

Horizontal Command Group

Horizontal Overview

Horizontal commands control the time bases of the instrument. You can set the time per division (or time per point) of the main time base. You can use the Horizontal commands to do the following:

- Set the scale, horizontal position and reference, and units of the time base
- Get the screen resolution, time of first point and time of last point, or get all the horizontal settings
- Enable or disable the display of the time base

You may substitute SECdiv for SCALE in the horizontal commands. This provides program compatibility with earlier models of Tektronix oscilloscopes.

Horizontal Fastframe (also known as memory segmentation) commands are designed for situations where you want to capture a series of triggered acquisitions with minimal dead time between them. You can use the Horizontal Fastframe commands to do the following:

- Maintain Fastframe acquisitions with time stamp information for channel-based waveforms (in Sample, Peak Defect, and Hi Res modes)
- Display a list of time stamp and basic delta information on a Fastframe waveform, or Fastframe waveforms within a single frame (in either YT or XY format)
- Zoom Fastframe waveforms within a single frame

Horizontal Commands

Command	Description
HORizontal?	Returns all learnable settings for the horizontal commands
HORizontal:DIVisions?	Returns the number of graticule divisions over which the waveform is displayed
HORizontal:FASTframe:COUNT?	Returns FastFrame frame count
HORizontal:FASTframe:COUNT	Sets FastFrame frame count
HORizontal:FASTframe:LENGTH?	Returns the horizontal record length per frame
HORizontal:FASTframe:LENGTH	Sets the horizontal record length to the number of sample points per frame
HORizontal:FASTframe:REF:FRAME?	Returns the FastFrame reference frame number
HORizontal:FASTframe:REF:FRAME	Sets the FastFrame reference frame number
HORizontal:FASTframe:REF:Source?	Returns the FastFrame Reference waveform source
HORizontal:FASTframe:REF:Source	Sets the FastFrame Reference waveform source
HORizontal:FASTframe:SELECTED:<wfm>?	Returns the FastFrame Selected frame number on the specified waveform
HORizontal:FASTframe:SELECTED:<wfm>	Sets the FastFrame Selected frame number on the specified waveform
HORizontal:FASTframe:STATE?	Returns the state of the FastFrame acquisition
HORizontal:FASTframe:STATE	Sets the state of the FastFrame acquisition
HORizontal:FASTframe:TIMESTAMP:All:<wfm>?	Returns the frame number and time stamp for each frame between requested frames within the specified waveform
HORizontal:FASTframe:TIMESTAMP:BETWEEN:<wfm>?	Returns the relative trigger for the delta time between the specified frames
HORizontal:FASTframe:TIMESTAMP:DELTA:<wfm>?	Returns the relative time between the triggers of the FastFrame Selected and the FastFrame Reference, within the specified waveform
HORizontal:FASTframe:TIMESTAMP:FRAME:<wfm>?	Returns the absolute trigger date and time for the specified frame and waveform.
HORizontal:FASTframe:TIMESTAMP:REF?	Returns the absolute trigger date and time for FastFrame reference
HORizontal:FASTframe:TIMESTAMP:SELECTED:<wfm>?	Returns the absolute trigger date and time for FastFrame Selected,

	within the specified waveform
HORizontal:FASTframe:TRACk?	Returns the state of the FastFrame tracking feature
HORizontal:FASTframe:TRACk	Sets the FastFrame tracking feature
HORizontal:MAIn?	Returns the time per division of the main time base
HORizontal[:MAIn]:DELay:POSition?	Returns the main time base position when Horizontal Delay Mode is turned off
HORizontal[:MAIn]:DELay:POSition	Sets the main time base position when Horizontal Delay Mode is turned off
HORizontal[:MAIn]:DELay:MODE?	Returns the main time base trigger delay mode
HORizontal[:MAIn]:DELay:MODE	Sets the main time base trigger delay mode
HORizontal[:MAIn]:DELay:TIME?	Returns the main time base trigger delay time
HORizontal[:MAIn]:DELay:TIME	Sets the main time base trigger delay time
HORizontal[:MAIn]:POSition?	Returns the waveform horizontal position on the display
HORizontal[:MAIn]:POSition	Sets the waveform horizontal position on the display
HORizontal:MAIn:SAMPLERate?	Returns the current horizontal sample rate
HORizontal:MAIn:SAMPLERate	Sets the horizontal sample rate to the desired number of samples per second
HORizontal[:MAIn]:SCALE?	Returns the main time base horizontal scale
HORizontal[:MAIn]:SCALE	Sets time per division for the main time base
HORizontal:MAIn:UNIts?	Returns the units for the horizontal main time base
HORizontal:MAIn:UNIts	Sets the units for the horizontal main time base
HORizontal:MAIn:UNIts:OFFSet?	Returns the offset units for the horizontal main time base trigger delay
HORizontal:MAIn:UNIts:OFFSet	Sets the offset units for the horizontal main time base trigger delay
HORizontal:MAIn:UNIts:STRing?	Returns the units string for the horizontal main time base trigger delay
HORizontal:MAIn:UNIts:STRing	Sets the units string for the horizontal main time base trigger delay
HORizontal:MAIn:UNIts:VALue?	Returns the unit value for the horizontal main time base trigger

