Reference

TDS 684A, TDS 744A & TDS 784A
Digitizing Oscilloscopes

070-8999-02

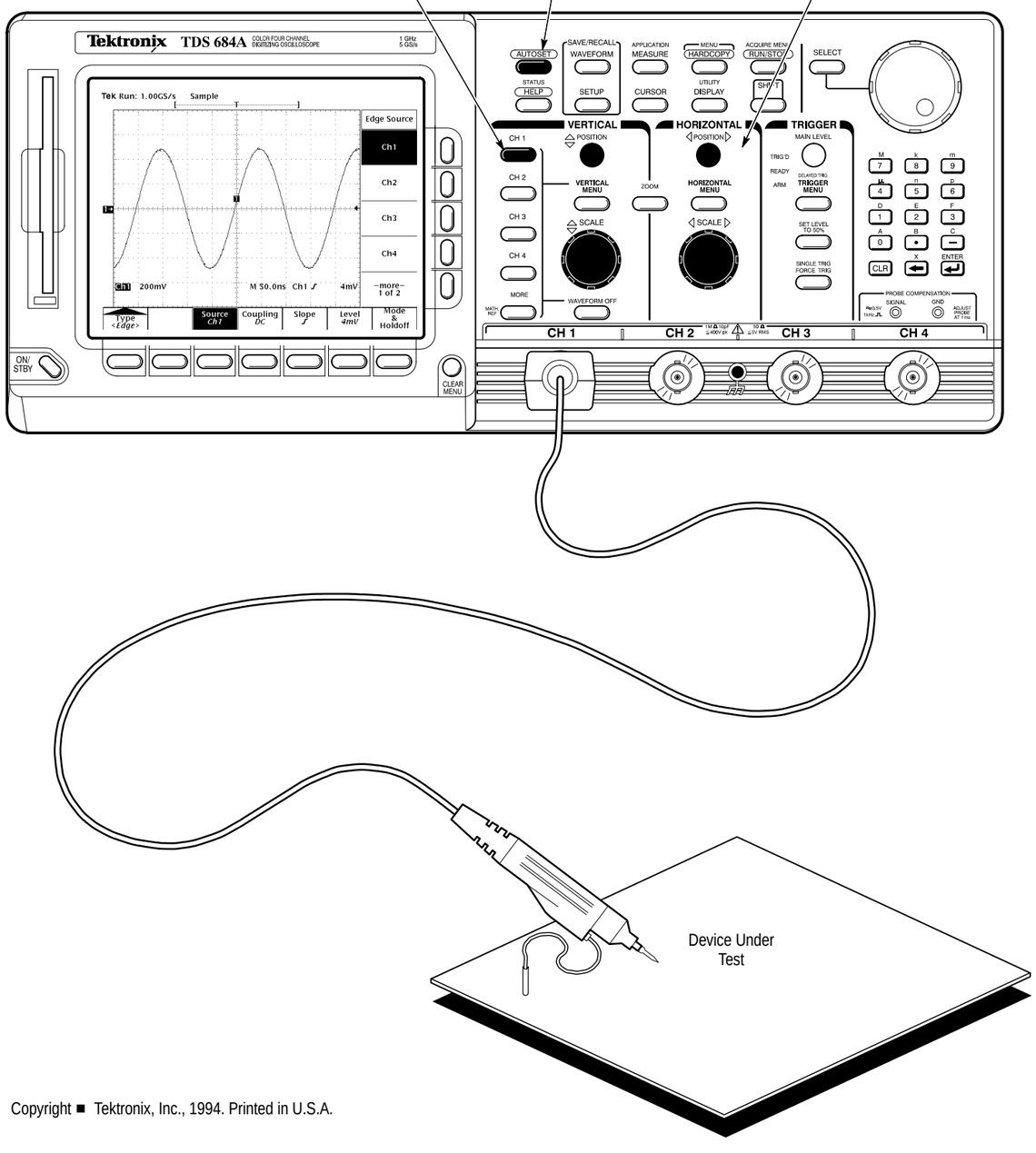
To Display a Waveform:

1 Attach a probe to **CH 1** and hook it up to your signal.

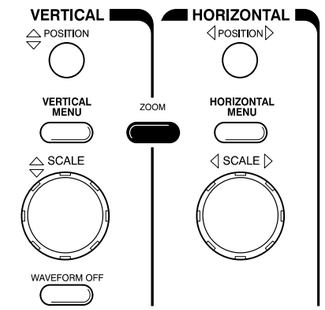
2 Press **CH 1** button.

