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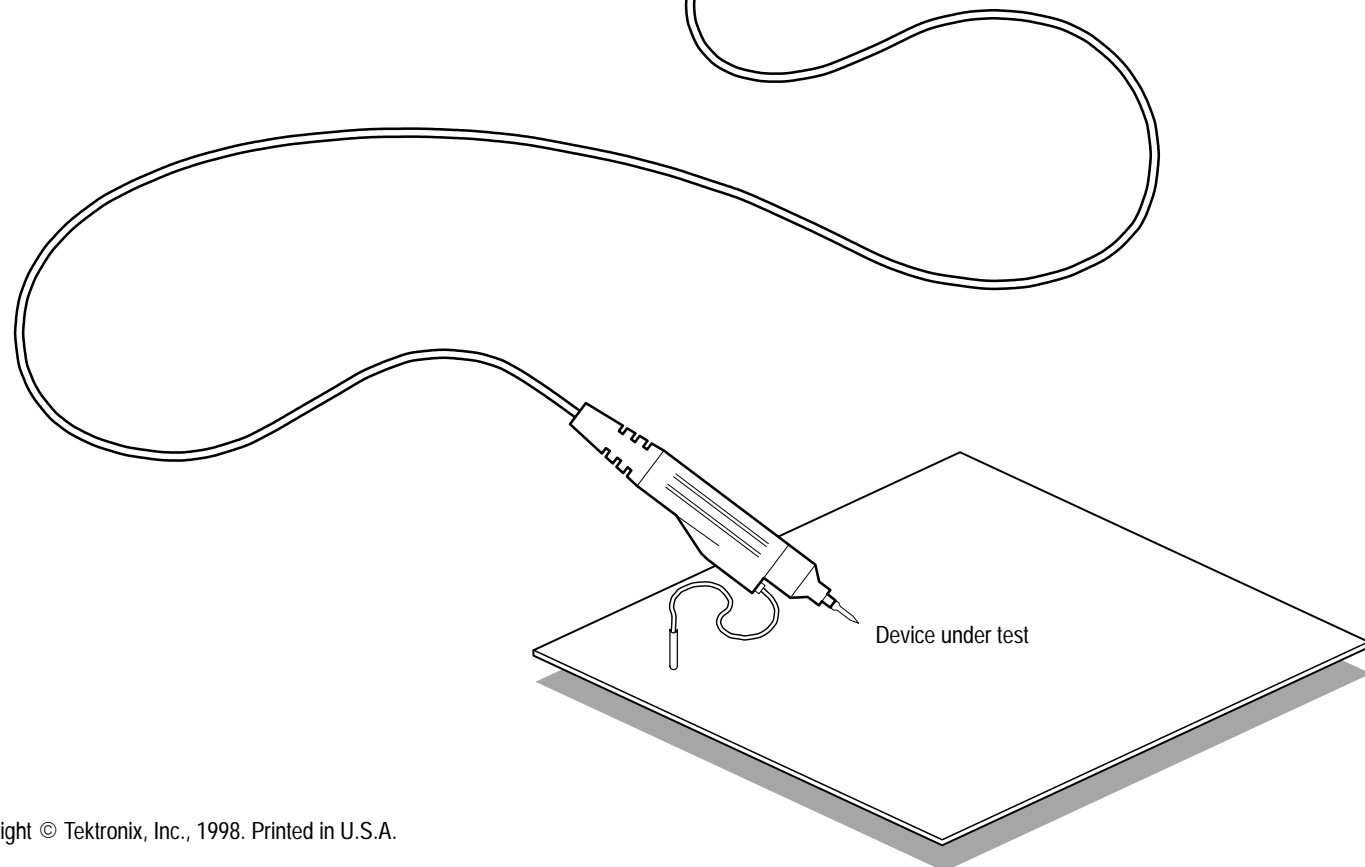
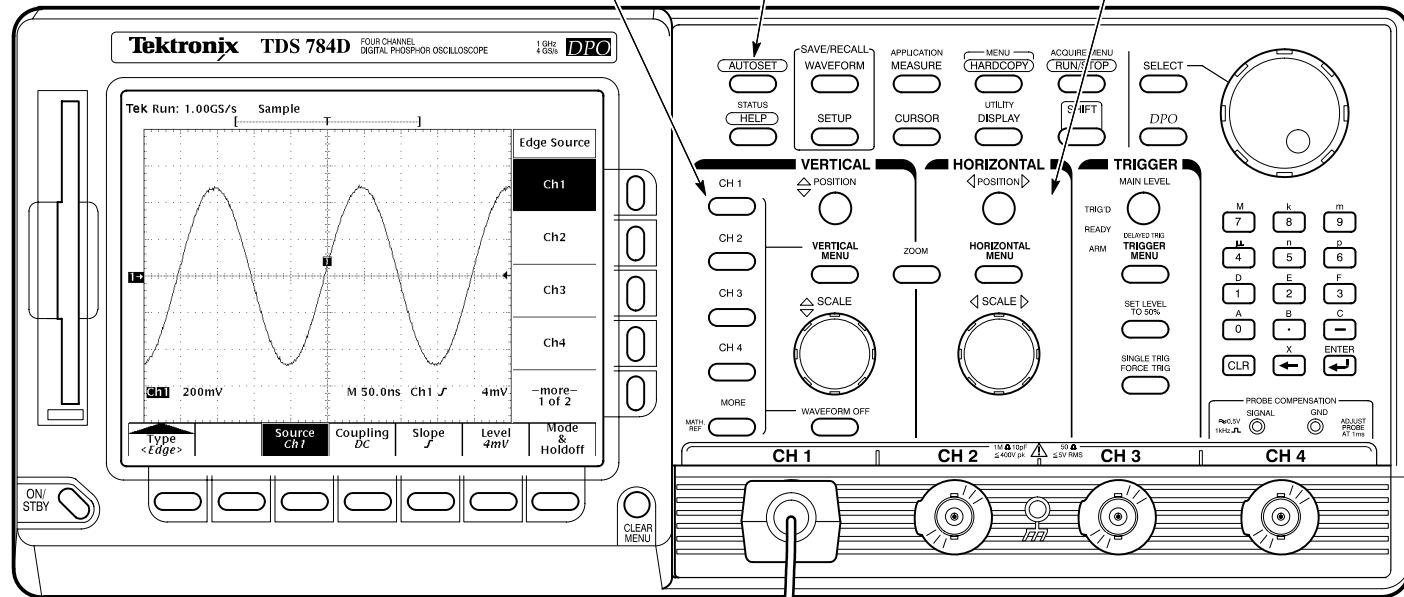
Reference

**TDS 500D, TDS 600C & TDS 700D
Digitizing Oscilloscopes**

071-0504-00

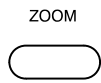
To Display a Waveform:

- 1 Attach a probe to CH 1 and hook the probe to your signal.
- 2 Press CH 1.
- 3 Press AUTOSET.
- 4 Adjust VERTICAL and HORIZONTAL POSITION and SCALE.



To Preview a Waveform:

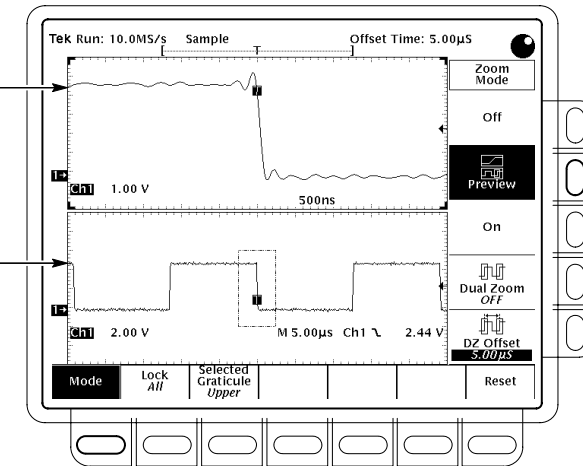
- 1 Press ZOOM.



