

# Digital Storage Oscilloscope

GDS-1000 Series

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## PROGRAMMING MANUAL

GW INSTEK PART NO.

October 2007 edition

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ISO-9001 CERTIFIED MANUFACTURER

**GW INSTEK**

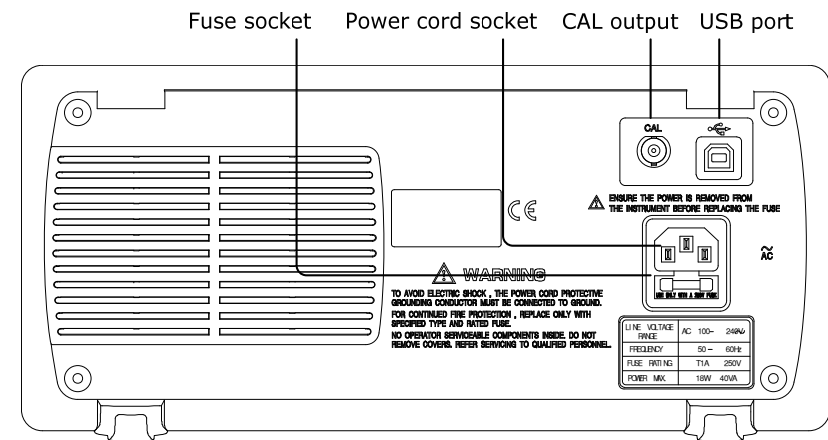
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# I NTERFACE OVERVIEW


This manual describes how to use the GDS-1000's remote command functionality and lists the command details. The Overview chapter describes how to configure the GDS-1000 USB remote control interface.

## Rear Panel Overview



## Configuring the USB Interface

USB connection	PC side connector	Type A, host
	GDS-1000 side connector	Type B, slave
	Speed	1.1/2.0 (full speed)

- Panel operation
1. Connect the USB cable to the USB slave port on the rear. 
  2. When the PC asks for the USB driver, select dso\_cdc\_1000.inf which is downloadable from the GW website, [www.gwinstek.com.tw](http://www.gwinstek.com.tw), GDS-1000 product corner.
  3. On the PC, activate a terminal application such as MTTY (Multi-Threaded TTY). To check the COM port No., see the Device Manager in the PC. For WindowsXP, select Control panel → System → Hardware tab.
  4. Run this query command via the terminal application.  
\*idn?  
This command should return the manufacturer, model number, serial number, and firmware version in the following format.  
GW, GDS-1022, 000000001, V1.00
  5. Configuring the command interface is completed. Refer to the other chapters for more details.
    - Page6: list of commands and command syntax
    - Page12: details of each command

# COMMAND OVERVIEW

The Command overview chapter lists all GDS-1000 commands in functional order as well as alphabetical order. The command syntax section shows you the basic rules you have to apply when using commands.

## Command Syntax

Compatible standard	<ul style="list-style-type: none"> <li>• IEEE488.2, 1992 (fully compatible)</li> <li>• SCPI, 1994 (partially compatible)</li> </ul>		
Command format	<code>trig:del:mod &lt;NR1&gt;LF</code> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="text-align: center;"> <span style="font-size: small;">1</span>  <span style="font-size: x-small;">trig:del:mod</span> </div> <div style="text-align: center;"> <span style="font-size: small;">2</span>  <span style="font-size: x-small;">&lt;NR1&gt;</span> </div> <div style="text-align: center;"> <span style="font-size: small;">3</span>  <span style="font-size: x-small;">LF</span> </div> <div style="text-align: center;"> <span style="font-size: small;">4</span>  <span style="font-size: x-small;">LF</span> </div> </div>		
		1: command header	2: single space
		3: parameter	4: message terminator
Parameter	Type	Description	Example
	<Boolean>	boolean logic	0, 1
	<NR1>	integers	0, 1, 2, 3
	<NR2>	decimal numbers	0.1, 3.14, 8.5
	<NR3>	floating point	4.5e-1, 8.25e+1
	<NRf>	any of NR1, 2, 3	1, 1.5, 4.5e-1
Message terminator	LF^END	line feed code (hexadecimal 0A) with END message	
	LF	line feed code	
	<dab>^END	last data byte with END message	
Note	Commands are non-case sensitive.		

## List of Command in Functional Order

System	*IDN.....	13
	*LRN .....	13
	*RST .....	14
	:SYSTem:ERRor.....	14
	:SYSTem:VERSion.....	14
Acquisition	:ACQuire:AVERage.....	15
	:ACQuire:MODE .....	15
	:ACQuire<X>:MEMory.....	16
Autoset	:AUToset .....	18
Channel / Math	:CHANnel<X>:BWLimit.....	19
	:CHANnel<X>:COUPling.....	19
	:CHANnel<X>:DISPlay .....	20
	:CHANnel<X>:INVert .....	20
	:CHANnel<X>:MATH .....	21
	:CHANnel<X>:OFFSet.....	21
	:CHANnel<X>:PROBe .....	22
	:CHANnel<X>:SCALE .....	23
Cursor	:CURSor:X<X>Position .....	24
	:CURSor:Y<X>Position .....	25
	:CURSor:<X>DELta .....	25
	:CURSor:<X>DISplay .....	26
	:CURSor:SOURce.....	27
Display	:DISPlay:ACCumulate .....	28
	:DISPlay:CONTRast .....	28
	:DISPlay:GRATicule.....	29
	:DISPlay:WAVEform .....	29
	:REFResh .....	30

Measure	:MEASure:FALL.....	31
	:MEASure:FOVShoot.....	32
	:MEASure:FPReshoot .....	32
	:MEASure:FREQuency .....	32
	:MEASure:NWIDth .....	33
	:MEASure:PDUTy .....	33
	:MEASure:PERiod .....	34
	:MEASure:PWIDth .....	34
	:MEASure:RISe.....	35
	:MEASure:ROVShoot.....	35
	:MEASure:RPReshoot.....	35
	:MEASure:SOURce .....	36
	:MEASure:VAMPLitude .....	36
	:MEASure:VAverage .....	37
	:MEASure:VHI .....	37
	:MEASure:VLO .....	37
	:MEASure:VMAX.....	38
	:MEASure:VMIN .....	38
	:MEASure:VPP .....	39
	:MEASure:VRMS.....	39
Save/Recall	:MEMory<X>:RECall:SETup .....	40
	:MEMory<X>:RECall:WAVEform .....	40
	:MEMory<X>:SAVE:SETup .....	41
	:MEMory<X>:SAVE:WAVEform .....	41
	*RCL.....	42
	:REF<X>:DISPlay.....	42
	:REF<X>:LOCate .....	43
	:REF<X>:SAVE.....	43
	*SAV.....	44

(Continued on next page)

