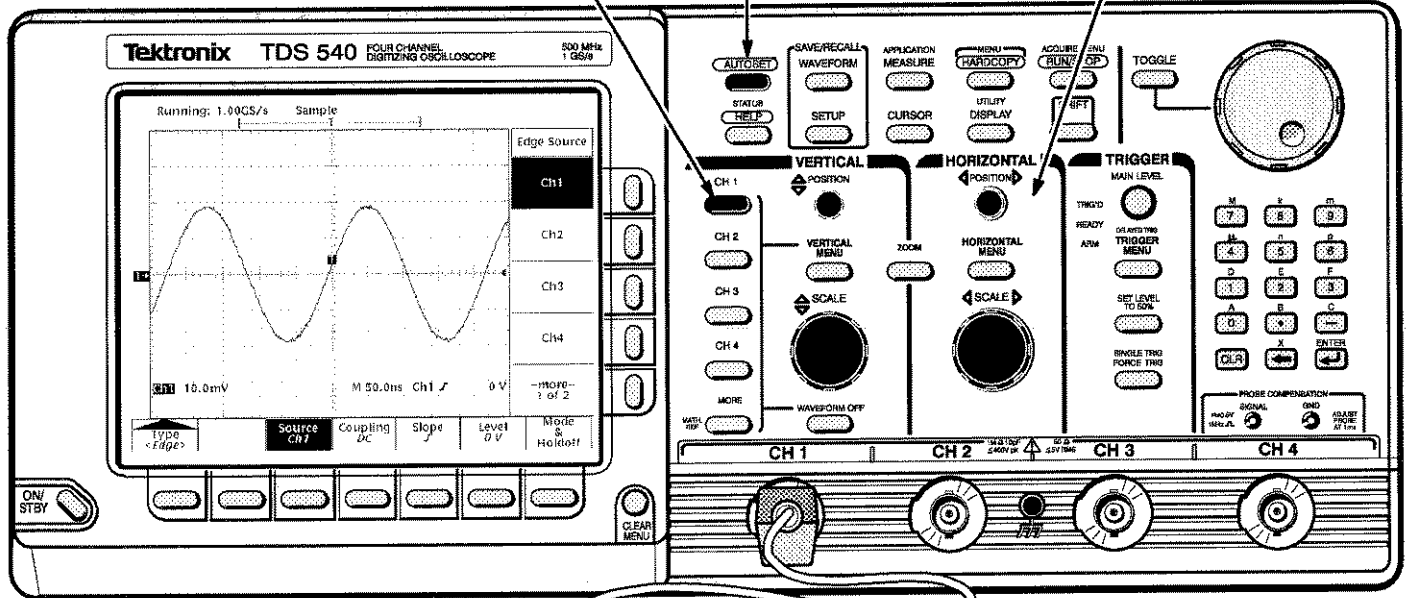
**TDS 520 & 540  
Digitizing Oscilloscopes**

**070-8316-01**

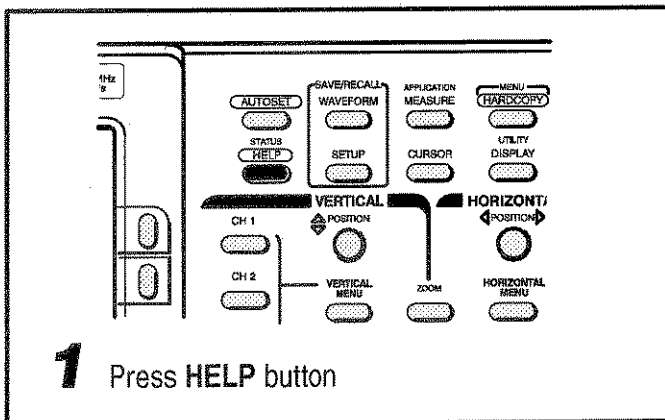


# Displaying a Waveform

- 1 Attach a probe to CH 1 and hook it up to your signal
- 2 Press CH 1 button
- 3 Press AUTOSET
- 4 Adjust VERTICAL and HORIZONTAL POSITION and SCALE as desired



## On-Line Help



**Help Mode is on - Push HELP to exit**

Press any button or turn any knob for information about that control. Changing a control while in help mode will not affect the oscilloscope settings.