- 2 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.



- 3 Use the Selected Graticule menu to select the upper or lower waveform. Use the vertical and horizontal knobs to adjust the waveform in the graticule you select.

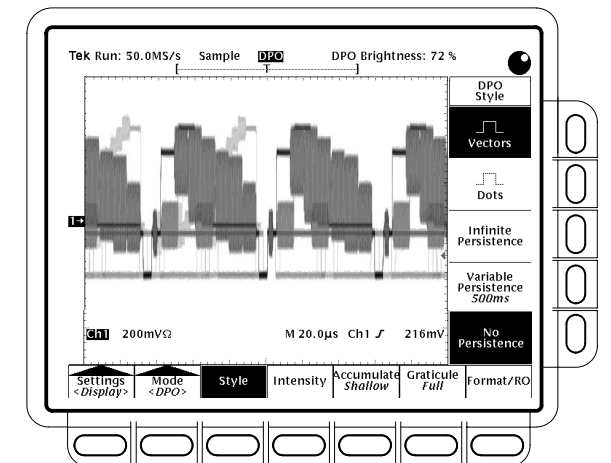
To Capture Infrequent Events (TDS 500D & 700D Models):

Press DPO to toggle between DPO and Normal waveform capture rates.



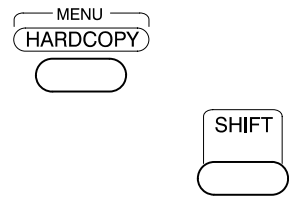
When in DPO mode:

- Waveforms displayed are updated thousands of times faster than normal.
- Very brief changes in waveforms are captured.
- Certain features, such as Limit Testing, Math Waveforms, Zoom, and record lengths longer than 500 points, are not available.

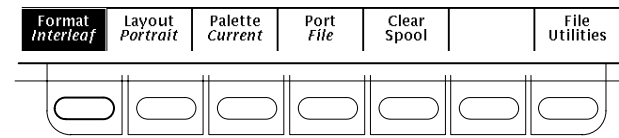


To Save a Hardcopy to the File System:

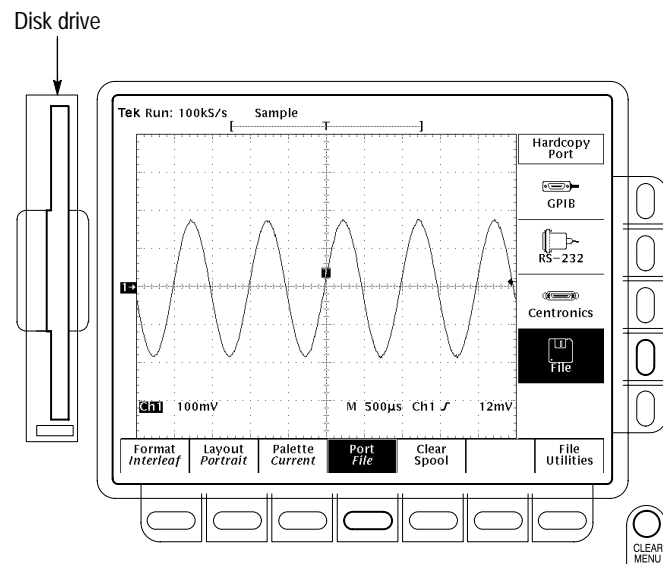
1 Press **SHIFT**, and then press **HARDCOPY**.



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.

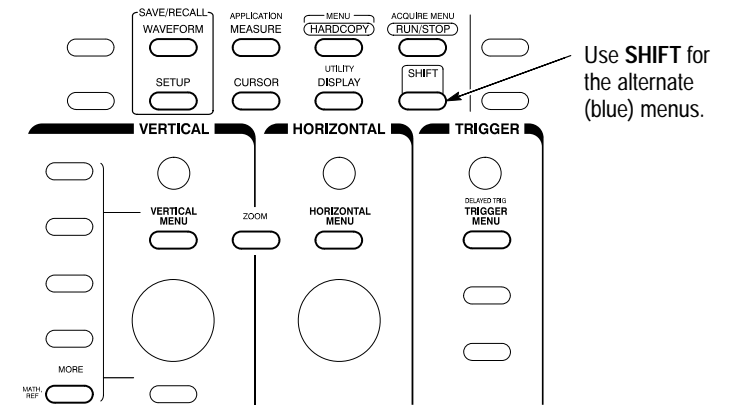


To Perform Other File System Operations:

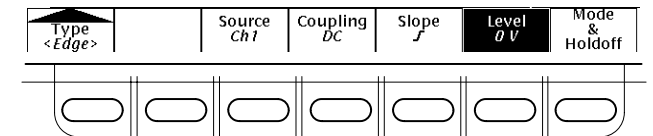
- Press **SAVE/RECALL WAVEFORM**, and use the menu buttons to save a waveform to a file or recall it from a file.
- Press **SAVE/RECALL SETUP**, and use the menu buttons to save a setup to a file or recall it from a file.
- Press **File Utilities** in the Save/Recall Waveform, Save/Recall Setup, or Hardcopy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

To Set Up Using a Menu:

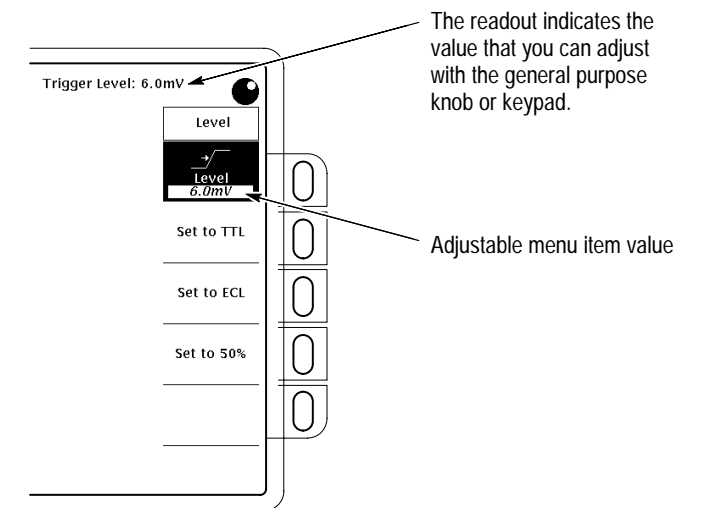
1 Press any of the front panel menu buttons.



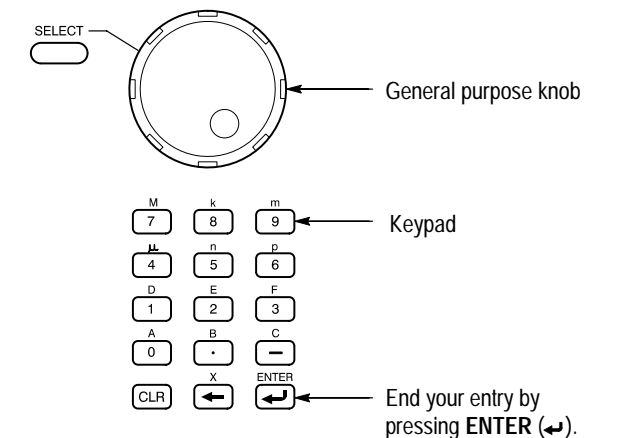
2 Select an item from the main (bottom) menu.