Time	:TIMebase:DELAy .....	45
(Horizontal)	:TIMebase:SCALE.....	45
	:TIMebase:SWEEp.....	46
	:TIMebase:WINDow:DELAy.....	46
	:TIMebase:WINDow:SCALE .....	47
Trigger	:FORCe.....	48
	:RUN.....	48
	:SINGLe.....	49
	:STOP .....	49
	*TRG .....	49
	:TRIGger:COUPlE.....	49
	:TRIGger:FREQuency.....	50
	:TRIGger:LEVel.....	50
	:TRIGger:MODE.....	50
	:TRIGger:NREJ .....	51
	:TRIGger:PULSe:MODE.....	52
	:TRIGger:PULSe:TIME .....	52
	:TRIGger:REJect .....	53
	:TRIGger:SLOP.....	53
	:TRIGger:SOURce .....	54
	:TRIGger:TYPe.....	54
	:TRIGger:VIDeo:FIELD .....	55
	:TRIGger:VIDeo:LINE.....	55
	:TRIGger:VIDeo:POLarity .....	56
	:TRIGger:VIDeo:TYPe .....	56

## List of Command in Alphabetical Order

Command	Page	Command	Page
A			
:ACQuire:AVERage	15	:MEASure:FPReshoot	32
:ACQuire:MODE	15	:MEASure:FREQuency	32
:ACQuire<X>:MEMory	16	:MEASure:NWIDth	33
:AUToset	18	:MEASure:PDUtY	33
C			
:CHANnel<X>:BWLimit	19	:MEASure:PERiod	34
:CHANnel<X>:COUPling	19	:MEASure:PWIDth	34
:CHANnel<X>:DISPlay	20	:MEASure:RISe	35
:CHANnel<X>:INVert	20	:MEASure:ROVShoot	35
:CHANnel<X>:MATH	21	:MEASure:RPReshoot	35
:CHANnel<X>:OFFSet	21	:MEASure:SOURce	36
:CHANnel<X>:PROBE	22	:MEASure:VAMplitude	36
:CHANnel<X>:SCALE	23	:MEASure:VAverage	37
:CURSor:SOURce	27	:MEASure:VHI	37
:CURSor:X1Position	24	:MEASure:VLO	37
:CURSor:X2Position	24	:MEASure:VMAX	38
:CURSor:XDELta	25	:MEASure:VMIN	38
:CURSor:XDISPlay	26	:MEASure:VPP	39
:CURSor:Y1Position	25	:MEASure:VRMS	39
:CURSor:Y2Position	25	:MEMory<X>:RECall:SETup	40
:CURSor:YDELta	25	:MEMory<X>:RECall:WAVEform	40
:CURSor:YDISPlay	26	:MEMory<X>:SAVE:SETup	41
D			
:DISPlay:ACCumulate	28	:MEMory<X>:SAVE:WAVEform	41
:DISPlay:CONTRast	28	R	
:DISPlay:GRATICule	29	*RCL	42
:DISPlay:WAVEform	29	:REF<X>:DISPlay	42
F			
:FORCe	48	:REF<X>:LOCate	43
I			
*IDN	13	:REF<X>:SAVE	43
L			
*LRN	13	:REFresh	30
M			
:MEASure:FALL	31	*RST	14
:MEASure:FOVShoot	32	:RUN	48
S			
		*SAV	44
		:SINGLe	49
		:STOP	49
		:SYSTem:ERRor	14
		:SYSTem:VERSion	14

Command	Page	Command	Page
T		:TRIGger:NREJ	51
:TIMebase:DELay	45	:TRIGger:PULSe:MODE	52
:TIMebase:SCALE	45	:TRIGger:PULSe:TIME	52
:TIMebase:SWEEp	46	:TRIGger:REJect	53
:TIMebase:WINDow:DELay	46	:TRIGger:SLOP	53
:TIMebase:WINDow:SCALE	47	:TRIGger:SOURce	54
*TRG	49	:TRIGger:TYPE	54
:TRIGger:COUPlE	49	:TRIGger:VIDeo:FIELD	55
:TRIGger:FREQUency	50	:TRIGger:VIDeo:LINE	55
:TRIGger:LEVel	50	:TRIGger:VIDeo:POLarity	56
:TRIGger:MODE	50	:TRIGger:VIDeo:TYPE	56

# C COMMAND DETAILS

The Command details chapter shows the detailed syntax, equivalent panel operation, and example for each command. For the list of all commands, see page 7.

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## System command

*IDN.....	13
*LRN .....	13
*RST .....	14
:SYSTem:ERRor.....	14
:SYSTem:VERSion.....	14

### \*IDN → Query

Description	Returns the oscilloscope ID: manufacturer, model name, serial number, and firmware version. Same as: Utility key → F4	
Syntax	:idn?	
Example	:idn?	Returns the ID for a GDS-1022.

### \*LRN → Query

Description	Returns the oscilloscope settings as a data string.	
Syntax	:lrn?	
Example	:lrn? :DISPlay:WAVeform 0;DISPCONTrast 500;GRATicule 0;CURSor:SOURce 1;X1Position ;X2 Position ; Y1Position ;Y2Position ;XDELTA ;YDELTA ;XDISPlay 2;YDISPlay 2::CHANnel 1:BWLimit 0;COUPling 0;DISPlay 1;INVert 0;MATH 0;OFFSet 2.000e+00; PROBe 0;SCALe 2.000e+00 ;; CHANnel2:BWLimit 0;COUPling 0;DISPlay 1;INVert 0;MATH 0;OFFSet 2.000e+00;PROBe 0;SCALe 2.000e+00;; CHANnel2: BWLimit 0;COUPling 0;DISPlay 1;INVert 0;MA TH 0;OFFSet 2.000e+00;PROBe 0;SCALe 2.000e+00;; CHANnel2:BWLimit 0;COUPling 0;DIS Play 1;INVert 0;MATH 0;OFFSet 2.000e+00;PROBe 0;SCALe 2.000e+00;CHANnel2:BWLimit 0;COUPling 0;DISPlay 1;INVert 0;MATH 0;OFFSet 2.000e+00;PROBe 0;SCALe 2.000e+00;TIMebase:DELAy 0.000e+00; SCALe 2.500e-06;SWEep0;; AUToset;; REFResh;; RUN;;STOP	

### \*RST → Set

Description	Resets the GDS-1000 (recalls the default panel settings). Same as: Save/Recall key → F1
Syntax	*rst

### :SYSTem:ERRor → Query

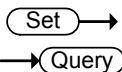
Description	Returns the oscilloscope system error message, if there is any.			
Syntax	< Long >		< Short >	
	:system:error?		:sys:err?	
Parameter	ID	Contents	ID	Contents
	-100	command error	-102	syntax error
	-220	parameter error	-221	settings conflict
	-222	data out of range	-223	too much data
	-224	illegal parameter	-232	invalid format
Example	:system:error?	-102	Indicates that the command syntax is wrong	

### :SYSTem:VERSion → Query

Description	Returns the oscilloscope firmware version. Same as: Utility key → F4 (only the firmware version)	
Syntax	< Long >	< Short >
	:system:version?	:sys:vers?
Note	For retrieving all system information including the firmware version, use the *idn? command.	