3 Press **AUTOSET.**

4 Adjust **VERTICAL** and **HORIZONTAL POSITION** and **SCALE** as desired.



To Preview a Waveform (TDS 700A Models):

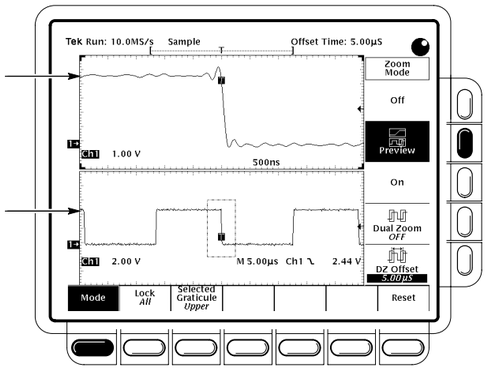


1 Press the **ZOOM** button.

2 Press **Mode** in the main menu. Then press **Preview** in the side menu to turn on Dual Window Zoom.

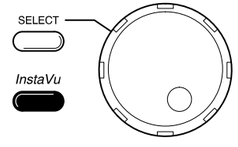
Upper graticule zooms the boxed area on the selected waveform.

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.

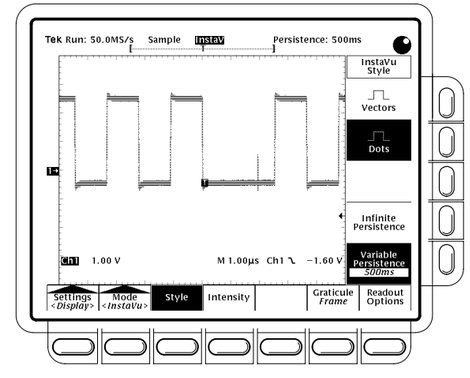
To Capture Infrequent Events (TDS 700A Models):



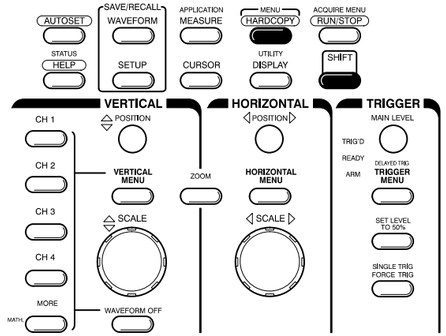
Press the **InstaVu** button to toggle between **InstaVu** and **Normal** waveform capture rates.

When in **InstaVu** mode:

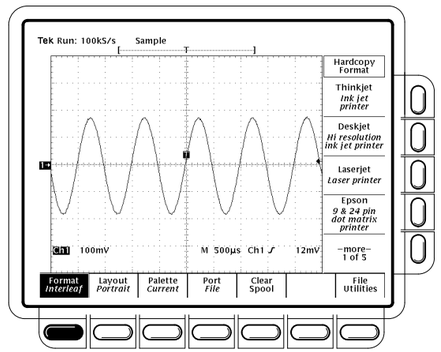
- Waveforms displayed are updated thousands of times faster than normal.
- Very brief changes in waveforms are captured.
- Certain features, such as Limit Testing, Math Waveforms, Zoom, and record lengths longer than 500 points, are not available.