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



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

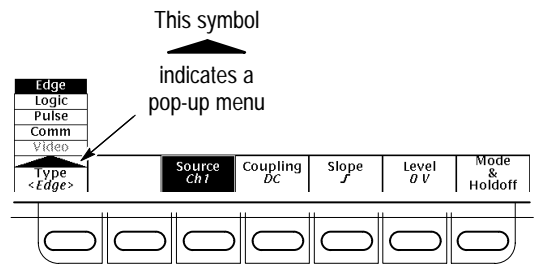


To Select a Trigger:

1 Press TRIGGER MENU.



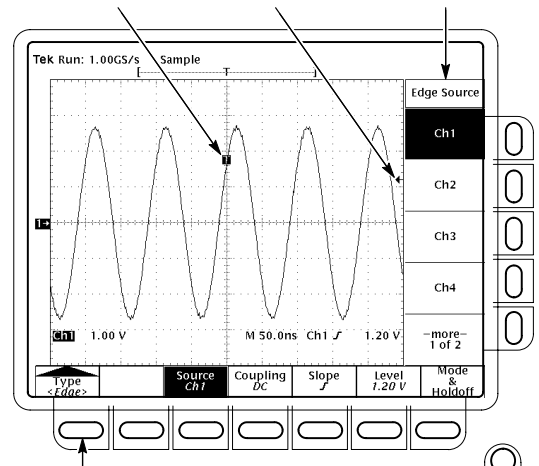
2 Select a trigger type or parameter from the main menu.



3 Set TRIGGER MAIN LEVEL.



"T" shows the trigger position
Arrow shows the trigger level
Title of the side menu



Press to display the pop-up menus
Press again to make a selection
A pop-up selection changes the other main menu items

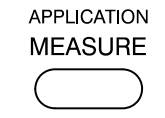


Trigger Selections (On some models, Ax 1 & Ax 2 replace Ch 3 & Ch 4)

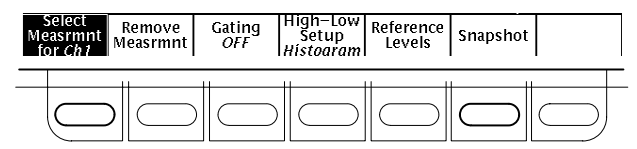
TYPE <Edge>	TYPE <Logic>		
	CLASS <Pattern>	CLASS <State>	CLASS <Setup/Hold>
Source Select any one of Ch 1 thru Ch 4, Line, or DC Aux	Define Inputs Define levels High, Low, or Don't Care for Ch 1 thru Ch 4	Define Inputs Define levels High, Low, or Don't Care for Ch 1 thru Ch 3 Select edge for the clock (always Ch 4)	Data Source Select one of Ch 1 thru Ch 4 as the data source Do not select the same channel used as the clock source
Slope Positive Negative	Define Logic AND OR NAND NOR	Define Logic AND OR NAND NOR	Clock Source Select one of Ch 1 thru Ch 4 as the clock source Select the clock edge Do not select the same channel used as the data source
Level Level	Set Thresholds Set a threshold level for each of Ch 1 thru Ch 4	Set Thresholds Set a threshold level for each of the pattern channels, Ch 1 thru Ch 3, and the clock, Ch 4.	Levels Clock Data Set levels or select preset levels based on TTL or ECL logic
Coupling DC DC AC 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	Setup/Hold Times Select and set the Setup Time Select and set the Hold Time
			¹ Qualification by time

To Take Measurements Automatically:

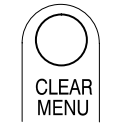
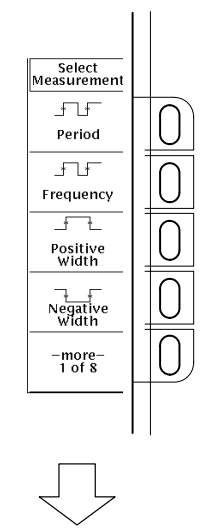
1 Press MEASURE.



2 Press Select Measrmt or Snapshot in the main menu.



3 Select up to four measurements.



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

Automated Measurement Selections

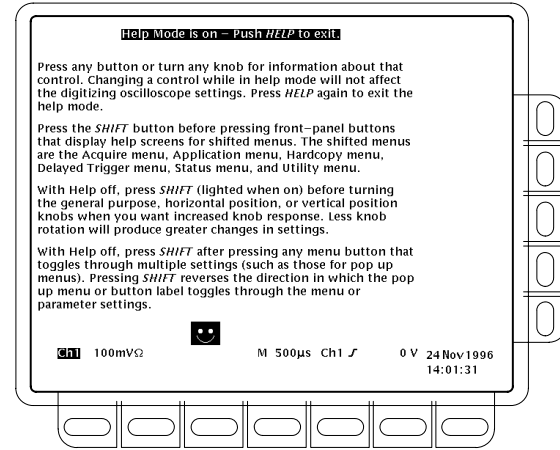
Select Measurement							
							Extinction Ratio
Period	Rise Time	Delay	High	Pk-Pk	Mean	Area	
							Extinction % (FDDI)
Frequency	Fall Time	Phase	Low	Amplitude	Cycle Mean	Cycle Area	
							Extinction dB (SONET)
Positive Width	Positive Duty Cycle	Burst Width	Max	Positive Overshoot	RMS		
							Mean dBm (Average Optical Power)
Negative Width	Negative Duty Cycle		Min	Negative Overshoot	Cycle RMS		
-more- 1 of 8	-more- 2 of 8	-more- 3 of 8	-more- 4 of 8	-more- 5 of 8	-more- 6 of 8	-more- 7 of 8	-more- 8 of 8

To Display Help On Screen:

1 Press **HELP**.

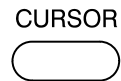


2 Now turn any knob or press any button and read a description of it on the display. Press **HELP** again to exit help.

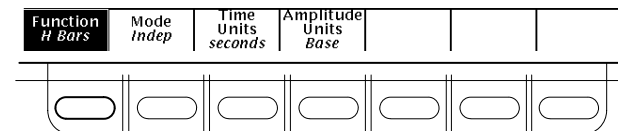


To Take Measurements With Cursors:

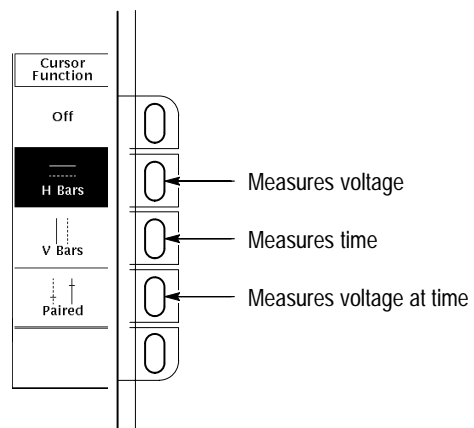
1 Press **CURSOR**.



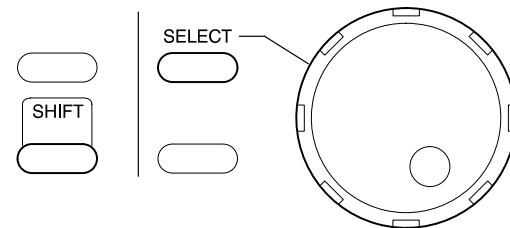
2 Press **Function** in the main menu.



3 Select from the side menu.



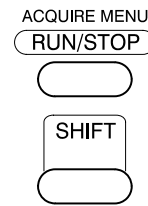
4 Move the cursor with the general purpose knob. Press **SELECT** to switch between the cursors. Press **SHIFT** to speed up/slow down the cursor movement.