## Acquisition Command

:ACQuire:AVERage.....	15
:ACQuire:MODE .....	15
:ACQuire<X>:MEMory.....	16



### :ACQuire:AVERage

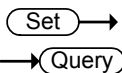
**Description** Selects or returns the average number of waveform acquisition in the average acquisition mode.  
Same as: Acquire key → F2

<b>Syntax</b>	< Long >	< Short >
	:acquire:average <NR1>	:acq:aver <NR1>
	:acquire:average?	:acq:aver?

<b>Parameter</b>	<NR1>	Average No.	<NR1>	Average No.
	1	2	5	32
	2	4	6	64
	3	8	7	128
	4	16	8	256

**Note** Before using this command, select the average acquisition mode. See the example below.

**Example** :acquire:mode 2      Selects the average acquisition mode, and  
:acquire:average 2      select the average number 4



### :ACQuire:MODE

**Description** Selects or returns the acquisition mode.  
Same as: Acquire key → F1 ~ F3

<b>Syntax</b>	< Long >	< Short >
	:acquire:mode <NR1>	:acq:mod <NR1>
	:acquire:mode?	:acq:mod?

<b>Parameter</b>	<NR1>	Mode	<NR1>	Mode
	0	Normal	2	Average
	1	Peak detect		

**Example** :acquire:mode 2      Selects the average acquisition mode, and  
:acquire:average 2      select the average number 4

### :ACQuire<X>:MEMory

**Description** Returns the total waveform data in the acquisition memory.

<b>Syntax</b>	< Long >	< Short >
	:acquire<X>:memory?	:acq<X>:mem?

<b>Parameter</b>	<X>	Channel
	1/2	Channel1/2

**Example** :acquire1:memory?      Returns the channel 1 waveform data

**Data format** Six data elements are concatenated to form one data string.

#	A	B	C	D	E	F
A:	Data size digit			B: Data size		
C:	Time interval			D: Channel indicator		
E:	Reserved data			F: Waveform data		

**Data size digit**

Indicates the number of digits used for the data string that follows. The data size digit is always 4.

**Data size**

Indicates the data size. The data size is always 8008 (4000 points per channel).

**Time interval**

Indicates the time interval between two adjacent sampling points in the floating point format, compatible with IEEE 754 standards.

Note: The data is sorted in the little-endian format.

**Channel indicator**

Indicates the channel, 1 or 2.

**Reserved data**

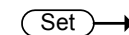
An unused data block, 3 bytes.

**Waveform data**

The waveform data comprised of 8000 data points. Each point is made up of 2 bytes (16 bits), high byte (MSD) first.

## Autoset Command

:AUToset



Description	Runs the Autoset function to automatically configure the horizontal scale, vertical scale, and trigger according to the input signal.	
-------------	---	--

Same as: Auto Set key

Syntax	< Long >	< Short >
	:autoset	:aut

## Channel / Math Command

:CHANnel<X>:BWLimit.....	19
:CHANnel<X>:COUpling.....	19
:CHANnel<X>:DISPlay .....	20
:CHANnel<X>:INVert .....	20
:CHANnel<X>:MATH .....	21
:CHANnel<X>:OFFSet.....	21
:CHANnel<X>:PROBe .....	22
:CHANnel<X>:SCALE .....	23

:CHANnel<X>:BWLimit Set →  
→ Query

Description	Selects or returns the bandwidth limit on/off. Same as: Channel key → F3		
Syntax	< Long >	< Short >	
	:channel<X>:bwlimit <Boolean>	:chan<X>:bwlimit?	<Boolean>
Parameter	<X> Channel	<NR1> Limit	
	1/2 CH1/2	0 Off	
		1 On	
Example	:channel1:bwlimit 1	Turns on the bandwidth limit for Channel 1	

:CHANnel<X>:COUpling Set →  
→ Query

Description	Selects or returns the coupling mode. Same as: Channel key → F1	
Syntax	< Long >	< Short >

	:channel<X>:coupling <NR1>	:chan<X>:coup <NR1>
	:channel<X>:coupling?	:chan:coup?
Parameter	<X> Channel	<NR1> Coupling mode
	1/2 CH1/2	0 AC coupling
		1 DC coupling
		2 Ground coupling
Example	:channel1:coupling 1	Selects the DC coupling for Channel 1

:CHANnel<X>:DISPlay Set →  
→ Query

Description	Turns a channel on/off or returns its status. Same as: Channel key	
Syntax	< Long >	< Short >
	:channel<X>:display <Boolean>	:chan<X>:disp <Boolean>
	:channel<X>:display?	:chan<X>:disp?
Parameter	<X> Channel	<NR1> Channel on/off
	1/2 CH1/2	0 Off
		1 On
Example	:channel1:display 1	Turns on Channel 1

:CHANnel<X>:INVert Set →  
→ Query

Description	Inverts a channel or returns its status. Same as: Channel key → F2	
Syntax	< Long >	< Short >

	:channel<X>:invert <Boolean>		:chan<X>:inv	
	:channel<X>:invert?		<Boolean>	
			:chan<X>:inv?	
Parameter	<X>	Channel	<NR1>	Channel invert
	1/2	CH1/2	0	off
			1	on
Example	:channel1:invert 1		Inverts Channel 1	

**:CHANnel<X>:MATH**

Set →  
→ Query

Description	Selects or returns the math operation type. Same as: Math key → F1			
Syntax	< Long >		< Short >	
	:channel<X>:math <NR1>		:chan<X>:math <NR1>	
	:channel<X>:math?		:chan<X>:math?	
Parameter	<X>	Channel	<NR1>	Math operation
	1/2	CH1 or CH2	0	Math off
			1	Add
			2	Subtract
			3	FFT
Example1	:channel1:math 2		Channel 1 - Channel 2	
Example2	:channel2:math 2		Channel 1 - Channel 2	
Example3	:channel2:math 2		Runs FFT on Channel 2	

Set →  
→ Query

**:CHANnel<X>:OFFSet**

Description	Sets or returns the offset level for a channel. The offset level range depends on the vertical scale.			
-------------	---	--	--	--

Syntax	< Long >		< Short >	
	:channel<X>:offset <NR3>		:chan<X>:offs <NR3>	
	:channel<X>:offset?		:chan<X>:offs?	
Parameter	<X>	Channel	<NR3>	Offset level
	1/2	CH1/2	±0.5	-0.5V ~ +0.5V (2mV/div~50mV/div)
			±5.0	-5.0V ~ +5.0V (100mV/div~500mV/div)
			±50.0	-50.0V ~ +50.0V (1V/div ~ 5V/div)
Example	:channel1:scale 1.00e-2		Sets the Channel 1 scale to 10mV/div	
	:channel1:offset 2.00e-2		Sets the Channel 1 offset to 20mV	