	delay
HORizontal:MAIn:UNIts:VALue	Sets the unit value for the horizontal main time base trigger delay
HORizontal:POSition?	Returns the waveform's horizontal position on the display
HORizontal:POSition	Positions the waveform horizontally on the display
HORizontal:RECOrdlength?	Returns the current horizontal record length
HORizontal:RECOrdlength	Sets the horizontal record length to the number of data points in each frame
HORizontal:RESOlution?	Returns the current horizontal recordlength
HORizontal:RESOlution	Sets the horizontal record length to the number of data points in each frame and simultaneously adjusts the sample rate to maintain a constant time/division
HORizontal:ROLL?	Returns the horizontal roll mode status
HORizontal:ROLL	Sets the horizontal roll mode
HORizontal:SCAl?	Returns the time per division for the main time base
HORizontal:SCAl	Sets the time per division for the main time base
HORizontal:TRIGger:POSition?	Returns the position of the horizontal trigger
HORizontal:TRIGger:POSition	Sets the position of the horizontal trigger

HORizontal?

Description

This query-only command returns all learnable settings for the horizontal commands.

Group

HORizontal

Syntax

HORizontal?

Example

HORizontal?

This query might return :HORIZONTAL:DELAY:MODE 1
;POSITION 5.0000E+01;TIME 0.0000E+00;
:HORIZONTAL:MAIN:SCALE 2.0000E-07;POSITION 5.0000E+01
;UNITS:VALUE 1.0000E+00;STRING "s";OFFSET 0.0000E+00;
:HORIZONTAL:RECORDLENGTH 5000;ROLL AUTO;FASTFRAME:STATE 0
;LENGTH 5000;COUNT 2;SELECTED:CH1 2;CH2 2;CH3 2;CH4 2
;MATH1 2;MATH2 2;MATH3 2;MATH4 2;REF1 2;REF2 2;REF3 2
;REF4 2;:HORIZONTAL:FASTFRAME:REF:SOURCE CH1;FRAME 1;
:HORIZONTAL:FASTFRAME:TRACK LIVE

HORizontal:DIVisions?

Description

This query-only command returns the number of graticule divisions over which the waveform is displayed.

Group

Horizontal

Syntax

`HORizontal:DIVisions?`

Arguments

None.

Example

`HORizontal:DIVisions?`

This query might return `:HORIZONTAL:DIVISIONS 1.0000E-01`, indicating that the waveform is displayed across one division.

HORizontal:FASTframe:COUNT

Description

This command sets or queries FastFrame frame count. This is equivalent to selecting FastFrame Setup from the Horiz/Acq menu and entering a value in the Frame Count box. FastFrame, also known as memory segmentation, captures a series of triggered acquisitions with minimal intervening time. This command is equivalent to selecting Fast Frame Setup from the Horiz/Acq menu and entering a value in the Frame Count box.

Group

Horizontal

Related Commands

HORizontal:RECOrdlength (see page 192)

Syntax 1

HORizontal:FASTframe:COUNT <NR1>

Syntax 2

HORizontal:FASTframe:COUNT?

Arguments

- <NR1>

This indicates the number of frames to acquire.

Example 1

HORizontal:FASTframe:COUNT 2

This command sets up FastFrame mode to acquire two frames (segments) of data.

Example 2

HORizontal:FASTframe:COUNT?

This query might return :HORIZONTAL:FASTFRAME:COUNT 4, indicating that FastFrame mode is currently set to acquire 4 frames (segments) of data.

HORizontal:FASTframe:REF:FRAME

Description

This command sets or queries the FastFrame reference frame number. The Reference Frame number is used to calculate time differences for each frame and displays those differences in the graticule. This command is equivalent to selecting FastFrame Setup in the Horiz/Acq menu and entering a value in the Time Stamps/Frame box.

Group

Horizontal

Related Commands

HORizontal:FASTframe:REF:SOURce (see page 170),

HORizontal:FASTframe:TIMEstamp:DELTA:<wfm>? (see page 175),

HORizontal:FASTframe:TIMEstamp:REF? (see page 177), HORizontal:FASTframe:TRACk (see page 179)

Syntax 1

HORizontal:FASTframe:REF:FRAME <NR1>

Syntax 2

HORizontal:FASTframe:REF:FRAME?

Argument

- <NR1>

This specifies the FastFrame reference frame.