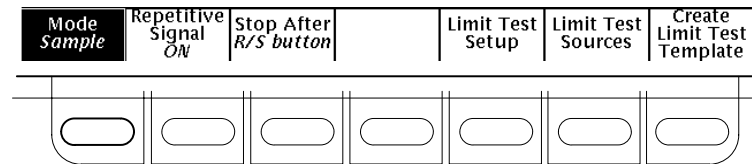
		TYPE <Pulse>					TYPE <Video> (Optional)	TYPE <Comm> (Optional)					
		CLASS <Glitch>	CLASS <Runt>	CLASS <Width>	CLASS <Slew Rate>	CLASS <Time Out>							
Source	Select any one of Ch 1 thru Ch 4	Source	Select any one of Ch 1 thru Ch 4	Source	Select any one of Ch 1 thru Ch 4	Source	Select any one of Ch 1 thru Ch 4	Source	Select any one of Ch 1 thru Ch 4				
Polarity & Width	Positive	Polarity	Positive	Polarity	Positive	Polarity	Positive	Polarity	Stays High	Sync Polarity	Negative Sync	Code	AMI
	Negative		Negative		Negative		Negative		Stays Low		Positive Sync		CMI
	Either		Either		Either		Either		Either				NRZ
	Width												
Level	Level	Thresholds	Runt Upper	Level	Level	Thresholds	High	Level	Level	Field/Line	Set video field and line number	Level/Threshold	Level
			Runt Lower				Low				High		Low
Glitch (Filter)	OFF Accept Glitch	Trigger When	Select trigger when any runt occurs or ...	Trigger When	Within Limits	Trigger When	Faster	Time	Select and set the Timeout Time	Standard	NTSC	Standard	DS<x>
	ON Reject Glitch		Select triggering when a runt wider than specified occurs ²		Out of Limits		Slower		Delta Time		Select faster than or slower than and set delta time		PAL
					Set Lower and Upper Limits		The oscilloscope computes the slew rate readout from the delta time and thresholds settings		HDTV		OC<x>		STS<x>
									FlexFmt		4:2:2		4fsc NTSC
											<x>Base-T		Gigabit Ethernet
													Custom

To Choose an Acquisition Mode:

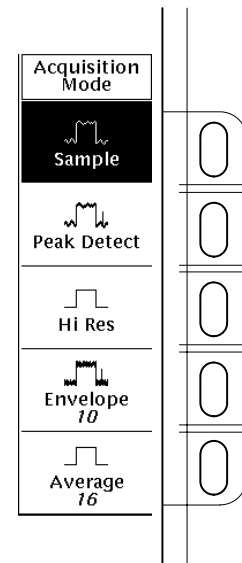
1 Press **SHIFT**, and then press **ACQUIRE MENU**.



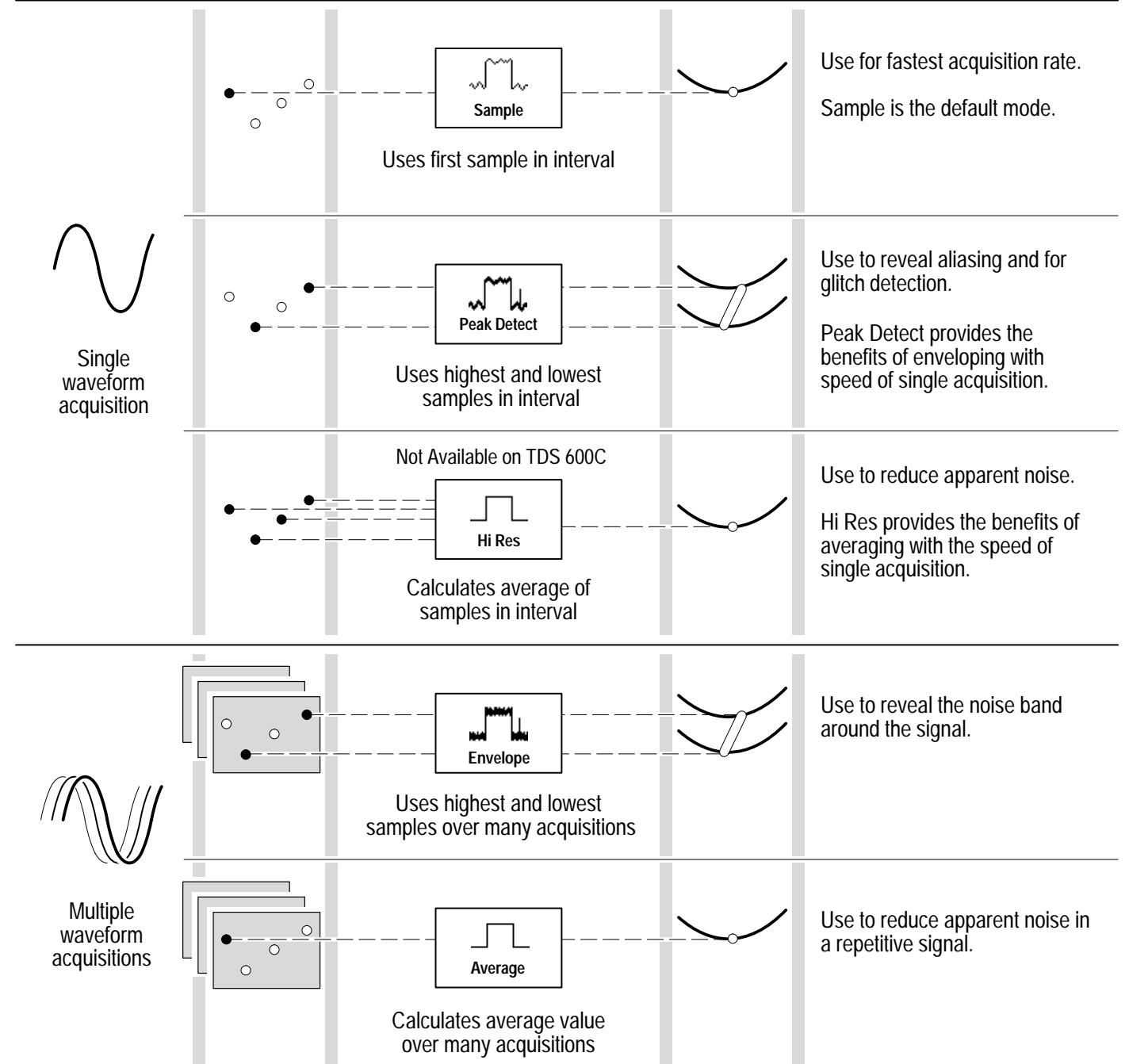
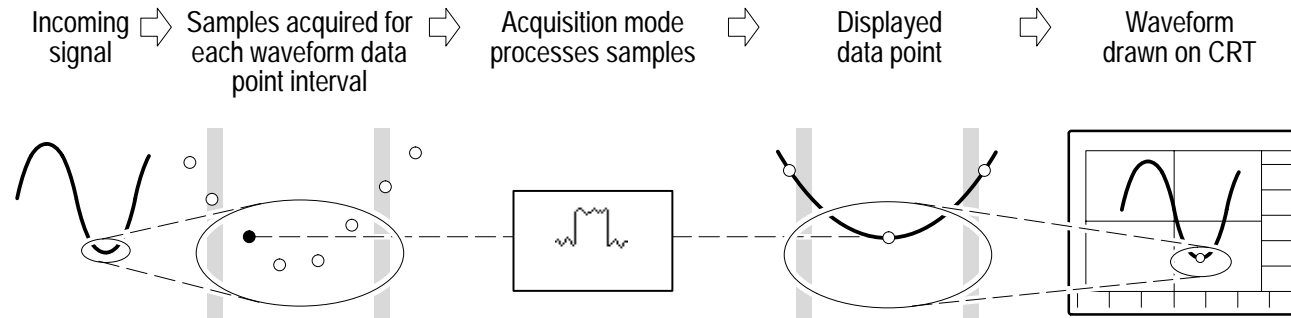
2 Press **Mode** in the main menu.