Set →  
→ Query

**:CHANnel<X>:PROBE**

Description	Sets or returns the probe attenuation factor. Same as: Channel key → F4			
Syntax	< Long >		< Short >	
	:channel<X>:probe <NR3>		:chan<X>:prob <NR1>	
	:channel<X>:probe?		:chan<X>:prob?	
Parameter	<X>	Channel	<NR1>	Probe attenuation factor
	1/2	CH1/2	0	1x
			1	10x
			2	100x
Example	:channel1:probe 1		Sets the Channel 1 probe attenuation factor to 10x	

Set →  
 → Query

**:CHANnel<X>:SCALE**

---

Description	Sets or returns the vertical scale. The scale depends on the probe attenuation factor. Same as: Volts/Div knob																		
Syntax	< Long > :channel<X>:scale <NR3> :channel<X>:scale?	< Short > :chan<X>:scal <NR3> :chan<X>:scal?																	
Parameter	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: center;">&lt;X&gt;</td> <td style="width: 15%;">Channel</td> <td style="width: 15%; text-align: center;">&lt;NR3&gt;</td> <td style="width: 60%;">Vertical scale</td> </tr> <tr> <td style="text-align: center;">1/2</td> <td>CH1/2</td> <td style="text-align: center;">2e-3 ~ 5e+0</td> <td>2mV ~ 5V (Probe x1)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">2e-2 ~ 5e+1</td> <td>20mV ~ 50V (Probe x10)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">2e-1 ~ 5e+2</td> <td>200mV ~ 500V (Probe x100)</td> </tr> </table>	<X>	Channel	<NR3>	Vertical scale	1/2	CH1/2	2e-3 ~ 5e+0	2mV ~ 5V (Probe x1)			2e-2 ~ 5e+1	20mV ~ 50V (Probe x10)			2e-1 ~ 5e+2	200mV ~ 500V (Probe x100)		
<X>	Channel	<NR3>	Vertical scale																
1/2	CH1/2	2e-3 ~ 5e+0	2mV ~ 5V (Probe x1)																
		2e-2 ~ 5e+1	20mV ~ 50V (Probe x10)																
		2e-1 ~ 5e+2	200mV ~ 500V (Probe x100)																
Example	:channel1:probe 0 :channel1:scale 2.00e-3	Sets the Channel 1 probe attenuation factor to x1  Sets the Channel 1 vertical scale to 2mV/div																	

## Cursor Command

:CURSor:X<X>Position .....	24
:CURSor:Y<X>Position .....	25
:CURSor:<X>DELta .....	25
:CURSor:<X>DISplay .....	26
:CURSor:SOURce .....	27

Set →  
 → Query

**:CURSor:X<X>Position**

---

Description	Sets or returns the horizontal (X axis) cursor position. Same as: Cursor key → F5 (X-Y) → F2 (X1) or F3 (X2) + Variable knob														
Syntax	< Long > :cursor:x<X>position <NR1> :cursor:x<X>position?	< Short > :curs:x<X>p <NR1> :curs:x<X>p?													
Parameter	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: center;">&lt;X&gt;</td> <td style="width: 15%;">Cursor 1 or 2</td> <td style="width: 15%; text-align: center;">&lt;NR1&gt;</td> <td style="width: 60%;">Cursor position</td> </tr> <tr> <td style="text-align: center;">1</td> <td>Cursor X1</td> <td style="text-align: center;">1 ~ 249</td> <td>1 ~ 249 point</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Cursor X2</td> <td></td> <td></td> </tr> </table>	<X>	Cursor 1 or 2	<NR1>	Cursor position	1	Cursor X1	1 ~ 249	1 ~ 249 point	2	Cursor X2				
<X>	Cursor 1 or 2	<NR1>	Cursor position												
1	Cursor X1	1 ~ 249	1 ~ 249 point												
2	Cursor X2														
Note	When in the query mode, the returned data format is <NR3> as follows.  CH1, CH2, Math (CH1 ± CH2): time (s) Math (FFT): frequency (Hz)														
Example	:cursor:xdisplay 1 :cursor:x1position 100  :channel:math 3 :cursor:xdisplay 1 :cursor:x1position? → 2.500E+03	Puts the horizontal cursor X1 on the 100 point position  Returns the X1 cursor position as 2500Hz in the Math FFT mode													

**:CURSor:Y<X>Position** (Set) →  
→ (Query)

**Description** Selects or returns the vertical (Y axis) cursor position.  
Same as: Cursor key → F5 (X-Y) → F2(Y1) or F3(Y2) + Vertical knob

**Syntax** < Long > < Short >  
:cursor:y<X>position <NR1> :curs:y<X>p <NR1>  
:cursor:y<X>position? :curs:y<X>p?

Parameter	<X>	Cursor 1 or 2	<NR1>	Cursor position
	1	Cursor Y1	1 ~ 199	1 ~ 199 point
	2	Cursor Y2		

**Note** When in the query mode, the returned data format is <NR3> as follows.  
CH1, CH2, Math (CH1 ± CH2): voltage (V)  
Math (FFT): decibel (dB)

<b>Example</b>	:cursor:ydisplay 1 :cursor:y1 position 100	Puts the vertical cursor Y1 on the 100 point position
	:channel:math 3 :cursor:ydisplay 1 :cursor:y1 position? → 2.500E+00	Returns the Y1 cursor position as 2.5dB in the Math FFT mode

**:CURSor:<X>DELta** → (Query)

**Description** Returns the distance between two horizontal (X axis) or vertical (Y axis) cursors.  
Same as: Cursor key → F5 (X-Y) → F4

**Syntax** < Long > < Short >  
:cursor:<X>delta? :curs:<X>del?

Parameter	<X>	Horizontal or vertical cursor
	x	Horizontal cursor (X axis)
	y	Vertical cursor (Y axis)

**Note** The returned data format is <NR3> as follows.  
CH1, CH2, Math (CH1 ± CH2): time (s) for horizontal cursor, voltage (V) for vertical cursor  
Math (FFT): frequency (Hz) for horizontal cursor, decibel (dB) for vertical cursor

<b>Example</b>	:channel:math 3 :cursor:xdisplay 1 :cursor:xdelta? → 2.500E+03	Returns the frequency (2500Hz) between the two horizontal cursors in the Math FFT mode
	:channel:math 3 :cursor:ydisplay 1 :cursor:ydelta? → 2.500E+00	Returns the decibel (2.5dB) between the two vertical cursors in the Math FFT mode

**:CURSor:<X>DISplay** (Set) →

**Description** Turns the horizontal or vertical cursors on/off.  
Same as: Cursor key

**Syntax** < Long > < Short >  
:cursor:y<X>display <Boolean> :curs:y<X>dis <Boolean>

Parameter	<X>	X or Y cursor	<NR1>	Cursor on/off
	x	X (horizontal)	0	off
	y	Y (vertical)	1	on