Example 1

HORizontal:FASTframe:REF:FRAME 2

This command sets the FastFrame reference frame to 2.

Example 2

HORizontal:FASTframe:REF:FRAME?

This query might return :HORIZONTAL:FASTFRAME:REF:FRAME 3, indicating that the FastFrame reference frame is currently set to 3.

HORizontal:FASTframe:LENgth

Description

This command sets or queries the horizontal record length to the number of sample points in each frame. This command is equivalent to selecting FastFrame Setup from the Horiz/Acq menu and entering a value in the Rec Length box. FastFrame, also known as memory segmentation, captures a series of triggered acquisitions with minimal intervening time between them.

Group

Horizontal

Syntax 1

`HORizontal:FASTframe:LENgth <NR1>`

Syntax 2

`HORizontal:FASTframe:LENgth?`

Argument

- `<NR1>`

This represents the supported values for horizontal record lengths, which can range from 500 through 400000. For more information about valid data point ranges, select Specifications from the Help menu and choose the Horizontal & Acquisition tab.

Example 1

`HORizontal:FASTframe:LENgth 5000`

This command sets the horizontal record length to 5000 sample points in each frame.

Example 2

`HORizontal:FASTframe:LENgth?`

This query might return `:HORIZONTAL:FASTFRAME:LENGTH 25000`, indicating that the FastFrame record length is set to 25000 sample points in each frame.

HORizontal:FASTframe:REF:SOURce

Description

This command sets or queries FastFrame Reference waveform source. This is equivalent to selecting FastFrame Setup from the Horiz/Acq menu and choosing the reference source.

Group

Horizontal

Related Commands

HORizontal:FASTframe:REF:FRame (see page 168),

HORizontal:FASTframe:TIMEstamp:DELTA:<wfm>? (see page 175),

HORizontal:FASTframe:TIMEstamp:REF? (see page 177), HORizontal:FASTframe:TRACk (see page 179)

Syntax 1

`HORizontal:FASTframe:REF:SOURce <wfm>`

Syntax 2

`HORizontal:FASTframe:REF:SOURce?`

Argument

- <wfm>

This specifies the FastFrame Reference waveform source. Valid waveforms include CH<x>, MATH<x>, and REF<x>; the x variable can be expressed as an integer ranging from 1 through 4.

Example 1

`HORizontal:FASTframe:REF:SOURce CH2`

This command sets the horizontal FastFrame waveform reference source to CH2.

Example 2

`HORizontal:FASTframe:REF:SOURce?`

This query might return `:HORIZONTAL:FASTFRAME:REF:SOURCE CH2`, indicating that the FastFrame waveform source is currently set to CH2.

HORizontal:FASTframe:SELECTED:<wfm>

Description

This command sets or returns the FastFrame Selected frame number on the specified waveform. This is equivalent to selecting FastFrame Setup from the Horiz/Acq menu and then choosing the waveform source and frame. Valid waveforms include CH<x>, MATH<x> and REF<x>; the x variable can be expressed as an integer ranging from 1 through 4.

Group

Horizontal

Related Commands

HORizontal:FASTframe:TRACk (see page 179), HORizontal:FASTframe:TIMEstamp:DELTA:<wfm>? (see page 175), HORizontal:FASTframe:TIMEstamp:REF? (see page 177)

Syntax 1

HORizontal:FASTframe:SELECTED:<wfm> <NR1>

Syntax 2

HORizontal:FASTframe:SELECTED?

Argument

- <NR1>

This specifies the selected frame number on the specified waveform.

Example 1

HORizontal:FASTframe:SELECTED:CH2 33

This command sets the FastFrame Selected frame number on channel 2 to 33.

Example 2

HORizontal:FASTframe:SELECTED:CH4?

This query might return :HORIZONTAL:FASTFRAME:SELECTED:CH4 25, indicating that the FastFrame frame number on channel 4 is set to 25.

Example 3

HORizontal:FASTframe:SELECTED?

This query might return :HORIZONTAL:FASTFRAME:SELECTED:CH1 2; CH2 2; CH3 2; CH4 2; MATH1 2; MATH2 2; MATH3 2; MATH4 2; REF1 8; REF2 8; REF3 8; REF4 8, indicating all waveforms' Fastframe selected frame numbers.

HORizontal:FASTframe:STATE

Description

This command sets or returns the state of FastFrame acquisition. This is equivalent to setting FastFrame On in the FastFrame Setup menu. FastFrame, also known as memory segmentation, lets users capture a series of triggered acquisitions with minimal time between them.

The digitizing oscilloscope in FastFrame mode is ready to accept a continuous burst of triggers 400 ms after the controller sends the ACQUIRE:STATE RUN command.