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

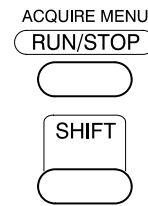


How the Acquisition Modes Work:

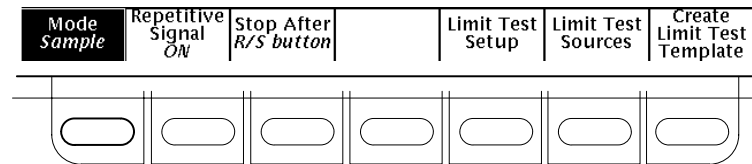


To Choose an Acquisition Mode:

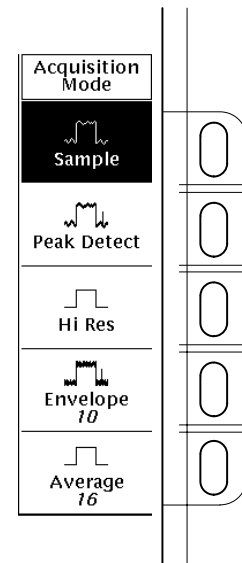
1 Press **SHIFT**, and then press **ACQUIRE MENU**.



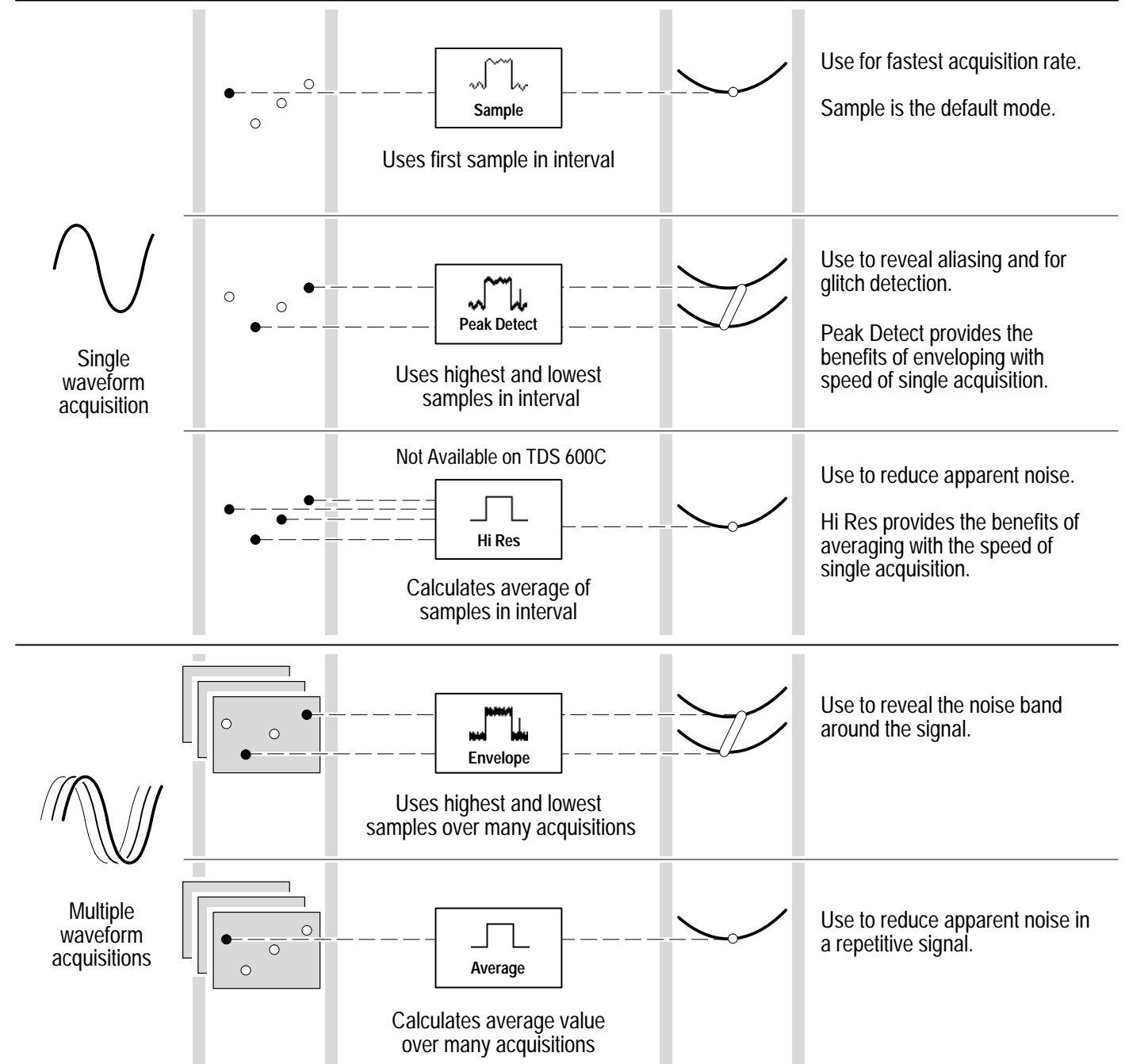
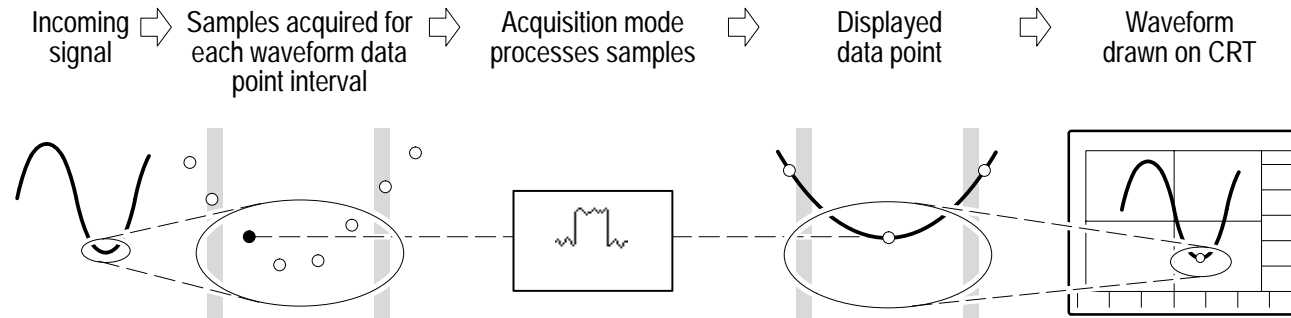
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How the Acquisition Modes Work:

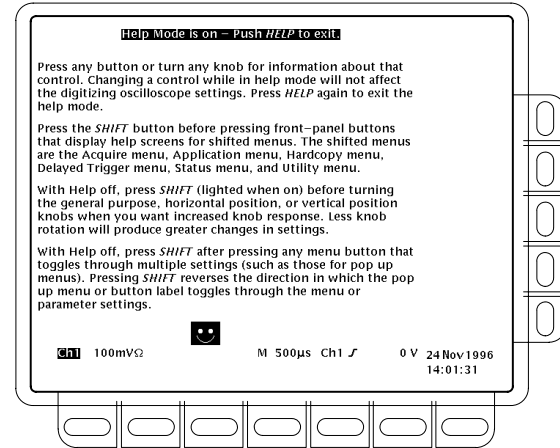


To Display Help On Screen:

1 Press **HELP**.

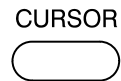


2 Now turn any knob or press any button and read a description of it on the display. Press **HELP** again to exit help.

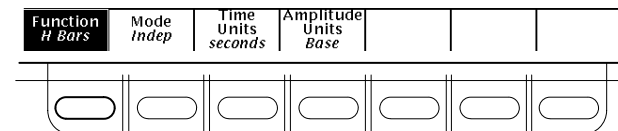


To Take Measurements With Cursors:

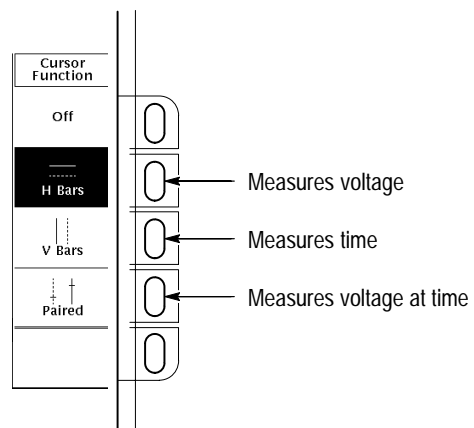
1 Press **CURSOR**.