**Example** :cursor:ydisplay 1 Turn Y cursor on

**:CURSor:SOURce**

Set →  
→ Query

Description	Selects or returns the cursor source channel. Same as: Cursor key → F1 (Source)	
Syntax	< Long >	< Short >
	:cursor:source <NR1>	:curs:sour <NR1>
	:cursor:source?	:curs:sour?
Parameter	<NR1>	Cursor source channel
	1/2	Channel ½
	3	Math result
Example	:cursor:source 2	Selects Channel 2 as the cursor source

## Display Command

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**:DISPlay:ACCumulate**

Set →  
→ Query

Description	Turns the display accumulate mode on/off or returns its status. Same as: Display key → F2	
Syntax	< Long >	< Short >
	:display:accumulate <Boolean>	:disp:acc <Boolean>
	:display:accumulate?	:disp:acc?
Parameter	<NR1>	Display accumulation
	0	off
	1	on
Example	:display:accumulate 1	Turns on the accumulation

**:DISPlay:CONTRast**

Set →  
→ Query

Description	Sets or returns the display contrast level. Same as: Display key → F4	
Syntax	< Long >	< Short >
	:display:contrast <NR1>	:disp:cont <NR1>
	:display:contrast?	:disp:cont?

Parameter	<NR1> -10 ~ 10	Display contrast Lowest (-10) to the Highest (+10)
Example	:display:contrast 0	Sets the display contrast to the middle (±0)

Set →  
 → Query

**:DISPlay:GRATicule**

Description	Sets or returns the display grid type. Same as: Display key → F5		
Syntax	< Long > :display:graticule <NR1> :display:graticule?	< Short > :disp:grat <NR1> :disp:grat?	
Parameter	<NR1> 0 1	Grid type Full mode Cross mode	<NR1> 2 Grid type Frame mode
Example	:display:graticule 0	Selects the full grid	

Set →  
 → Query

**:DISPlay:WAVEform**

Description	Sets or returns the display waveform type. Same as: Display key → F1		
Syntax	< Long > :display:waveform <NR1> :display:waveform?	< Short > :disp:wav <NR1> :disp:wav?	
Parameter	<NR1> 0 1	Display waveform type Vectors Dots	

Example	:display:waveform 0	Selects the vectors waveform
---------	---------------------	------------------------------

**:REFresh**

Set →

Description	Erases the existing waveform and draws a new one. Same as: Display key → F3	
Syntax	< Long > :refresh	< Short > :refr

## Measure command

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### :MEASure:FALL → Query

Description	Returns the falltime measurement result. Same as: Measure key → F1~F5 → F3 (Fall Time)	
Syntax	< Long >	< Short >
	:measure:fall?	:meas:fall?
Returns	<NR3>	
Note	Before using this command, select the measurement channel. See the example below.	

Example	:measure:source 1	Selects Channel 1, and then measures the fall time.
	:measure:fall?	

### :MEASure:FOVShoot → Query

Description	Returns the fall overshoot amplitude. Same as: Measure key → F1~F5 → F3 (FOVShoot)	
Syntax	< Long >	< Short >
	:measure:fovshoot?	:meas:fovs?
Returns	<NR2> with % sign	
Note	Before using this command, select the measurement channel. See the example below.	
Example	:measure:source 1	Selects Channel 1, and then measures the fall overshoot.
	:measure:fall?	

### :MEASure:FPReshoot → Query

Description	Returns fall preshoot amplitude. Same as: Measure key → F1~F5 → F3 (FPREShoot)	
Syntax	< Long >	< Short >
	:measure:fovshoot?	:meas:fovs?
Returns	<NR2> with % sign	
Note	Before using this command, select the measurement channel. See the example below.	
Example	:measure:source 1	Selects Channel 1, and then measures the fall preshoot.
	:measure:fall?	

### :MEASure:FREQuency → Query

Description	Returns the frequency value. Same as: Measure key → F1~F5 → F3 (Frequency)	
Syntax	< Long > :measure:frequency?	< Short > :meas:freq?
Returns	<NR3>	
Note	Before using this command, select the measurement channel. See the example below.	
Example	:measure:source 1 :measure:frequency?	Selects Channel 1, and then measures the frequency.

**:MEASure:NWIDth** → Query

Description	Returns the first negative pulse width timing. Same as: Measure key → F1~F5 → F3 (-Width)	
Syntax	< Long > :measure:nwidth?	< Short > :meas:nwid?
Returns	<NR3>	
Note	Before using this command, select the measurement channel. See the example below.	
Example	:measure:source 1 :measure:nwidth?	Selects Channel 1, and then measures the negative pulse width.

**:MEASure:PDUTy** → Query

Description	Returns the positive duty cycle ratio. Same as: Measure key → F1~F5 → F3 (DutyCycle)	
Syntax	< Long > :measure:pdu?y?	< Short > :meas:pdut?
Returns	<NR2> as the percentage	

Note	Before using this command, select the measurement channel. See the example below.	
Example	:measure:source 1 :measure:pdu?y?	Selects Channel 1, and then measures the positive duty cycle.

**:MEASure:PERiod** → Query

Description	Returns the period. Same as: Measure key → F1~F5 → F3 (Period)	
Syntax	< Long > :measure:period?	< Short > :meas:per?
Returns	<NR3>	
Note	Before using this command, select the measurement channel. See the example below.	
Example	:measure:source 1 :measure:period?	Selects Channel 1, and then measures the period.

**:MEASure:PWIDth** → Query

Description	Returns the first positive pulse width. Same as: Measure key → F1~F5 → F3 (+Width)	
Syntax	< Long > :measure:period?	< Short > :meas:per?
Returns	<NR3>	
Note	Before using this command, select the measurement channel. See the example below.	
Example	:measure:source 1 :measure:pwidth?	Selects Channel 1, and then measures the positive pulse width.

**:MEASure:RISe** → Query

---

Description	Returns the first pulse rising edge timing. Same as: Measure key → F1~F5 → F3 (RiseTime)	
Syntax	< Long > :measure:rise?	< Short > :meas:ris?
Returns	<NR3>	
Note	Before using this command, select the measurement channel. See the example below.	
Example	:measure:source 1 :measure:rise?	Selects Channel 1, and then measures the rising edge timing.

**:MEASure:ROVShoot** → Query

---

Description	Returns rise overshoot amplitude in percentage. Same as: Measure key → F1~F5 → F3 (ROVShoot)	
Syntax	< Long > :measure:rovshoot?	< Short > :meas:rovs?
Returns	<NR2> with % sign	
Note	Before using this command, select the measurement channel. See the example below.	
Example	:measure:source 1 :measure:rovshoot?	Selects Channel 1, and then measures the rise overshoot.