Press **HELP** again to exit the help mode.

Press the **SHIFT** button with various front-panel menu buttons to bring up help screens for shifted menus (Acquire menu, Application menu, Hardcopy menu, Delayed Trigger menu, Single Trigger menu, Status menu, and Utility menu).

Press **SHIFT** before turning the general purpose, horizontal position or vertical position knobs to increase their responsiveness. That is, the same knob turn will produce a much greater effect (such as cursor or waveform movement) when the **SHIFT** button is in the lighted ON state.

10.0mV M 50.0ns CH1 0V

- 2 Now turn any knob or press any button and read a description of it on the display

Press **HELP** button again to exit help

# Operating a Menu

**Use SHIFT Button for Alternate (Blue) Menus**

**1** Press any of the front panel menu buttons

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

**3** Select an item from the side menu, if displayed

*Readout Indicates Value That You Can Adjust with the General Purpose Knob or Keypad*

*Adjustable Menu Item Value*

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

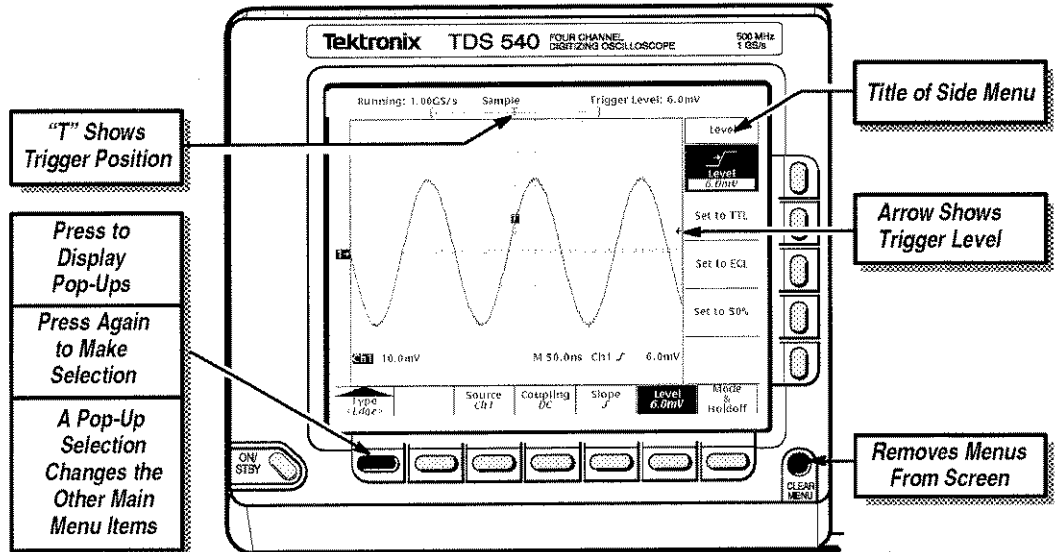
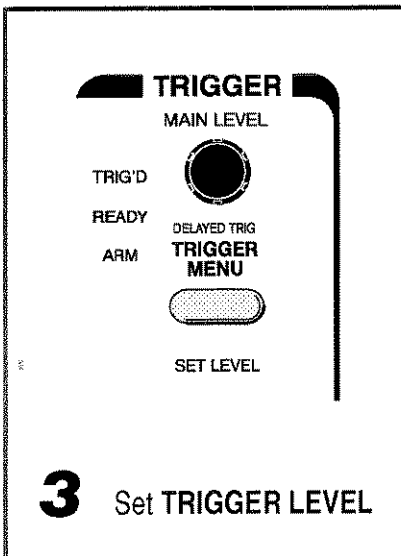
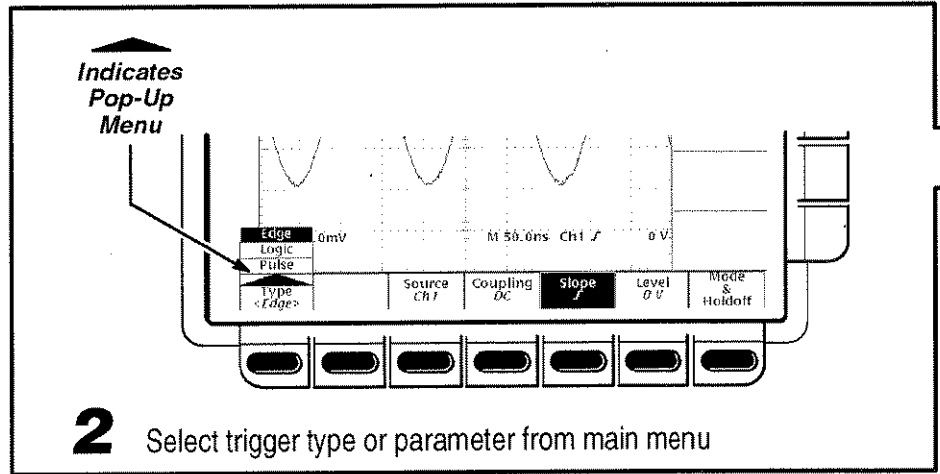
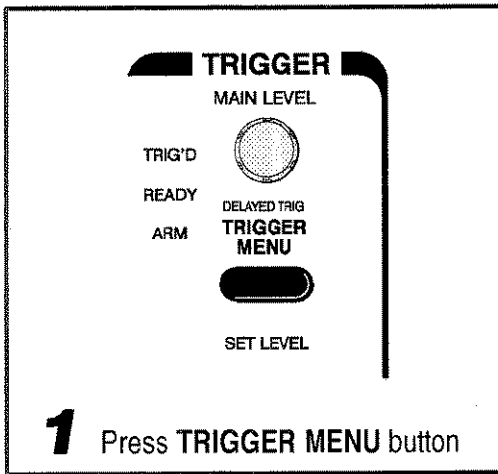
*Use SHIFT Button for Alternate (Blue) Values*