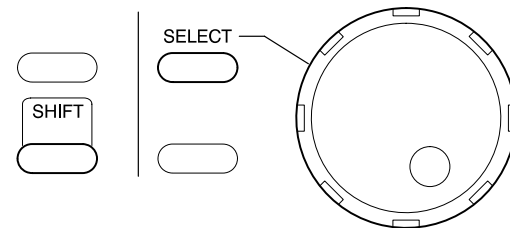
2 Press **Function** in the main menu.



3 Select from the side menu.



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



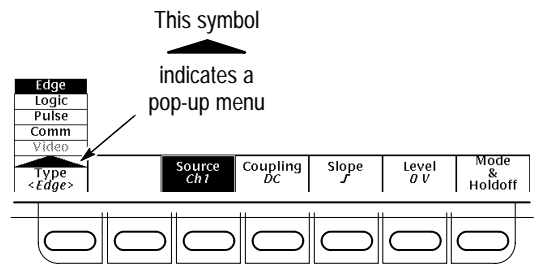
		TYPE <Pulse>					TYPE <Video> (Optional)	TYPE <Comm> (Optional)					
		CLASS <Glitch>	CLASS <Runt>	CLASS <Width>	CLASS <Slew Rate>	CLASS <Time Out>							
Source	Select any one of Ch 1 thru Ch 4	Source	Select any one of Ch 1 thru Ch 4	Source	Select any one of Ch 1 thru Ch 4	Source	Select any one of Ch 1 thru Ch 4	Source	Select any one of Ch 1 thru Ch 4				
Polarity & Width	Positive	Polarity	Positive	Polarity	Positive	Polarity	Positive	Polarity	Stays High	Sync Polarity	Negative Sync	Code	AMI
	Negative		Negative		Negative		Negative		Stays Low		Positive Sync		CMI
	Either		Either		Either		Either		Either				NRZ
	Width												
Level	Level	Thresholds	Runt Upper	Level	Level	Thresholds	High	Level	Level	Field/Line	Set video field and line number	Level/Threshold	Level
			Runt Lower				Low				High		Low
Glitch (Filter)	OFF Accept Glitch	Trigger When	Select trigger when any runt occurs or ...	Trigger When	Within Limits	Trigger When	Faster	Time	Select and set the Timeout Time	Standard	NTSC	Standard	DS<x>
	ON Reject Glitch		Select triggering when a runt wider than specified occurs ²		Out of Limits		Slower		Delta Time		Select faster than or slower than and set delta time		PAL
					Set Lower and Upper Limits		The oscilloscope computes the slew rate readout from the delta time and thresholds settings			HDTV	STM<x>		FDDI
										FlexFmt	4:2:2		4fsc NTSC
											<x>Base-T		Gigabit Ethernet
													Custom

To Select a Trigger:

1 Press TRIGGER MENU.



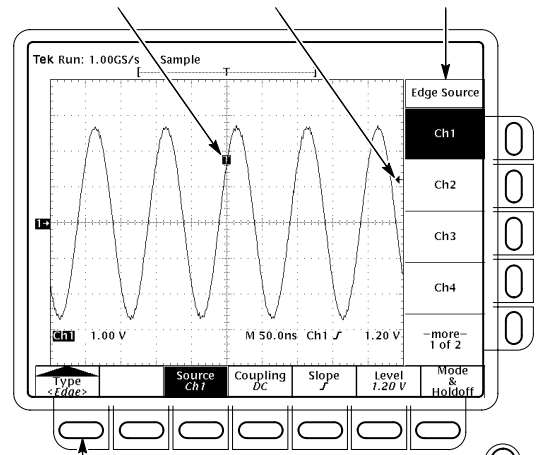
2 Select a trigger type or parameter from the main menu.



3 Set TRIGGER MAIN LEVEL.



"T" shows the trigger position
Arrow shows the trigger level
Title of the side menu



Press to display the pop-up menus
Press again to make a selection
A pop-up selection changes the other main menu items

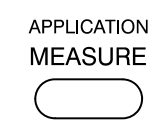


Trigger Selections (On some models, Ax 1 & Ax 2 replace Ch 3 & Ch 4)

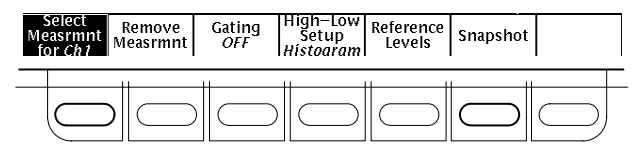
TYPE <Edge>	TYPE <Logic>		
	CLASS <Pattern>	CLASS <State>	CLASS <Setup/Hold>
Source Select any one of Ch 1 thru Ch 4, Line, or DC Aux	Define Inputs Define levels High, Low, or Don't Care for Ch 1 thru Ch 4	Define Inputs Define levels High, Low, or Don't Care for Ch 1 thru Ch 3 Select edge for the clock (always Ch 4)	Data Source Select one of Ch 1 thru Ch 4 as the data source Do not select the same channel used as the clock source
Slope Positive Negative	Define Logic AND OR NAND NOR	Define Logic AND OR NAND NOR	Clock Source Select one of Ch 1 thru Ch 4 as the clock source Select the clock edge Do not select the same channel used as the data source
Level Level	Set Thresholds Set a threshold level for each of Ch 1 thru Ch 4	Set Thresholds Set a threshold level for each of the pattern channels, Ch 1 thru Ch 3, and the clock, Ch 4.	Levels Clock Data Set levels or select preset levels based on TTL or ECL logic
Coupling DC DC AC 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	Setup/Hold Times Select and set the Setup Time Select and set the Hold Time
			¹ Qualification by time

To Take Measurements Automatically:

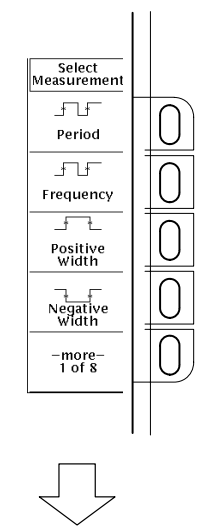
1 Press MEASURE.



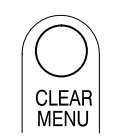
2 Press Select Measrmt or Snapshot in the main menu.