Group

Horizontal

Related Commands

ACQUIRE:STATE RUN (see page 26)

Syntax 1

`HORizontal:FASTframe:STATE {ON|OFF|<NR1>}`

Syntax 2

`HORizontal:FASTframe:STATE?`

Arguments

- <ON>

This turns on horizontal FastFrame.

- <OFF>

This turns off horizontal FastFrame.

- <NR1>

A 0 turns off horizontal FastFrame; any other value turns on horizontal FastFrame.

Example 1

`HORizontal:FASTframe:STATE ON`

This command turns on horizontal FastFrame.

Example 2

`HORizontal:FASTframe:STATE?`

This query might return `:HORIZONTAL:FASTFRAME:STATE 0`, indicating that the current state of FastFrame is off.

HORizontal:FASTframe:TIMESamp:ALL:<wfm>?

Description

This query-only command returns the frame number and time stamp for each frame between requested frames, inclusive, within the specified waveform. Argument order is unimportant. Valid waveforms include CH<x>, MATH<x> and REF<x>; the x variable can be expressed as an integer ranging from 1 through 4.

Group

Horizontal

Syntax

`HORizontal:FASTframe:TIMESamp:ALL:<wfm>? <NRF>, <NRF>`

Arguments

- <NRF>

This specifies the selected "from" frame number within the specified waveform.

- <NRF>

This specifies the selected "to" frame number within the specified waveform.

Example

`HORizontal:FASTframe:TIMESamp:ALL:CH2 4,1?`

This query might return `:HORIZONTAL:FASTFRAME:TIMESTAMP:ALL:CH1 4,1,"02 Mar 2000 20:10:54.542 037 272 620"`, which is the list of time stamps from frame 1 through frame 4 on channel 1.

HORizontal:FASTframe:TIMEStamp:BETWeen:<wfm>?

Description

This query-only command returns the relative trigger for the delta time between the specified frames, within the specified waveform. Valid waveforms include CH<x>, MATH<x> and REF<x>; the x variable can be expressed as an integer ranging from 1 through 4.

Group

Horizontal

Syntax

`HORizontal:FASTframe:TIMEStamp:BETWeen:<wfm>? <NRF>, <NRF>`

Arguments

- <NRF>

This specifies the selected "from" frame number within the specified waveform.

- <NRF>

This specifies the selected "to" frame number within the specified waveform.

Example

`HORizontal:FASTframe:TIMEStamp:BETWeen:CH1? 5,2`

This query might return `:HORIZONTAL:FASTFRAME:TIMESTAMP:BETWEEN:CH1 5,2,"00:00:00.010 000 540 624"`, which is the delta of channel 1's Time Stamp frame 5 - Time Stamp frame 2 (TS[5]-TS[2]).

HORizontal:FASTframe:TIMEStamp:DELTa:<wfm>?

Description

This query-only command returns the relative time between the triggers of the FastFrame Selected and the FastFrame Reference, within the specified waveform. Valid waveforms include CH<x>, MATH<x> and REF<x>; the x variable can be expressed as an integer ranging from 1 through 4.

Group

Horizontal

Syntax

HORizontal:FASTframe:TIMEStamp:DELTa:<wfm>?

Example

HORizontal:FASTframe:TIMEStamp:DELTa:CH1?

This query might return :HORIZONTAL:FASTFRAME:TIMESTAMP:DELTA:CH1 "00:00:00.006 000 306 556", which is the delta time stamp of FastFrame Selected Frame on channel 1 - FastFrame Reference Frame (TS[C1 Selected]-TS[Reference]).

HORizontal:FASTframe:TIMESamp:FRAME:<wfm>?

Description

This query-only command returns the absolute trigger date and time for the specified frame and waveform. Valid waveforms include CH<x>, MATH<x> and REF<x>; the x variable can be expressed as an integer ranging from 1 through 4.

Group

Horizontal

Syntax

HORizontal:FASTframe:TIMESamp:FRAME:<wfm>? <NR1>

Argument

- <NR1>

The frame number for which the timestamp will be returned on the specified waveform.

Example

HORizontal:FASTframe:TIMESamp:FRAME:CH1? 10

This query might return :HORIZONTAL:FASTFRAME:TIMESTAMP:FRAME:CH1 10,"02 Mar 2000 20:10:54.536 036 928 432", which is the time stamp of channel 1, frame 10.

HORizontal:FASTframe:TIMEStamp:REF?

Description

This query-only command returns the absolute trigger date and time for FastFrame reference.

Group

Horizontal

Related Commands

HORizontal:FASTframe:REF:FRAMe (see page 168), HORizontal:FASTframe:REF:SOURce (see page 170)

Syntax

`HORizontal:FASTframe:TIMEStamp:REF?`

Example

`HORizontal:FASTframe:TIMEStamp:REF?`

This query might return `:HORIZONTAL:FASTFRAME:TIMESTAMP:REF "02 Mar 2000 20:10:54.533 036 838 784"`, which is the time stamp of FastFrame Reference.