*End Your Entry by Pressing ENTER (↵)*

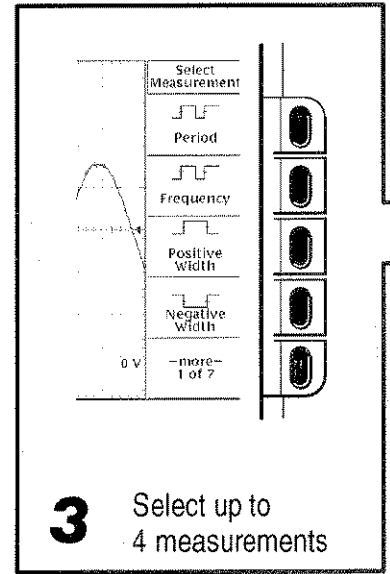
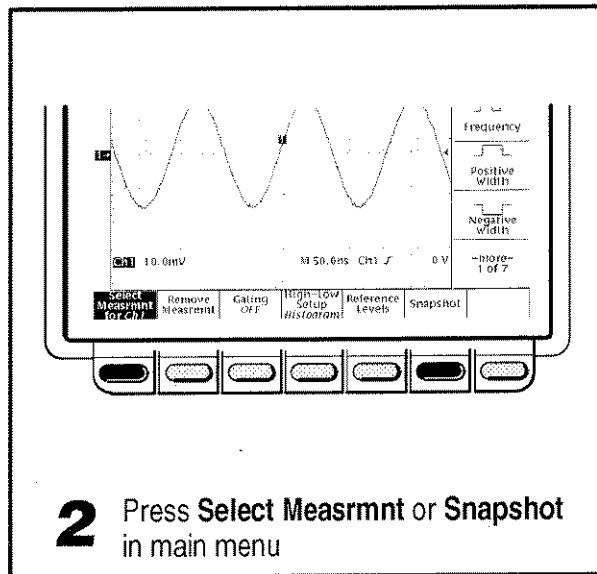
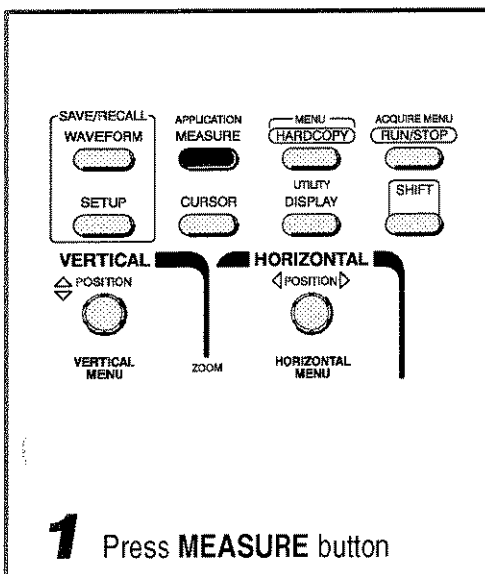
## Quicker Adjustments

Press **SHIFT** button to change rate of **VERTICAL** and **HORIZONTAL POSITION** knobs, and general purpose knob

# Selecting a Trigger



# Automated Measurements

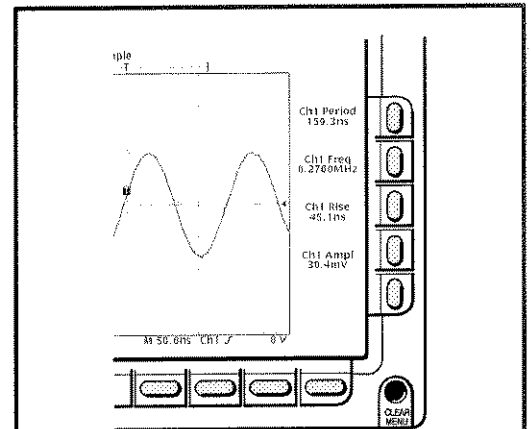


# TRIGGER SELECTIONS

	TYPE <Edge>	TYPE <Logic>		TYPE <Pulse>							
		CLASS <Pattern>	CLASS <State>	CLASS <Glitch>	CLASS <Runt>	CLASS <Width>					
C o u p l i n g	DC DC	D e f i n e  L o g i c	AND	D e f i n e  L o g i c	AND	P o l a r i t y / W i d t h	Positive	P o l a r i t y	Positive	P o l a r i t y	Positive
	AC AC		OR		OR		Negative		Negative		Negative
	HF Reject		NAND		NAND		Either		Either		
	LF Reject		NOR		NOR		Width				Within Limits
	Noise Rej (DC Low Sensitivity)										Out of Limits
S l o p e	Positive	Define High, Low, and Don't Care states for channels 1, 2, 3, and 4 Qualify condition by time	Define High, Low, and Don't Care states for channels 1, 2, and 3 Clock on channel 4	F i l t e r	OFF Accept Glitch	T h r e s h o l d s	Runt Upper	W h e n	Upper Limits		
	Negative				ON Reject Glitch		Runt Lower		Lower Limits		

# 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 **CLEAR MENU** button to move measurement readouts away from graticule