**:MEASure:RPReshoot** → Query

---

Description	Returns rise overshoot amplitude in percentage. Same as: Measure key → F1~F5 → F3 (RPReshoot)	
Syntax	< Long >	< Short >

	:measure:rpreshoot?	:meas:rpr?
Returns	<NR2> with % sign	
Note	Before using this command, select the measurement channel. See the example below.	
Example	:measure:source 1 :measure:rpreshoot?	Selects Channel 1, and then measures the rise preshoot.

Set →  
→ Query

**:MEASure:SOURce**

---

Description	Selects the measurement channel. Same as: Measure key → F1~F5 → F1, F2	
Syntax	< Long > :measure:source <NR1> :measure:source?	< Short > :meas:sour <NR1> :meas:sour?
Parameter	<NR1> 1 ~ 2	Channel1 ~ 2
Example	:measure:source 1 :measure:rprshoot?	Selects Channel 1, and then measures the rise preshoot.

**:MEASure:VAMplitude** → Query

---

Description	Returns the voltage difference between positive and negative peak. Same as: Measure key → F1~F5 → F3 (Vamp)	
Syntax	< Long > :measure:vamplitude?	< Short > :meas:vamp?
Returns	<NR3>	
Note	Before using this command, select the measurement channel. See the example below.	

Example	:measure:source 1 :measure:vamplitude?	Selects Channel 1, and then measures the rise Voltage amplitude.
---------	---	--

**:MEASure:VAverage** → Query

Description	Returns the average voltage. Same as: Measure key → F1~F5 → F3 (Vavg)	
Syntax	< Long > :measure:vaverage?	< Short > :meas:vavg?
Returns	<NR3>	
Note	Before using this command, select the measurement channel. See the example below.	
Example	:measure:source 1 :measure:vaverage?	Selects Channel 1, and then measures the average Voltage.

**:MEASure:VHI** → Query

Description	Returns the global high voltage. Same as: Measure key → F1~F5 → F3 (Vhi)	
Syntax	< Long > :measure:vhi?	< Short > :meas:vhi?
Returns	<NR3>	
Note	Before using this command, select the measurement channel. See the example below.	
Example	:measure:source 1 :measure:vhi?	Selects Channel 1, and then measures the global high Voltage.

**:MEASure:VLO** → Query

Description	Returns the global low voltage. Same as: Measure key → F1~F5 → F3 (Vlo)	
Syntax	< Long > :measure:vlo?	< Short > :meas:vlo?
Returns	<NR3>	
Note	Before using this command, select the measurement channel. See the example below.	
Example	:measure:source 1 :measure:vlo?	Selects Channel 1, and then measures the global low Voltage.

**:MEASure:VMAX** → Query

Description	Returns the maximum amplitude. Same as: Measure key → F1~F5 → F3 (Vmax)	
Syntax	< Long > :measure:vmax?	< Short > :meas:vmax?
Returns	<NR3>	
Note	Before using this command, select the measurement channel. See the example below.	
Example	:measure:source 1 :measure:vmax?	Selects Channel 1, and then measures the maximum amplitude.

**:MEASure:VMIN** → Query

Description	Returns the minimum amplitude. Same as: Measure key → F1~F5 → F3 (Vmin)	
Syntax	< Long > :measure:vmin?	< Short > :meas:vmin?
Returns	<NR3>	

Note Before using this command, select the measurement channel. See the example below.

Example :measure:source 1 Selects Channel 1, and  
:measure:vmin? then measures the  
minimum amplitude.

**:MEASure:VPP** → Query

Description Returns the peak-to-peak amplitude (difference  
between maximum and minimum amplitude)  
Same as: Measure key → F1~F5 → F3 (Vpp)

Syntax < Long > < Short >  
:measure:vpp? :meas:vpp?

Returns <NR3>

Note Before using this command, select the measurement channel. See the example below.

Example :measure:source 1 Selects Channel 1, and  
:measure:vpp? then measures the  
peak-to-peak  
amplitude.

**:MEASure:VRMS** → Query

Description Returns the root-mean-square voltage.  
Same as: Measure key → F1~F5 → F3 (Vrms)

Syntax < Long > < Short >  
:measure:vrms? :meas:vrms?

Returns <NR3>

Note Before using this command, select the measurement channel. See the example below.

Example :measure:source 1 Selects Channel 1, and  
:measure:vrms? then measures the root  
mean square voltage.

## Save/Recall Command

:MEMory<X>:RECall:SETup .....	40
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*SAV.....	44

**:MEMory<X>:RECall:SETup** Set →

Description Recalls a panel setting from the internal memory.  
Same as: Save/Recall key (recall) → F3

Syntax < Long > < Short >  
:memory<x>:recall:setup :mem<x>:rec:set

Parameter <X> Internal memory  
1 ~ 15 S1 ~ S15

Example :memory1:recall:setup Recalls the settings from  
the internal memory S1

**:MEMory<X>:RECall:WAVEform** Set →

Description Recalls a waveform from the internal memory and  
saves it to a reference waveform.  
Same as: Save/Recall key (recall) → F4

Syntax < Long > < Short >  
:memory<x>:recall:waveform :mem<x>:rec:wav  
<NR1> <NR1>

Parameter <X> Internal memory

1 ~ 15	W1 ~ W15
<NR1>	Reference waveform
1, 2	RefA, RefB

**Example**      `:memory1:recall:waveform 1` Recalls a waveform from the internal memory W1 and saves it to the reference waveform A

**:MEMory<X>:SAVe:SEtUp** Set →

<b>Description</b>	Saves the current panel settings to an internal memory. Same as: Save/Recall key (save) → F1	
<b>Syntax</b>	< Long >	< Short >
	<code>:memory&lt;x&gt;:save:setup</code>	<code>:mem&lt;x&gt;:sav:set</code>
<b>Parameter</b>	<X>	Internal memory
	1 ~ 15	S1 ~ S15

**Example**      `:memory1:save:setup` Save the current panel settings to the memory S1

**:MEMory<X>:SAVe:WAVEform** Set →

<b>Description</b>	Saves a reference waveform to the internal memory. Same as: Save/Recall key (save) → F2	
<b>Syntax</b>	< Long >	< Short >
	<code>:memory&lt;x&gt;:save:waveform</code> <code>&lt;NR1&gt;</code>	<code>:mem&lt;x&gt;:sav:wav</code> <code>&lt;NR1&gt;</code>
<b>Parameter</b>	<X>	Internal memory
	1 ~ 15	W1 ~ W15
	<NR1>	Reference waveform

0	CH1	1	CH2
2	Math	3	RefA
4	RefB		

**Example**      `:memory1:save:waveform 1` Saves the reference waveform A to the internal memory W1

**\*RCL** Set →

<b>Description</b>	Recalls a set of panel setting from one of the fifteen internal memories, S1 to S15. Same as: Save/Recall key (recall) → F3	
<b>Syntax</b>	<code>*rcl &lt;NR1&gt;</code>	
<b>Parameter</b>	<NR1>	Settings
	1 to 15	S1 to S15