HORizontal:FASTframe:TIMEStamp:SELECTED:<wfm>?

Description

This query-only command returns the absolute trigger date and time for the FastFrame Selected, within the specified waveform. Valid waveforms include CH<x>, MATH<x> and REF<x>; the x variable can be expressed as an integer ranging from 1 through 4.

Group

Horizontal

Related Commands

HORizontal:FASTframe:SELECTED:<wfm>? (see page 171)

Syntax

HORizontal:FASTframe:TIMEStamp:SELECTED:<wfm>?

Example

HORizontal:FASTframe:TIMEStamp:SELECTED:REF1?

This query might return :HORIZONTAL:FASTFRAME:TIMESTAMP:SELECTED:REF1 "02 MAR 2000 20:10:54:539 037 145 340", which is the time stamp of FastFrame Selected on reference 1.

HORizontal:FASTframe:TRACk

Description

This command sets up or returns the state of FastFrame tracking feature. This command is equivalent to selecting FastFrame Setup from the Horiz/Acq menu and then clicking the desired Frame Tracking state.

When FastFrame Track is set to "live", the channel and math waveforms are locked together. Adjusting a channel waveform also adjusts a related math waveform. All reference waveforms are also locked together but they are separate from channel and math waveforms.

For example, when you set the Selected Frame Source Ch1 to Frame 3, then Selected Frame Ch2, Ch3, Ch4, Math1, Math2, Math3 and Math4 are also set to Frame 3.

When you set the Selected Frame Source Ref1 to Frame 2, then Selected Frame Ref2, Ref3 and Ref4 are also set to Frame 2. If the Frame Tracking is set to Live, changing Selected Frame Ch1 will not affect the Selected Frame Ref1 frame of the Reference Frame setting.

When FastFrame Track is set to "all", the channel, math and reference waveforms are locked together. Adjusting a channel waveform also adjusts the related math and reference waveforms.

For example, when you set the Selected Frame Source Ch1 to Frame 3, then Selected Frame Ch2, Ch3, Ch4, Math1, Math2, Math3, Math4, Ref1, Ref2, Ref3 and Ref4 are also set to Frame 3.

Group

Horizontal

Related Commands

HORizontal:FASTframe:REF:FRaMe (see page 168), HORizontal:FASTframe:REF:SOUrce (see page 170), HORizontal:FASTframe:SELECTED:<wfm>? (see page 171)

Syntax 1

```
HORizontal:FASTframe:TRACk {LIVE|ALL}
```

Syntax 2

```
HORizontal:FASTframe:TRACk?
```

Arguments

- LIVE

This sets FastFrame Track to Live.

- ALL

This sets FastFrame Track to All.

Example 1

```
HORizontal:FASTframe:TRACk LIVE
```

This command sets FastFrame Track to live.

Example 2

```
HORizontal:FASTframe:TRACk?
```

This query might return :HORIZONTAL:FASTFRAME:TRACK ALL, indicating that all FastFrame Selected Frames and the FastFrame Reference will be locked together.

HORizontal:MAIn?

Description

This query-only command returns the time per division of the time base. This command is equivalent to selecting Position/Scale from the Horiz/Acq menu.

Group

Horizontal

Related Commands

HORizontal:SCALE (see page 195)

Syntax

HORizontal:MAIn?

Example

HORizontal:MAIn?

This query might return :HORIZONTAL:MAIN:SCALE 1.0000E-04;POSITION
5.0000E+01;UNITS:VALUE 1.0000E+00;STRING "s";OFFSET 0.0000E+01

HORizontal[:MAIn]:POSition

This command either positions the waveform horizontally on the display or returns the horizontal position on the display and is identical to the HORizontal:POSition command. When Horizontal Delay mode is turned off, this command is equivalent to adjusting the **HORIZONTAL POSITION** knob on the front-panel. When Horizontal Delay mode is turned on, this command is equivalent to selecting Horizontal/Acquisition from the Horiz/Acq menu and then choosing a Horizontal Ref Point value.

Group

Horizontal

Related Commands

HORizontal[:MAIn]:DELay:MODE (see page 184)

Syntax 1

HORizontal:MAIn:POSition <NR3>

Syntax 2

HORizontal:MAIn:POSition?

Arguments

- <NR3>

This is from 0 to ≈ 100 and is the percent of the waveform that is displayed left of the center graticule.

Note: The upper limit of the waveform position is slightly limited by a value that is determined from the record length (upper limit = $100 - 1/\text{record length}$).

Example 1

HORizontal:MAIn:POSition 5.000E+01

This command sets the horizontal position of the waveform such that 10 percent of the waveform is to the left of screen center.

Example 2

HORizontal:MAIn:POSition?