3 Select up to four measurements.



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

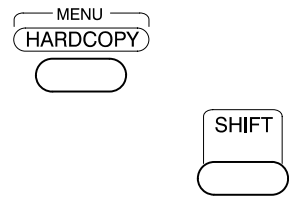


Automated Measurement Selections

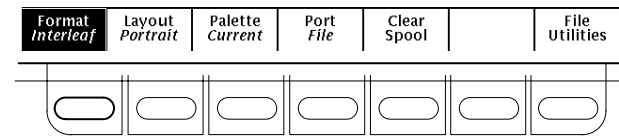
Select Measurement							
							Extinction Ratio
Period	Rise Time	Delay	High	Pk-Pk	Mean	Area	
							Extinction % (FDDI)
Frequency	Fall Time	Phase	Low	Amplitude	Cycle Mean	Cycle Area	
							Extinction dB (SONET)
Positive Width	Positive Duty Cycle	Burst Width	Max	Positive Overshoot	RMS		
							Mean dBm (Average Optical Power)
Negative Width	Negative Duty Cycle		Min	Negative Overshoot	Cycle RMS		
—more— 1 of 8	—more— 2 of 8	—more— 3 of 8	—more— 4 of 8	—more— 5 of 8	—more— 6 of 8	—more— 7 of 8	—more— 8 of 8

To Save a Hardcopy to the File System:

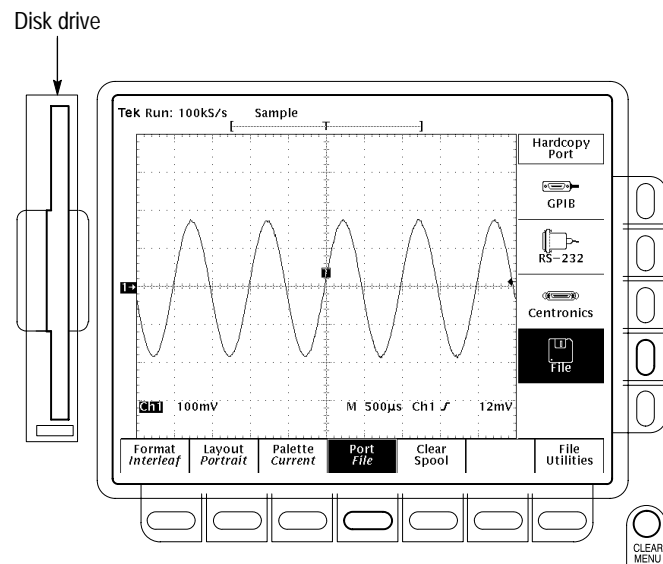
1 Press **SHIFT**, and then press **HARDCOPY**.



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.

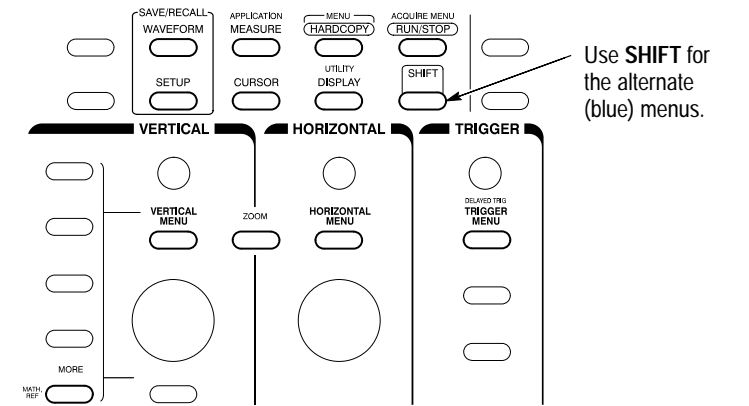


To Perform Other File System Operations:

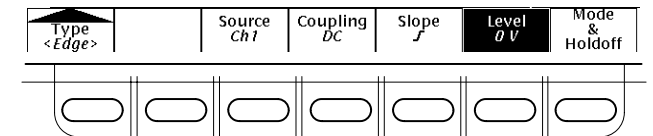
- Press **SAVE/RECALL WAVEFORM**, and use the menu buttons to save a waveform to a file or recall it from a file.
- Press **SAVE/RECALL SETUP**, and use the menu buttons to save a setup to a file or recall it from a file.
- Press **File Utilities** in the Save/Recall Waveform, Save/Recall Setup, or Hardcopy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

To Set Up Using a Menu:

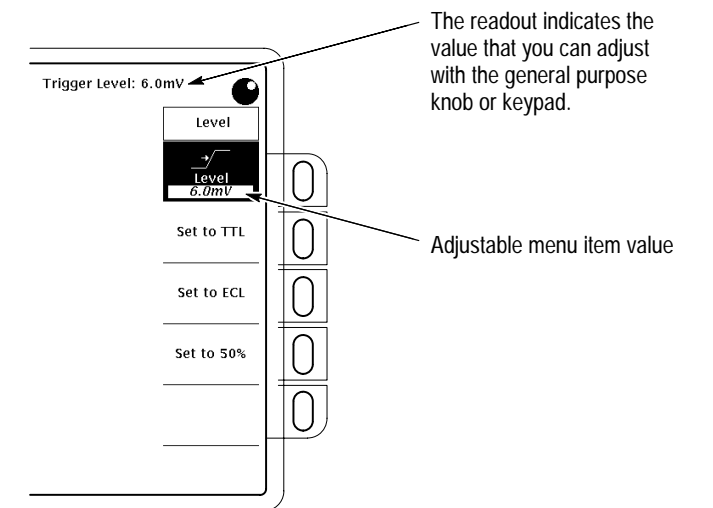
1 Press any of the front panel menu buttons.



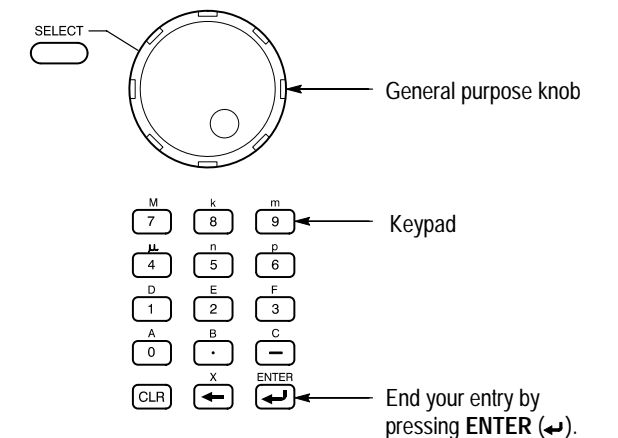
2 Select an item from the main (bottom) menu.