**Example**      `*rcl 1` Recalls the panel settings from S1

**:REF<X>:DISPlay** Set →  
→ Query

<b>Description</b>	Recalls a reference waveform into the display or returns its status. Same as: Save/Recall key (recall) → F5 → F2 or F3		
<b>Syntax</b>	< Long >	< Short >	
	<code>:ref&lt;x&gt;:display &lt;Boolean&gt;</code>	<code>:ref&lt;x&gt;disp &lt;Boolean&gt;</code>	
	<code>:ref&lt;x&gt;:display?</code>	<code>:ref&lt;x&gt;disp?</code>	
<b>Parameter</b>	<X>	Reference	<Boolean> Reference on/off
	1	A	0 off
	2	B	1 on

Example :ref1:display 1 Turns on the reference waveform A

:REF<X>:LOCate (Set) →  
→ (Query)

Description	Moves or returns the position of a reference waveform. Same as: Save/Recall key → F5 → Variable knob		
Syntax	< Long >	< Short >	
	:ref<x>:locate <NR1>	:ref<x>:loc <NR1>	
	:ref<x>:locate?	:ref<x>:loc?	
Parameter	<X>	Reference	<NR1> Position
	1	A	-100 to +100
	2	B	
Note	Before using this command, turn on a reference waveform. See the example below.		
Example	:ref1:display 1 :ref1:locate 0	Turns on the reference waveform A and move it to ±0 position	

:REF<X>:SAVe (Set) →

Description	Saves an input signal as a reference waveform. Same as: Save/Recall key (save) → F2 → F2 → F3		
Syntax	< Long >	< Short >	
	:ref<x>:save <NR1>	:ref<x>sav <NR1>	
Parameter	<X>	Reference	<NR1> Source
	1	A	1 Channel 1
	2	B	2 Channel 2
			3 Math

Example :ref1:save 1 Saves the Channel 1 signal as the reference waveform A

\*SAV (Set) →

Description	Saves the current panel settings into the internal memory. Same as: Save/Recall key ↵ → F1	
Syntax	*sav	
Parameter	<NR1>	Internal memory
	1 to 15	S1 to S15
Example	*sav 1	Saves the current panel settings into S1

## Time (Horizontal) command

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:TIMebase:WINDow:DELay.....	46
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:TIMebase:DELay Set →  
→ Query

Description	Sets or returns the horizontal delay.	
Syntax	< Long >	< Short >
	:timebase:delay <NR3>	:tim:del <NR3>
	:timebase:delay?	:tim:del?

Example :timebase:delay 0 Sets the horizontal delay to 0 sec

:TIMebase:SCALE Set →  
→ Query

Description	Selects or returns the horizontal scale. Same as: Time/div knob	
Syntax	< Long >	< Short >
	:timebase:scale <NR3>	:tim:scal <NR3>

Parameter	s/div	<NR3>	s/div	<NR3>	s/div	<NR3>
	1ns	1e-9	5us	5e-6	25ms	25e-3
	2.5ns	2.5e-9	10us	10e-6	50ms	50e-3
	5ns	5e-9	25us	25e-6	100ms	100e-3
	10ns	10e-9	50us	50e-6	250ms	250e-3

25ns	25e-9	100us	100e-6	500ms	500e-3
50ns	50e-9	250us	250e-6	1s	1
100ns	100e-9	500us	500e-6	2.5s	2.5
250ns	250e-9	1ms	1e-3	5s	5
500ns	500e-9	2.5ms	2.5e-3	10s	10
1us	1e-6	5ms	5e-3		
2.5us	2.5e-6	10ms	10e-3		

Example :timetable:scale 1 Selects 1s/div as the horizontal scale

:TIMebase:SWEEp Set →  
→ Query

Description	Selects or returns the horizontal sweep mode. Same as: Horizontal menu key → F1 ~ F5	
Syntax	< Long >	< Short >
	:timebase:sweep <NR1>	:tim:swe <NR1>
	:timebase:sweep?	:tim:swe?

Parameter	<NR1>	Sweep mode	<NR1>	Sweep mode
	0	Main timebase	1	Window
	2	Window zoom	3	Roll mode
	4	XY mode		

Example :timetable:sweep 0 Selects the main timebase as the horizontal sweep mode

:TIMebase:WINDow:DELay Set →  
→ Query

Description	Sets or returns the width of the zoomed window. Same as: Horizontal menu key → F2 (Window) → Time/div knob	
Syntax	< Long >	< Short >
	:timebase:window:delay <NR3> :tim:wind:del <NR3>	
Example	:timetable:window:delay 100	Sets the zoom width to 100 points

**:TIMEbase:WINDow:SCALE** (Set) →  
→ (Query)

Description	Sets or returns the scale (length) of the zoomed window. Same as: Horizontal menu key → F3 (zoom)	
Syntax	< Long >	< Short >
	:timebase:window:scale <NR3> :tim:wind:scal<NR3>	
Example	:timetable:window:scale 100	Sets the zoom length to 100 points

**Trigger command**

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**:FORCe** (Set) →

Description	Manually triggers the GDS-1000 and displays the input signals. Same as: (Trigger) Force key	
Syntax	<Long format>	<Short format>
	:force	:forc

**:RUN** (Set) →

Description Starts waiting for a trigger condition.  
Same as: Run key

Syntax :run

**:SINGle** (Set) →

Description Selects the single trigger mode and starts waiting for a trigger condition.  
Same as: (Trigger) Single key

Syntax <Long format>                      <Short format>  
:single    :singl

**:STOP** (Set) →

Description Stops waiting for a trigger condition.  
Same as: Stop key

Syntax :stop

**\*TRG** (Set) →

Description Manually triggers the GDS-1000 and displays the input signals.  
Same as: (Trigger) Force key

Syntax \*trg

**:TRIGger:COUPLE** (Set) →  
→ Query

Description Selects or returns the trigger coupling mode.  
Same as: Trigger menu key → F4 → F2

Syntax < Long >                      < Short >

:trigger:couple <NR1>                      :trig:coup <NR1>  
:trigger:couple?                              :trig:coup?

Parameter <NR1> Coupling mode  
1 AC  
2 DC

Note Before using this command, select the edge or pulse trigger. See the example below.

Example :trigger:type: 0                      Selects the edge trigger  
:trigger:couple 1                      and AC coupling mode

**:TRIGger:FREQuency** → Query

Description Returns the trigger frequency readout.

Syntax < Long >                      < Short >  
:trigger:frequency?                      :trig:freq?

**:TRIGger:LEVel** (Set) →  
→ Query

Description Selects or returns the trigger level.  
Same as: Trigger level knob

Syntax < Long >                      < Short >  
:trigger:level <NR3>                      :trig:lev <NR3>  
:trigger:level?                              :trig:lev?