This query might return :HORIZONTAL:MAIN:POSITION 5.0000E+01, indicating that the horizontal position of the waveform on the screen is currently set to 50 percent.

HORizontal[:MAIn]:SCAle

Description

This command sets the time per division for the time base or returns its horizontal scale on the display and is identical to the HORizontal:SCAle command. The specified scale value is rounded to a valid scale setting. This command is equivalent to selecting Position/Scale from the Horiz/Acq menu and then choosing a Scale value.

Group

Horizontal

Related Commands

HORizontal:SCAle (see page 182)

Syntax 1

HORizontal:MAIn:SCAle <NR3>

Syntax 2

HORizontal:MAIn:SCAle?

Argument

- <NR3>

This is the time per division. The range is from 200 ps through 40 s.

Example 1

HORizontal:MAIn:SCAle 2E-6

This command sets the main scale to 2 μ s per division.

Example 2

HORizontal:MAIn:SCAle?

This query might return :HORIZONTAL:MAIN:SCALE 2.0000E-06, indicating that the main scale is currently set to 2 μ s per division.

HORizontal[:MAIN]:DElay:POSition

Description

This command sets or queries the time base position when Horizontal Delay Mode is turned on. This command is equivalent to selecting Horizontal/Acquisition Setup from the Horiz/Acq menu and then entering a Ref Point value.

Group

Horizontal

Related Commands

HORizontal[:MAIN]:DElay:TIME (see page 183)

Syntax 1

HORizontal[:MAIN]:DElay:POSition <NR3>

Syntax 2

HORizontal[:MAIN]:DElay:POSition?

Arguments

- <NR3>

This is from 0 to ≈ 100 and is the percent of the waveform that is displayed left of the center graticule.

Note: The upper limit of the waveform position is slightly limited by a value that is determined from the record length (upper limit = $100 - 1/\text{record length}$).

Example 1

HORizontal:DElay:POSition 5E+1

This command sets the time base trigger delay position to 50 percent.

Example 2

HORizontal:DElay:POSition?

This query might return :HORIZONTAL:MAIN:DELAY:POSITION 5.0000E+01, indicating that the time base trigger delay position is currently set to 50 percent

HORizontal[:MAIn]:DELay:MODE

Description

This command sets or queries the time base trigger delay mode. This command is equivalent to choosing Delay Mode On from the Horiz/Acq menu.

Group

Horizontal

Related Commands

HORizontal[:MAIn]:DELay:TIME (see page 185)

Syntax 1

HORizontal[:MAIn]:DELay:MODE [ON|OFF|<NR1>]

Syntax 2

HORizontal[:MAIn]:DELay:MODE?

Arguments

- ON
This enables the time base trigger delay mode.
- OFF
This disables the time base trigger delay mode.
- <NR1>
A 0 disables the time base trigger delay mode, any other value enables the time base trigger delay mode.

Example 1

HORizontal:DELay:MODE ON

This command enables the time base trigger delay mode.

Example 2

HORizontal:DELay:MODE?

This query might return :HORIZONTAL:DELAY:MODE 1, indicating that the time base trigger delay mode is currently enabled.

HORizontal[:MAIn]:DElay:TIME

Description

This command sets or queries the time base trigger delay time. This command is equivalent to selecting Position/Scale from the Horiz/Acq menu and choosing a value for Horiz Delay.

Group

Horizontal

Related Commands

HORizontal[:MAIn]:DElay:MODE (see page 184), HORizontal[:MAIn]:DElay:POSition (see page 183)

Syntax 1

`HORizontal[:MAIn]:DElay:TIME <NR3>`

Syntax 2

`HORizontal[:MAIn]:DElay:TIME?`

Argument

- `<NR3>`

This specifies the time base trigger delay time setting, typically represented in seconds.

Example 1

`HORizontal:DElay:TIME 5.0E-3`

This command sets the time base trigger delay time to 5 ms.

Example 2

`HORizontal:DElay:TIME?`

This query might return `:HORIZONTAL:MAIN:DELAY 5.0000E-05`, indicating that the time delay setting is 5 μ s.

HORizontal:MAIn:SAMPLERate

Description

This command sets the horizontal sample rate to the desired number of samples per second. The record length is automatically adjusted at the same time to maintain a constant number of data points in each frame. The query form of this command returns the current horizontal sample rate. This command is equivalent to selecting Horizontal/Acquisition Setup from the Horiz/Acq menu and then entering the desired Sample Rate.

Group

Horizontal

Related Commands

HORizontal:RESOLution (see page 193)

Syntax 1

HORizontal:MAIn:SAMPLERate <NR3>

Syntax 2

HORizontal:MAIn:SAMPLERate?

Arguments

- <NR3>

This represents the size of the sample rate, which ranges from 5 S/s to 250 GS/s.