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

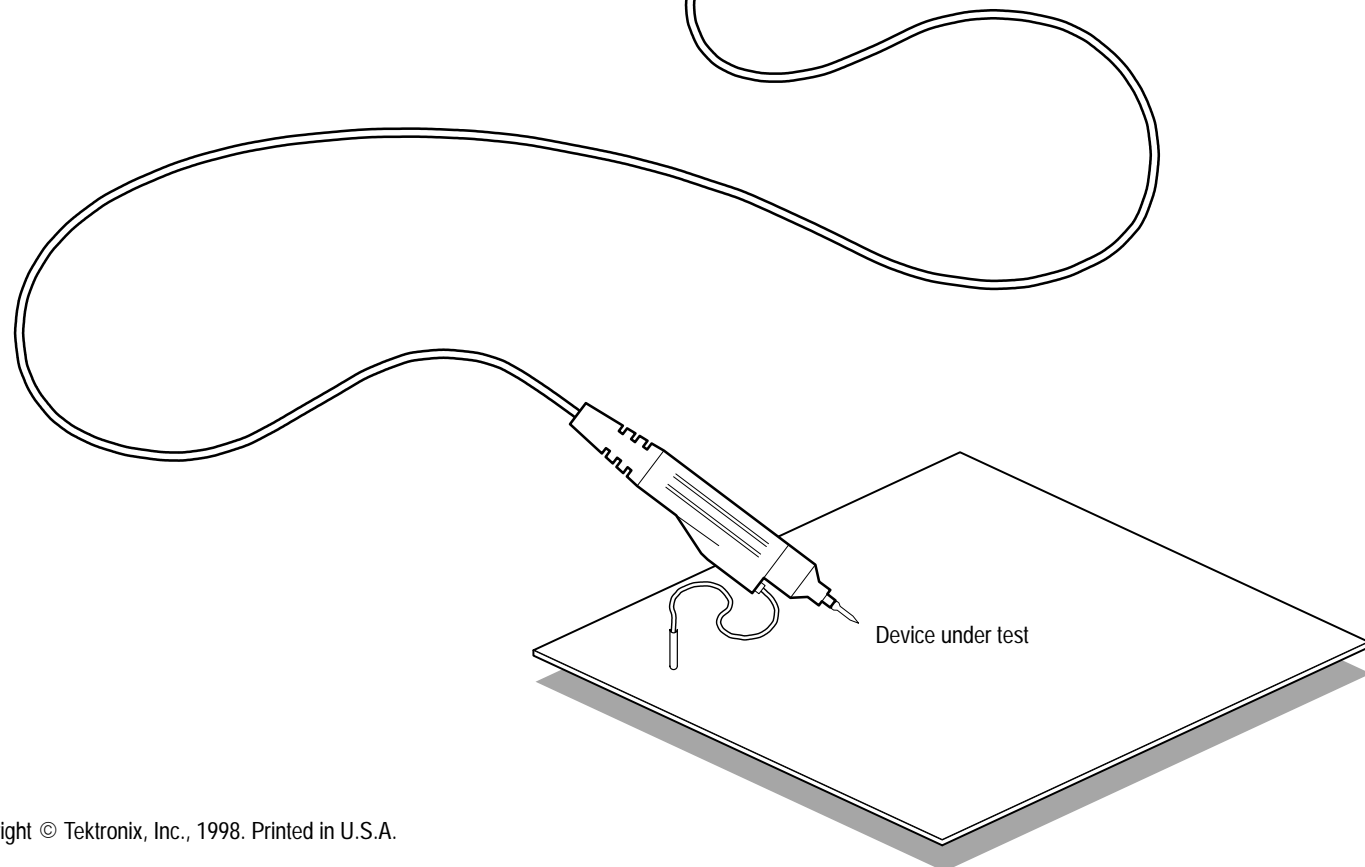
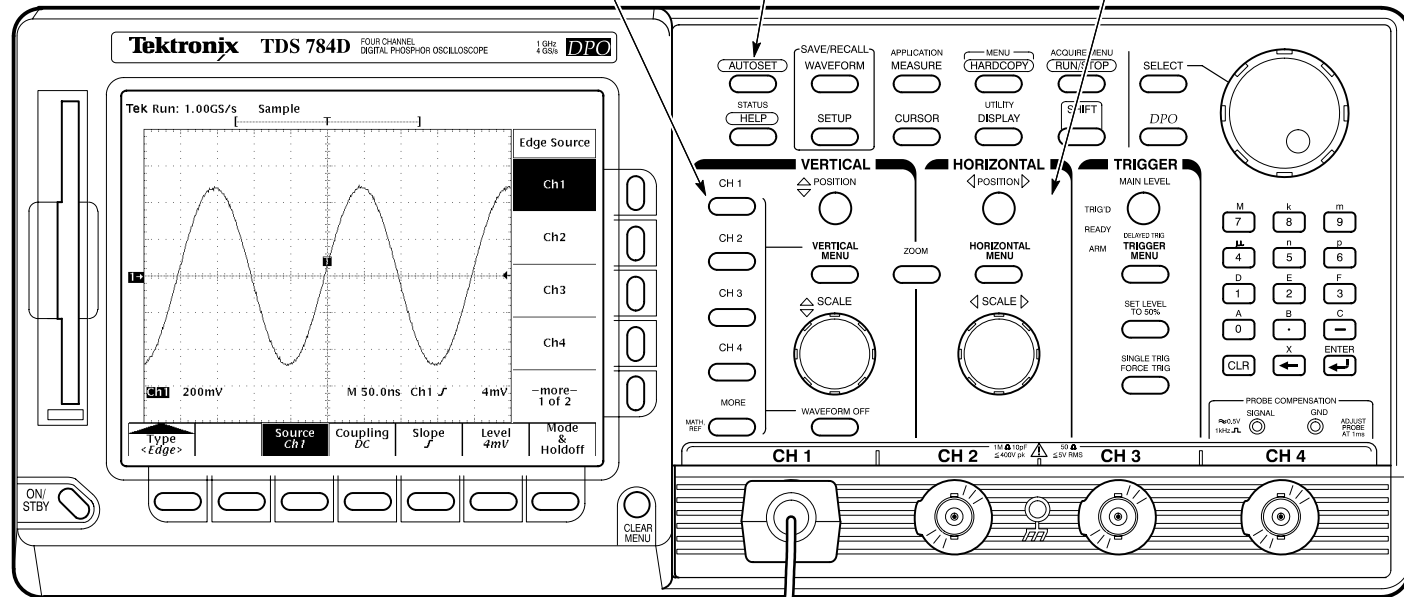


4 Adjust menu item values using the general purpose knob or by entering numbers on the keypad.



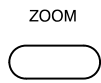
To Display a Waveform:

- 1 Attach a probe to CH 1 and hook the probe to your signal.
- 2 Press CH 1.
- 3 Press AUTOSET.
- 4 Adjust VERTICAL and HORIZONTAL POSITION and SCALE.



To Preview a Waveform:

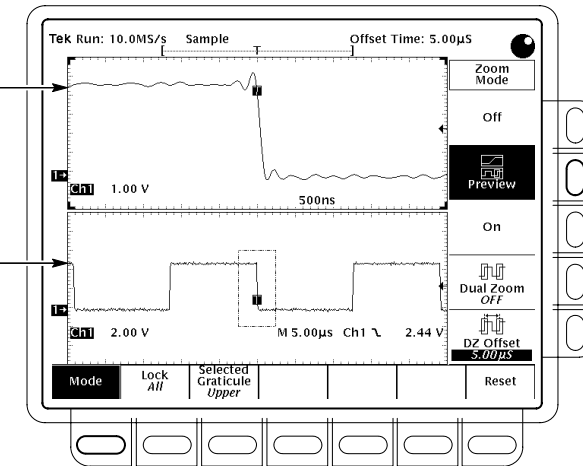
- 1 Press ZOOM.



- 2 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.



- 3 Use the Selected Graticule menu to select the upper or lower waveform. Use the vertical and horizontal knobs to adjust the waveform in the graticule you select.

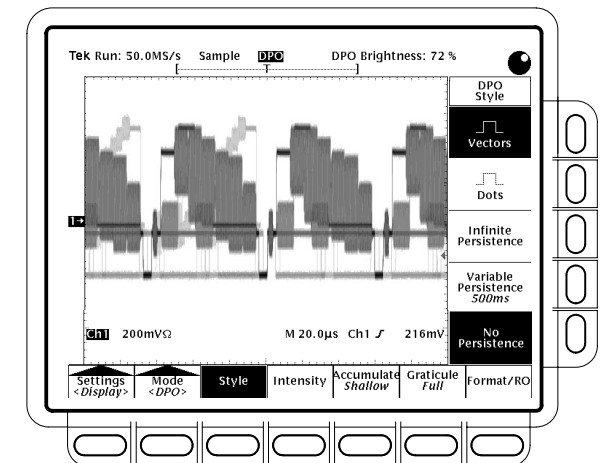
To Capture Infrequent Events (TDS 500D & 700D Models):

Press DPO to toggle between DPO and Normal waveform capture rates.



When in DPO mode:

- Waveforms displayed are updated thousands of times faster than normal.
- Very brief changes in waveforms are captured.
- Certain features, such as Limit Testing, Math Waveforms, Zoom, and record lengths longer than 500 points, are not available.





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