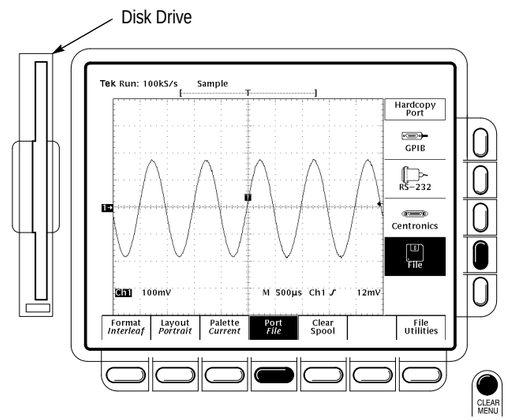
To Save a Hardcopy to the File System:



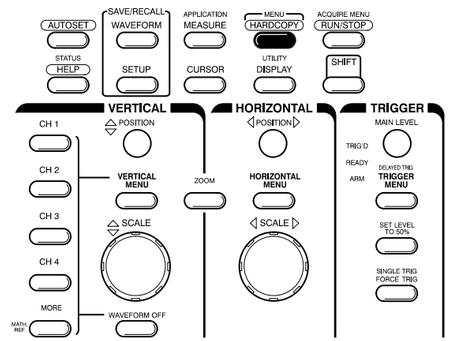
1 Press **SHIFT**, and then press **HARDCOPY**.



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**.



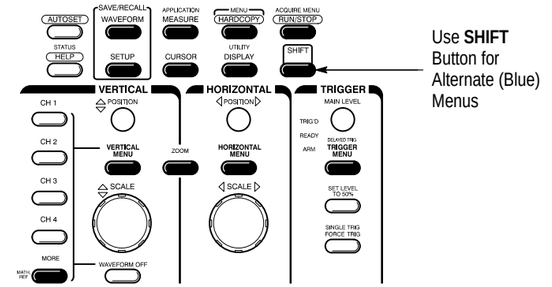
4 Press **HARDCOPY** anytime to save a copy of the current screen to a unique file in the oscilloscope file system.

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.

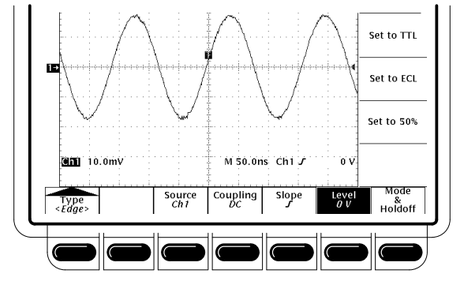
To Set Up Using a Menu:

1 Press any of the front panel menu buttons.

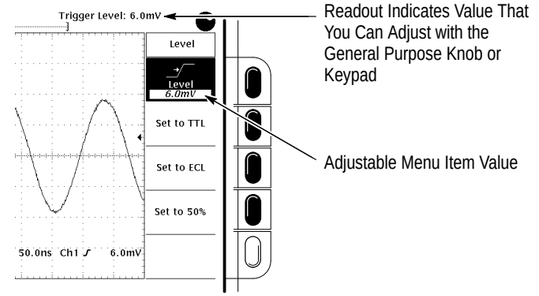


Use **SHIFT** Button for Alternate (Blue) Menus

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



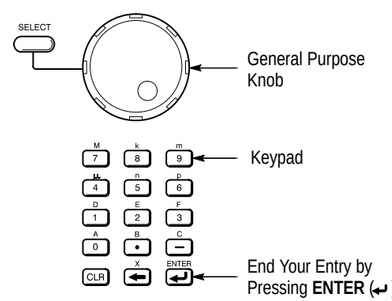
3 Select an item from the side menu, if displayed.



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

Adjustable Menu Item Value

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

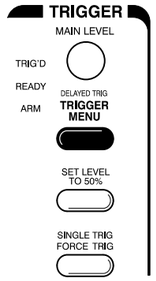


General Purpose Knob

Keypad

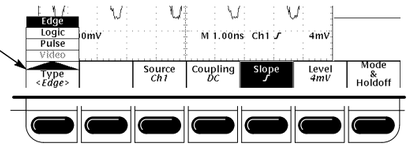
End Your Entry by Pressing **ENTER** (↵)

To Select a Trigger:

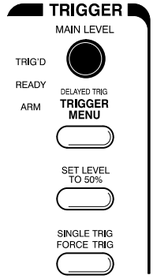


1 Press **TRIGGER MENU** button.

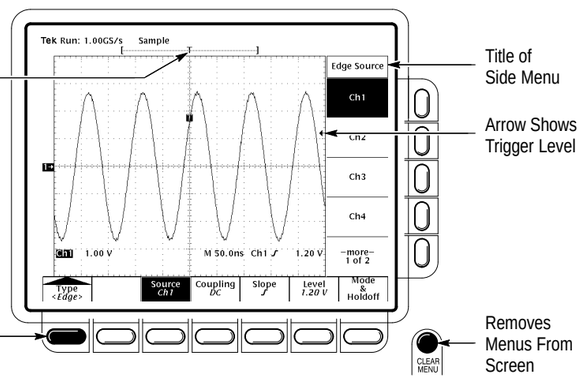
This Symbol Indicates Pop-Up Menu



2 Select trigger type or parameter from main menu.



3 Set **TRIGGER MAIN LEVEL**.



"T" Shows Trigger Position

Title of Side Menu

Arrow Shows Trigger Level

Press to Display Pop-Up Menus

Press Again to Make Selection

A Pop-Up Selection Changes the Other Main Menu Items

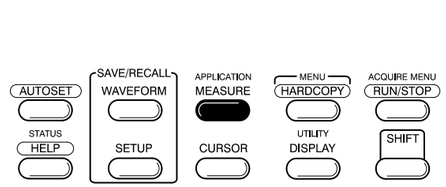
Removes Menus From Screen

Trigger Selections

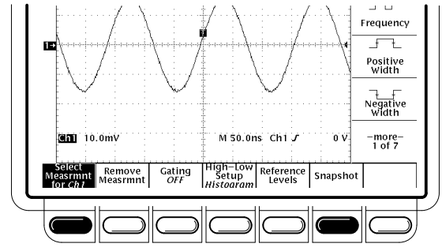
	TYPE <Edge>		**CLASS <Pattern>**
Source	Select any one of Ch 1 thru Ch 4, Line, or DC Aux	**Define Inputs**	Define levels High, Low, or Don't Care for Ch 1 thru Ch 4
Slope	Positive ƒ Negative ƒ	**Define Logic**	AND OR NAND NOR
Level	Level	**Set Thresholds**	Set a threshold level for each of Ch 1 thru Ch 4
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]

[1]Qualification by time

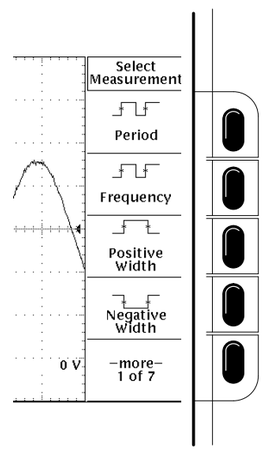
To Take Measurements Automatically:



1 Press **MEASURE** button.



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



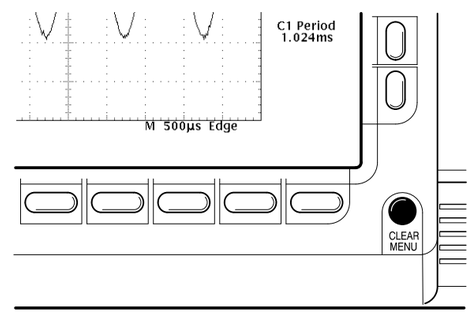
3 Select up to four measurements.

Automated Measurement Selections

Select Measurement

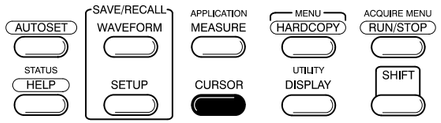
Period	Rise Time	Delay	High	Pk–Pk	Mean	Area
Frequency	Fall Time	Phase	Low	Amplitude	Cycle Mean	Cycle Area
Positive Width	Positive Duty Cycle	Burst Width	Max	Positive Overshoot	RMS	
Negative Width	Negative Duty Cycle		Min	Negative Overshoot	Cycle RMS	
—more— 1 of 7	—more— 2 of 7	—more— 3 of 7	—more— 4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

