ADS Series
Programming Manual

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1 Overview

This chapter provides an overview of the usage methods, command rules, syntax rules, and introduction to the command set.

This chapter mainly includes:

- Programming Overview
- Command Rules
- Syntax Rules

1.1 Programming Overview

Programming commands provide a means for remote control of the oscilloscope. The oscilloscope can communicate with the computer via the following interfaces: USB or LAN. For detailed descriptions of each interface, please refer to the user manual of this product. Run the host software on the computer. Select "**Transfer**" under the "**Command Line**" menu to open the SCPI command control window, and you can send SCPI commands to control the slave device.

Through commands, the operations you can perform include:

- Set the oscilloscope
- Perform measurements
- Get data from the oscilloscope (instrument operating status and measurement results)

Important Note: Programming commands vary by model.

1.2 Command Rules

1.2.1 Command Format

Commands include setting commands and query commands (often referred to simply as commands and queries). Commands can change instrument settings or perform specific operations. Queries cause the instrument to return data and information about its status. Most commands have both setting and query forms, but not all commands have both; some are only setting commands while others are only query commands.

1.2.1.1Commands

A command makes the instrument perform a specific function or change one of its settings. The structure of the command is as follows

:[:]<Header>[<Space><Parameter>[<Comma><Parameter>]…]

The command header consists of one or more mnemonics arranged in a hierarchical or tree structure. The first mnemonic is the base or root of the tree, and each subsequent mnemonic is a child or branch of the previous one. Commands at higher levels in the tree may affect commands at lower levels. The leading colon (:) always returns you to the top of the command tree.

1.2.1.2Query

Query to make the instrument return information about its status or settings.

The structure of the query is as follows:

[:] <Header>

[:] <Header>[<Space> <Parameter> [<Comma> <Parameter>]...]

Unless otherwise specified, any level of query commands can be specified in the command tree. These branch queries return information about all mnemonics under the specified branch or level.

1.2.1.3Header in Query Response

You can control whether the instrument returns the header as part of the query response. Use the HEADer command to control this feature. If the message header is open, the instrument will return the command header as part of the query and format the query response as a valid setting command. When the message header is closed, the instrument only returns the values in the response. This format makes parsing and extracting information from the response easier.Comparative responses with the header closed or open are shown in the table below.

Query	**Turn off the response of the head**	**Turn on the response of the head**
ACQuire:NUMAVg	64	ACQUIRE:NUMAVG 64
CHx1:COUPling	DC	CH1:COUPLING DC

1.2.2 Command Message Element

Command messages are command or query names followed by any information required by the instrument to execute the command or query. Command messages consist of five different element types.

Conform	**Description**
<Header><Header>	Basic command names. If the title ends with a question mark, the command is a query. The title can start with a colon(:); if the command is connected to other commands, it needs to start with a colon. The leading colon cannot be used with command headers that start with an asterisk(*).
<Abbreviation><Mnemonic>	A sub-function of the header. Some command headers have only one mnemonic. If a command header has multiple mnemonics, they are always separated by a colon(:).
<Parameter><Argument>	The quantity, quality, constraints, or limitations related to the header. Not all commands have parameters, while other commands have multiple parameters. Parameters are separated from the header by a <space>. Parameters are separated from each other by a <comma>.
<Comma><Comma>	A comma separates parameters between multi- parameter commands. Spaces can be before and after the comma.

<Space><Space>	White space between the command header and parameters. It can consist of multiple white space characters.

1.2.3 Command Abbreviations

SCPI commands present a hierarchical tree structure and contain multiple sub-systems, each of which is made up of a root keyword and one or more sub-keywords. The command string usually starts with ":", the keywords are separated by ":" and are followed by the parameter settings available, "?" is added at the end of the command string to indicate query and the command and parameter are separated by "space".