Parameter <NR3> Trigger level in voltage

Example :trigger:level 0                      Sets the trigger level at ±0

**:TRIGger:MODE** (Set) →  
→ Query

Description	Selects or returns the trigger mode. Same as: Trigger key → F5	
Syntax	< Long > :trigger:mode <NR1> :trigger:mode?	< Short > :trig:mod <NR1> :trig:mod?
Parameter	<NR1> Trigger mode 1 Auto 2 Normal	
Note	Before using this command, select the edge or pulse trigger. See the example below.	
Example	:trigger:type 0 :trigger:mode 2	Selects the edge trigger and normal trigger mode

**:TRIGger:NREJ**

Set →  
→ Query

Description	Turns the noise rejection mode on/off. Same as: Trigger key → F4 → F4	
Syntax	< Long > :trigger:nrej <Boolean> :trigger:nrej?	< Short > :trig:nrej <Boolean> :trig:nrej?
Parameter	<Boolean> Noise rejection mode 0 off 1 on	
Note	Before using this command, select the edge or pulse trigger. See the example below.	
Example	:trigger:type 0 :trigger:nrej 0	Selects the edge trigger and turns off the noise rejection

		Set → → Query	
<b>:TRIGger:PULSe:MODE</b>			
Description	Selects the trigger mode in the pulse trigger. Same as: Trigger key → F1(Pulse) → F3		
Syntax	< Long > :trigger:pulse:mode <NR1> :trigger:pulse:mode?	< Short > :trig:puls:mod <NR1> :trig:puls:mod?	
Parameter	<NR1> Mode 0 < 1 >	<NR1> Mode 2 = 3 ≠	
Note	Before using this command, select the pulse trigger. See the example below.		
Example	:trigger:type 2 :trigger:pulse:mode 0	Selects the pulse trigger and < (smaller than) as the trigger mode	

**:TRIGger:PULSe:TIME**

Set →  
→ Query

Description	Selects the trigger time in the pulse trigger. Same as: Trigger key → F1(Pulse) → F3 → Variable knob		
Syntax	< Long > :trigger:pulse:time <NR3> :trigger:pulse:time?	< Short > :trig:puls:tim <NR3> :trig:puls:tim?	
Parameter	<NR3> Trigger time 20e-9 ~ 10	20ns ~ 10s	
Note	Before using this command, select the pulse trigger. See the example below.		

Example :trigger:type 2 Selects the pulse trigger  
 :trigger:pulse:time 1 and sets the trigger  
 time as 1sec

:TRIGger:REject 

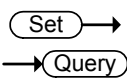
Description Selects the trigger rejection filter.  
 Same as: Trigger key → F4 → F3

Syntax < Long > < Short >  
 :trigger:reject <NR1> :trig:rej <NR1>  
 :trigger:reject? :trig:rej?

Parameter	<NR1>	Rejection filter
	0	off
	1	LF
	2	HF

Note Before using this command, select the edge or pulse trigger. See the example below.

Example :trigger:type 0 Selects the edge trigger  
 :trigger:reject 1 and LF rejection filter

:TRIGger:SLOP 

Description Selects the trigger slope.  
 Same as: Trigger key → F4 → F1

Syntax < Long > < Short >  
 :trigger:slop <NR1> :trig:slop <NR1>  
 :trigger:slop? :trig:slop?

Parameter	<NR1>	Trigger slope
	0	+ (positive)

1 - (negative)

Note Before using this command, select the edge or pulse trigger. See the example below.

Example :trigger:type 0 Selects the edge trigger  
 :trigger:slop 1 and negative trigger  
 slope

:TRIGger:SOURce 

Description Selects the trigger source channel.  
 Same as: Trigger key → F2

Syntax < Long > < Short >  
 :trigger:source <NR1> :trig:sour <NR1>  
 :trigger:source? :trig:sour?

Parameter	<NR1>	Trigger source	<NR1>	Trigger source
	0	Channel 1	2	Line
	1	Channel 2	3	External input

Example :trigger:source 0 Selects Channel 1 as the  
 trigger source

:TRIGger:TYPE 

Description Selects the trigger type.  
 Same as: Trigger key → F1

Syntax < Long > < Short >  
 :trigger:type <NR1> :trig:typ <NR1>  
 :trigger:type? :trig:typ?

Parameter	<NR1>	Trigger type	<NR1>	Trigger type
	0	Edge	2	Pulse

1 Video

Example :trigger:type 0 Selects the edge trigger type

**:TRIGger:VIDeo:FIELD** Set →  
→ Query

Description Selects the trigger field in the video trigger.  
Same as: Trigger key → F1(Video) → F5

Syntax < Long > < Short >  
:trigger:video:field <NR1> :trig:vid:fiel <NR1>  
:trigger:video:field? :trig:vid:fiel?

Parameter	<NR1> Field	<NR1> Field
	0 Line	2 even
	1 odd	

Note Before using this command, select the video trigger. See the example below.

Example :trigger:type 1 Selects the video trigger and odd trigger field  
:trigger:video:field 1

**:TRIGger:VIDeo:LiNe** Set →  
→ Query

Description Selects the trigger field line in the video trigger.  
Same as: Trigger key → F1(Video) → F5 → Variable knob

Syntax < Long > < Short >  
:trigger:video:line <NR1> :trig:vid:lin <NR1>  
:trigger:video:line? :trig:vid:lin?

Parameter	<NR1> Line range	<NR1> Line range
	1 ~ 263 NTSC odd	1 ~ 313 PAL/SECAM odd

1 ~ 262 NTSC even 1 ~ 312 PAL/SECAM even

Note Before using this command, select the video trigger, TV standard, and odd or even trigger field. See the example below.

Example :trigger:type 1 Selects the video trigger, PAL, odd field triggering, and line 313  
:trigger:video:type 0  
:trigger:video:field 1  
:trigger:video:line 313

**:TRIGger:VIDeo:POLarity** Set →  
→ Query

Description Selects the video trigger polarity.  
Same as: Trigger key → F1(Video) → F4

Syntax < Long > < Short >  
:trigger:video:polarity <NR1> :trig:vid:pol <NR1>  
:trigger:video:polarity? :trig:vid:pol?

Parameter	<NR1> Polarity
	0 Positive
	1 Negative

Note Before using this command, select the video trigger. See the example below.

Example :trigger:type 1 Selects the video trigger and positive polarity  
:trigger:video:polarity 0

**:TRIGger:VIDeo:TYPe** Set →  
→ Query

Description Selects the TV standard in the video trigger.  
Same as: Trigger key → F1(Video) → F3

Syntax < Long > < Short >

	:trigger:video:type <NR1> :trigger:video:type?	:trig:vid:typ <NR1> :trig:vid:typ?
Parameter	<NR1> Type	<NR1> Type
	0 PAL	2 SECAM
	1 NTSC	
Note	Before using this command, select the video trigger. See the example below.	
Example	:trigger:type 1 :trigger:video:type 0	Selects the video trigger and PAL standard