Example 1

HORizontal:MAIn:SAMPLERate 125E6

This command sets the sample rate to the sample rate increment that is closest to 125 MS/s.

Example 2

HORizontal:MAIn:SAMPLERate?

This query might return :HORIZONTAL:MAIN:SAMPLERATE 2.5000E+09, indicating that the sample rate is currently set to 2.5 GS/s.

HORizontal:MAIn:UNIts

Description

This command sets or returns the units for the horizontal time base. It is equivalent to separately setting the following commands:

- HORizontal:MAIn:UNIts:VALue
- HORizontal:MAIn:UNIts:STRing
- HORizontal:MAIn:UNIts:OFFSet

Group

Horizontal

Related Commands

HORizontal:MAIn:UNIts:VALue (see page 190), HORizontal:MAIn:UNIts:STRing (see page 189), HORizontal:MAIn:UNIts:OFFSet (see page 188)

Syntax 1

HORizontal:MAIn:UNIts <NR3> [, <STRing>] [, <NR3>]

Syntax 2

HORizontal:MAIn:UNIts?

Arguments

- <NR3>

This is the time base units multiplier. The instrument scales time/div using this multiplier.

- <STRing>

This is the time base units string.

- <NR3>

This is the time base units offset.

Example 1

HORizontal:MAIn:UNIts 5.5, "lum", 2.9

This command sets the time base multiplier to 5.5, the units to "lum" and the time base units offset to 2.9.

Example 2

HORizontal:MAIn:UNIts?

This query might return :HORIZONTAL:MAIN:UNITS:VALUE 5.5000E+00;STRING "lum", OFFSET 2.9000E+00

HORizontal:MAIn:UNIts:OFFset

Description

This command sets or returns the offset units for the horizontal time base trigger delay.

Group

Horizontal

Related Commands

HORizontal:MAIn:UNIts (see page 187)

Syntax 1

`HORizontal:MAIn:UNIts:OFFSet <NR3>`

Syntax 2

`HORizontal:MAIn:UNIts:OFFSet?`

Argument

- `<NR3>`

This is the time base unit offset.

Example 1

`HORizontal:MAIn:UNIts:OFFSet 2.9`

This command sets the horizontal time base trigger delay offset units to 2.9 s.

Example 2

`HORizontal:MAIn:UNIts:OFFSet?`

This query might return `:HORIZONTAL:MAIN:UNITS:OFFSET 2.9000E+00`, indicating that the offset units for the horizontal time base trigger delay is set to 2.9 s.

HORizontal:MAIn:UNIts:STRing

Description

This command sets or returns the units string for the horizontal time base trigger delay.

Group

Horizontal

Related Commands

HORizontal:MAIn:UNIts (see page 187)

Syntax 1

`HORizontal:MAIn:UNIts <STRing>`

Syntax 2

`HORizontal:MAIn:UNIts:STRing?`

Argument

- `<STRing>`

This is the time base units string.

Example 1

`HORizontal:MAIn:UNIts:STRing lum`

This command sets the units string for the time base trigger delay to lumens.

Example 2

`HORizontal:MAIn:UNIts:STRing?`

This query might return `:HORIZONTAL:MAIN:UNITS:STRING "lum"`, indicating that the units string for the time base trigger delay is set to lumens.

HORizontal:MAIn:UNIts:VALue

Description

This command sets or returns the unit value for the horizontal time base trigger delay.

Group

Horizontal

Related Commands

HORizontal:MAIn:UNIts (see page 187)

Syntax 1

`HORizontal:MAIn:UNIts:VALue <NR3>`

Syntax 2

`HORizontal:MAIn:UNIts:VALue?`

Argument

- `<NR3>`

This is the time base unit value.

Example 1

`HORizontal:MAIn:UNIts:VALue 5.5`

This command sets the unit value for the time base trigger delay to 5.5.

Example 2

`HORizontal:MAIn:UNIts:VALue?`

This query might return `:HORIZONTAL:MAIN:UNITS:VALUE 5.5000E+00`, indicating that the unit value for the time base trigger delay is set to 5.5.

HORizontal:POSition

Description

This command either positions the waveform horizontally on the display or returns its horizontal position on the display. When Horizontal Delay Mode is turned off, this command is equivalent to adjusting the **HORIZONTAL POSITION** knob on the front panel.

Group

Horizontal

Related Commands

HORizontal[:MAIn]:DELay:MODE

Syntax 1

HORizontal:POSition <NR3>

Syntax 2

HORizontal:POSition?

Argument

- <NR3>

This is from 0 to ≈ 100 and is the percent of the waveform that is displayed left of the center graticule.

Note: The upper limit of the waveform position is slightly limited by a value that is determined from the record length (upper limit = $100 - 1/\text{record length}$).