For Example 1:

:ACQuire:MODE SAMPle

Can be abbreviated as:

:ACQ:MODE SAMP

For Example 2:

:CH1:SCALe 1V

Can be abbreviated as:

:CH1:SCAL 1V

1.2.3.1Connect Command

Setting commands and queries of any combination can be connected using a semicolon (;). The instrument executes the connected commands in the order they are received. When connecting commands and queries, the following rules must be followed:

- All command headers must be separated by semicolons, and all except the first must have a leading colon. For example:

  TRIGger:MODe NORMal、**ACQuire:NUMAVg 16** can be combined into a single command:

  TRIGger:MODe NORMal;:ACQuire:NUMAVg 16

- If the headers of the connected commands differ only in the last mnemonic, the second command can be abbreviated and the leading colon can be removed. For example, the commands **ACQuire:MODe AVErage** 和 **ACQuire:NUMAVg 16** can be combined into one command:

  ACQuire:MODe AVErage; NUMAVg 16

  The longer version is also effective:

ACQuire:MODe AVErage;:ACQuire:NUMAVg 16

- Do not add colons or semicolons before asterisk (*) commands:

  ACQuire:MODe AVErage;*TRG

  The instrument will ignore the command after the asterisk as if it does not exist, as shown below

  ACQuire:MODe AVErage;*TRG;NUMAVg 16

  Set the acquisition mode to average, and set the average acquisition to 16. The TRG command will be ignored.

- When two query commands are concatenated with a message terminator in between, it returns the response of the latter command and generates an exception event.

1.2.3.2Constructing Mnemonic Abbreviations

Some header mnemonics specify a range of mnemonics. For example, channel mnemonics can be CH2. You can use these mnemonics in commands just like other mnemonics. For example, CH1:VOLts command and CH2:VOLts command. In the command description, this option list is abbreviated as CH<x>.

- **Channel Mnemonics**

Commands can use mnemonics to identify channels in the header.

Symbol	Description
CH<x>	Channel identifier; <x> is 1 or 2

- **Reference Waveform Mnemonics**

Commands can use mnemonics in the header to identify Reference Waveform.

Symbol	Description
REF<x>	Reference waveform identifier; <x> is 1 or 2

- **Cursor Position Mnemonic**

When the instrument displays the cursor, the command can specify which pair of cursors to use.

Symbol	Description
POSITION<x>	A cursor position; <x> is 1 or 2

- **Measurement Specified Mnemonic**

Command can specify the measurement item to be set or queried as a mnemonic in the title.This instrument can automatically display up to 8 measurements.

Symbol	Description
MEAS<x>	Measurement indication; <x> is 1 to 8

1.3 Syntax Rules

SCPI language itself defines a group of sub-system keywords, and at the same time allows users to add or reduce keywords. Those keywords can be some meaningful English words and are easy to remember, which are called mnemonics. Mnemonic has long and short types. The short are the abbreviation of the long.Keywords, data, and statements are separated by special characters.

1.3.1 BNF Note

BNF (Backus-Naur Form) notation is used in this manual to describe commands and queries.

Symbol	**Description**
<>	Element defined
::=	Is defined as
|	Or
{}	Group; at least requires 1 element
[]	Optional; can be ignored
...	Previous elements may repeat
()	Comments

1.3.2 Symbol Description

(1) Space

The space is used to separate command and parameter.

(2) Colon :

If the colon is in front of the first character, it means the following is Root Command. When the colon is set between two keywords, then it means moving from the current level to the next level.

(3) asterisk*

The commands start with asterisk are named Common Command, which is used to

execute IEEE488.2 common commands.

(4) Braces {}

The parameters enclosed in the braces are optional and are usually separated by the vertical bar "|". When using this command, one of the parameters must be selected.

(5) Vertical Bar |

The vertical bar is used to separate multiple parameters and one of the parameters must be selected when using the command.

(6) Triangle Brackets < >

The parameter enclosed in the triangle brackets must be replaced by an effective value.

(7) Square Brackets [ ]

The content (command keyword) enclosed in the square brackets can be omitted.

(8) Question Mask?

Appending a question mark after the command line indicates a query for this function. The query command typically includes different data, which is separated from the command by a space.

1.3.3 Parameter Description

1.3.3.1 Integer Parameter Type

Symbol	Description
<NR1>	Signed integer value
<NR2>	No exponent floating-point value
<NR3>	Has exponent floating-point value

The syntax displayed here is the data format returned by the instrument when responding to a query. This format is also the preferred format when sending commands to the instrument.