To 1 of 7

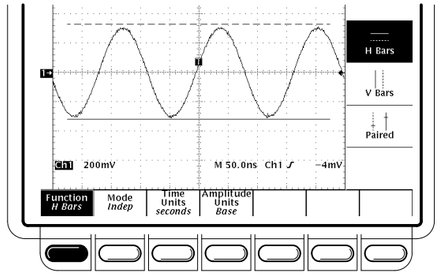


4 Press **CLEAR MENU** button to move measurement readouts away from graticule.

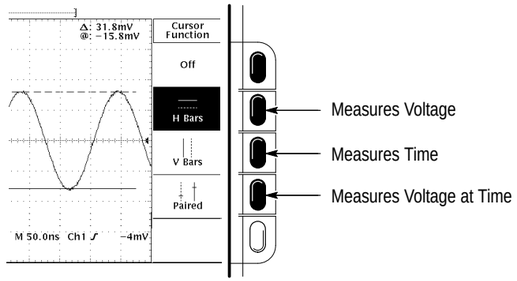
To Take Measurements With Cursors:



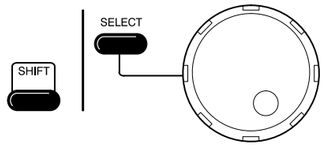
1 Press **CURSOR** button.



2 Press **Function** in main menu.



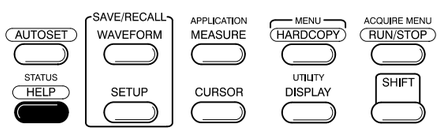
3 Select from side menu.



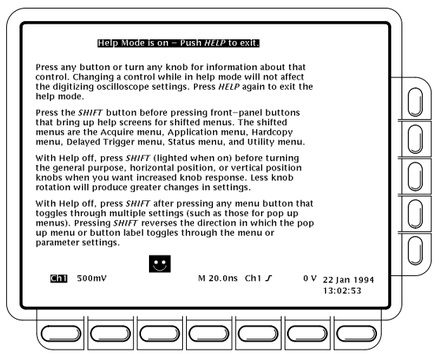
Move cursor with general purpose knob.
Press **SELECT** to switch between cursors.
Press **SHIFT** to speed up/slow down cursor movement.

4

To Display Help On Screen:



1 Press **HELP** button.

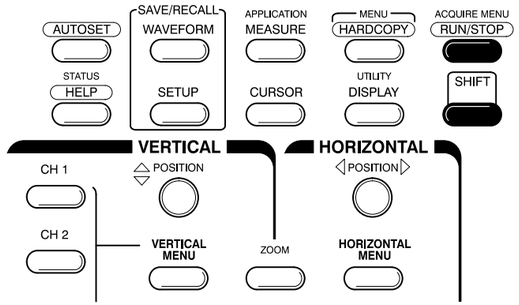


2 Now turn any knob or press any button and read a description of it on the display. Press **HELP** button again to exit help.

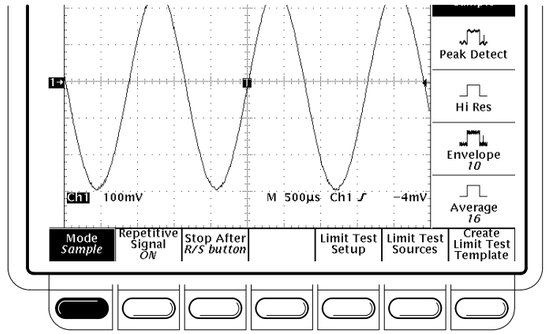
TYPE <Logic>				TYPE <Pulse>								TYPE <Video> (Optional)	
CLASS <State>		CLASS <Setup/Hold>		CLASS <Glitch>		CLASS <Runt>		CLASS <Width>		CLASS <Slew Rate>			
Define Inputs	Define levels High, Low, or Don't Care for Ch 1 thru Ch 3 Select edge for the clock (always Ch 4)	Data Source	Select one of Ch 1 thru Ch 4 as the data source Do not select the same channel used as the clock source	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
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	Polarity & Width	Positive Negative Either Width	Polarity	Positive Negative Either	Polarity	Positive Negative	Polarity	Positive Negative Either	Sync Polarity	Negative Sync Positive Sync
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	Level	Level	Thresholds	Runt Upper Runt Lower Set levels or select preset levels based on TTL or ECL logic	Level	Level	Thresholds	High Low Set levels or select preset levels based on TTL or ECL logic	Field/Line	Set video field and line number
Trigger When	Goes TRUE Goes FALSE	Setup/Hold Times	Select and set the Setup Time Select and set the Hold Time	Glitch (Filter)	OFF Accept Glitch ON Reject Glitch	Trigger When	Select trigger when any runt occurs or ... Select triggering when a runt wider than specified occurs[2]	Trigger When	Within Limits Out of Limits Set Lower and Upper Limits	Trigger When	Faster Slower Delta Time Select faster than or slower than and set delta time The oscilloscope computes the slew rate readout from the delta time and thresholds settings	Standard	NTSC PAL HDTV FlexFmt