# Cursor Measurements

SAVE/RECALL WAVEFORM  
 APPLICATION MEASURE  
 MENU HARDCOPY  
 ACQUIRE MENU RUN/STOP  
 TOGGLE  
 SETUP  
 CURSOR  
 UTILITY DISPLAY  
 SHIFT  
 VERTICAL POSITION  
 HORIZONTAL POSITION  
 TRIGGER MAIN LEVEL  
 VERTICAL MENU  
 ZOOM  
 HORIZONTAL MENU  
 TRIG'D READY ARM  
 DELAYED TRIG TRIGGER MENU

**1** Press **CURSOR** button

H Bars  
 V Bars  
 Paired  
 10.0mV  
 M 50.0ns CH1 F 0V  
 Function H Bars  
 Mode Indep  
 Time Units seconds

**2** Press **FUNCTION** in main menu

$\Delta$ : 31.8mV  
 $\textcircled{a}$ : -15.8mV  
 Cursor Function  
 Off  
 H Bars  
 V Bars  
 Paired

Measures Voltage  
 Measures Time

**3** Select from side menu

$\Delta$ : 31.8mV  
 $\textcircled{a}$ : -15.8mV  
 Cursor Function  
 Off  
 V Bars  
 Paired

TOGGLE

Read Measurement  
 $\Delta$  = Distance Between Cursors  
 $\textcircled{a}$  = Position of Active Cursor Relative to Ground or Trigger

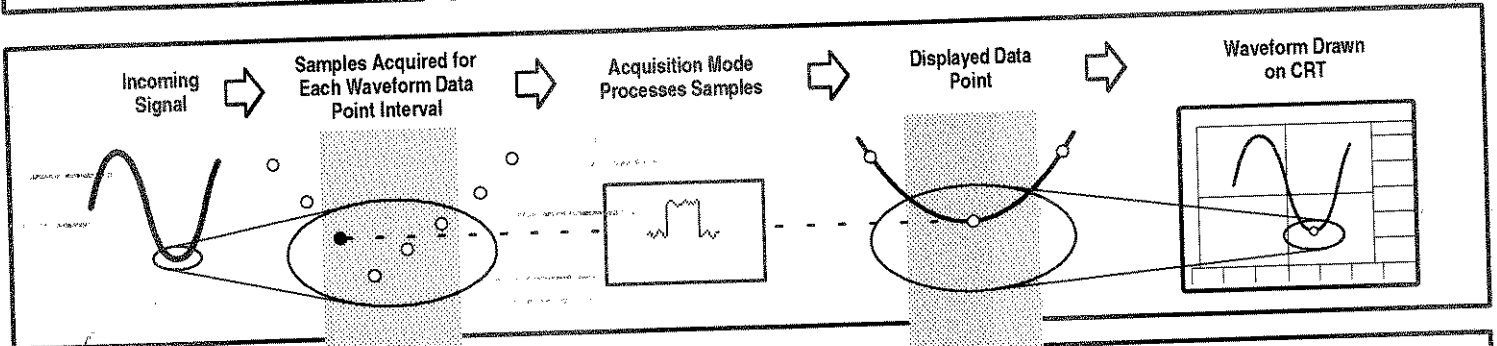
**4** Move cursor with general purpose knob  
 Press **TOGGLE** to switch between cursors

# Acquisition Mode

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

**2** Press **MODE** in main menu

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



Acquisition Mode	How it works	Use case
<b>Single Waveform Acquisition</b>		
<b>Sample</b>	Uses first sample in interval	Use for fastest acquisition rate. This is the default mode.
<b>Peak Detect</b>	Uses highest and lowest samples in interval	Use to reveal aliasing and for glitch detection. Provides the benefits of enveloping with speed of single acquisition.
<b>Hi Res</b>	Calculates average of samples in interval	Use to reduce apparent noise. Provides the benefits of averaging with the speed of single acquisition.
<b>Multiple Waveform Acquisitions</b>		
<b>Envelope</b>	Uses the highest and lowest samples over many acquisitions	Use to reveal the noise band around the signal.
<b>Average</b>	Calculates average value over many acquisitions	Use to reduce apparent noise in a repetitive signal.



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