Example 1

HORizontal:POSition 10

This command sets the horizontal position of the waveform such that 10% of the waveform is to the left of screen center.

Example 2

HORizontal:POSition?

This query might return :HORIZONTAL:POSITION 5.0000E+01, indicating the horizontal position of the waveform on the screen.

HORizontal:RECOrdlength

Description

This command sets the horizontal record length to the number of data points in each frame. The query form of this command returns the current horizontal record length. This command is equivalent to selecting Resolution from the Horiz/Acq menu and then entering the desired Rec Length.

Group

Horizontal

Syntax 1

`HORizontal:RECOrdlength <NR1>`

Syntax 2

`HORizontal:RECOrdlength?`

Argument

- `<NR1>`

This represents the supported values for horizontal record lengths, which range from 500 through 400K data points. For more information about valid data point ranges, select Specifications from the Help menu and choose the Horizontal & Acquisition tab.

Example 1

`HORizontal:RECOrdlength 50000`

This command specifies that 50000 data points will be acquired for each record.

Example 2

`HORizontal:RECOrdlength?`

This query might return `:HORIZONTAL:RECOrdlength 5000`, indicating that the horizontal record length is equal to 5000 data points.

HORizontal:RESOlution

Description

This command sets the horizontal record length to the number of data points in each frame. The sample rate is automatically adjusted at the same time to maintain a constant time per division. The query form of this command returns the current horizontal record length. This command is equivalent to adjusting the RESOLUTION knob on the front panel.

Group

Horizontal

Syntax 1

`HORizontal:RESOlution <NR1>`

Syntax 2

`HORizontal:RESOlution?`

Argument

- `<NR1>`

This represents the supported values for horizontal record lengths, which range from 500 through 400K data points. For more information about valid data point ranges, select Specifications from the Help menu and choose the Horizontal & Acquisition tab.

Example 1

`HORizontal:RESOlution 50000`

This command specifies that 50000 data points will be acquired for each record.

Example 2

`HORizontal:RESOlution?`

This query might return `:HORIZONTAL:RESOLUTION 5000`, indicating that the horizontal record length is equal to 5000 data points.

HORizontal:ROLL

Description

This command sets or queries the Roll Mode status. Use Roll Mode when you want to view data at very slow sweep speeds. It is useful for observing data samples on the screen as they occur. This command is equivalent to selecting Horizontal/Acquisition Setup from the Horiz/Acq menu, selecting the Acquisition tab and then choosing the desired Roll Mode.

Group

Horizontal

Syntax 1

`HORizontal:ROLL {AUTO|OFF|ON}`

Syntax 2

`HORizontal:ROLL?`

Arguments

- **AUTO**
This enables Roll Mode, if the time/division is set appropriately.
- **OFF**
This disables Roll Mode.
- **ON**
This enables Roll Mode, if the time/division is set appropriately.

Example 1

`HORizontal:ROLL ON`

This command enables Roll Mode.

Example 2

`HORizontal:RECOrdlength?`

This query might return `:HORIZONTAL:ROLL OFF`, indicating that the roll mode is disabled.

HORizontal:SCAle

Description

This command sets or queries the time per division for the time base and is identical to the HORizontal:MAIN:SCAle command. It is provided to maintain program compatibility with some older models of Tektronix oscilloscopes. This command is equivalent to selecting Position/Scale from the Horiz/Acq menu and then entering the desired Scale value.

Group

Horizontal

Related Commands

HORizontal[:MAIN]:SCAle (see page 182)

Syntax 1

HORizontal:SCAle <NR3>

Syntax 2

HORizontal:SCAle?

Argument

- <NR3>

This is the time per division. The range is from 200 ps to 40 s.

Example 1

HORizontal:SCAle 2E-6

This command sets the main scale to 2 μ s per division.

Example 2

HORizontal:SCAle?

This query might return :HORIZONTAL:SCALE 2.0000E-06, indicating that the time per division is currently set to 2 μ s,

HORizontal:TRIGger:POSition

Description

This command sets or queries the position of the trigger and is identical to the **HORizontal:MAIn:POSition** command. It is provided to maintain program compatibility with some older models of Tektronix oscilloscopes. This command is equivalent to selecting Position/Scale from the Horiz/Acq menu and then entering the desired Position.

Group

Horizontal

Related Commands

HORizontal:MAIn:POSition (see page 181)

Syntax 1

HORizontal:TRIGger:POSition <NR1>

Syntax 2

HORizontal:TRIGger:POSition?

Argument

- <NR1>

This is the amount of pre-trigger information in the waveform. The range is from 0 to 100%.

Example 1

HORizontal:TRIGger:POSition 50

This command sets the pre-trigger information in the waveform to 50%.

Example 2

HORizontal:TRIGger:POSition?

This query might return :HORIZONTAL:TRIGGER:POSITION 50