[2]Qualification by width

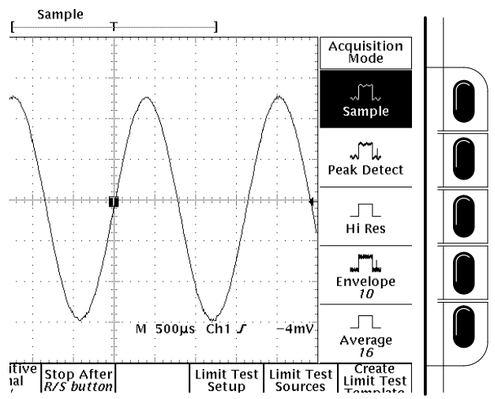
To Choose an Acquisition Mode:



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

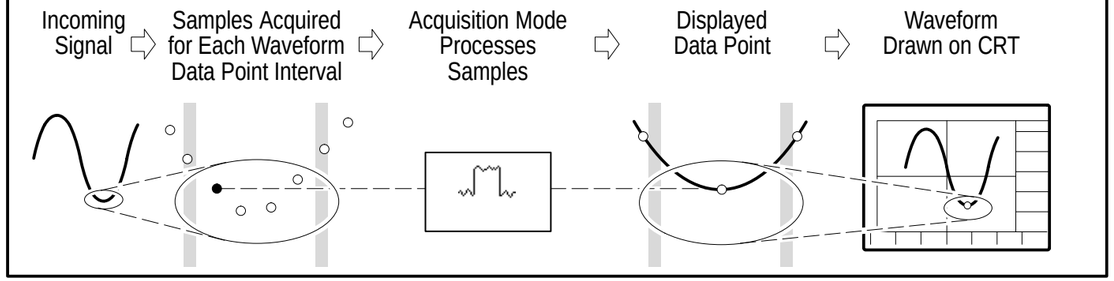


2 Press **Mode** in main menu.

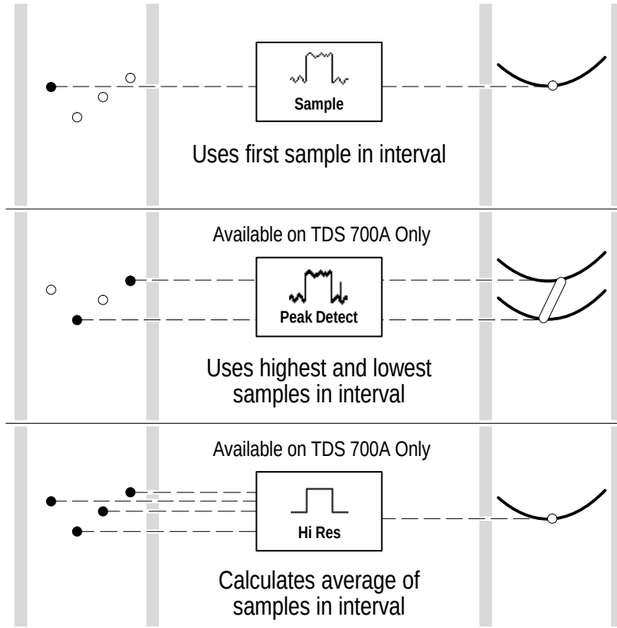


3 From side menu, select an acquisition mode that will serve your application.

How the Acquisition Modes Work:



Single Waveform Acquisition



Multiple Waveform Acquisitions