When you enter an incorrect numeric parameter, the tool will automatically force the numeric parameter to the correct value.

1.3.3.2The instrument's handling of incorrect numeric parameters

Parameter Values	Instrument Response
Numeric parameter is less than the minimum correct value for this parameter	Set the specified command to the minimum correct value and execute the command
Numeric parameter is greater than the maximum correct value for this parameter	Set the specified command to the maximum correct value and execute the command
The value is between two correct values	Round the input value to the nearest correct value and execute the command

1.3.3.3Quoted String Parameters

Some commands accept or return data in the form of quoted strings, which is a set of ASCII characters enclosed in single quotes (' ') or double quotes (" "). For example: "This is a quoted string".

Symbol	Description
<QString>	Quoted ASCII text string

Please follow the following rules:

- A quoted string can contain any character defined in the 7-bit ASCII character set. Use the same type of quote character to start and end a string: "This is a valid string"
- If you follow the previous rules, you can mix quotes in a string: "This is an 'acceptable' string"
- Just repeat the quotes to include a quote character in the string. For example, "here is a""mark".
- Strings can contain uppercase or lowercase characters.
- If you are using a GPIB network, you cannot use the END message to terminate a quoted string before the end delimiter.
- Embedding a carriage return or line feed within a string enclosed in quotes will not terminate the string, but rather treat it as another character within the string.
- The maximum length of a quoted string returned from a query is 1000 characters.
- Here are some examples of invalid strings: "invalid string parameter '(quotes are not of the same type)' "test< EOI>" (terminating character embedded within the string).

1.3.3.4Block Parameters

Symbol	Description
<NZDig>	Non-zero digit characters, ranging from 1 to 9, specify the number of <Dig> elements that follow
<Dig>	Numeric character, range 0-9
<DChar>	A hexadecimal character, equivalent to hexadecimal 00 to FF (decimal 0 to 255)
<Block>	A data byte block is defined as: <Block>:= {#<NZDig><Dig>[<Dig>...] [<DChar>...]|#0[<DChar>...]<terminator>}

<NZDig> specifies the number of <Dig> elements that follow. <Dig> elements are combined to form a decimal integer, which indicates how many <DChar> elements follow. #0 indicates that the <Block> is of indefinite length. The <terminator> ends the block. You should not use indefinite-length blocks in RS-232, as there is no way to include the <terminator> character as a <DChar> character.

The first occurrence of the <terminator> character indicates the end of the block, and any subsequent <DChar> characters will be interpreted as a syntax error. For GPIB, the EOI line indicates the last byte. For USB, the EOM bit indicates the last byte.

2 Command List

2.1 General Command List

The return format of the following commands is described with the return header enabled. Use the **:HEADer** command to enable the return header for SCPI commands, i.e., **:HEADer ON**.

Used for querying basic instrument information or performing common basic operations. Some of these commands are related to registers. The oscilloscope status handling system consists of 5 8-bit registers and 2 queues.

5 registers: They can be divided into two categories, one being status registers and the other being enable registers.

2 queues: namely the EventQueue and the OutputQueue.

The Standard Event Status Register (SESR) and the Status Byte Register (SBR) record certain types of events that may occur during the use of the instrument. IEEE488.2 defines each bit in the status register to record a specific type of event.

Status Register

The status registers are read-only registers, with a total of 2, namely the Standard Event Status Register (SESR) and the Status Byte Register (SBR). Reading the values corresponds to the explanation in the table below.

Standard Event Status Register Bit Definition Table (SESR)

Bit Num.	7	6	5	4	3	2	1	0
Bit Name	---	---	CME	EXE	DDE	QYE	---	OPC

Bit Num.	Decimal Value	Bit Description
7(MSB)	128	---Unused
6	64	---Unused
5	32	CME command error. Indicates that the oscilloscope has

Bit Num.	Decimal Value	Bit Description
		encountered an error while parsing a command or query.
4	16	EXE Execution Error. Indicates an error occurred when executing a command or query.
3	8	DDE Device Error. Indicates a device error.
2	4	QYE Query Error. Occurs when attempting to read the output queue without data or pending data, or when data in the output queue is lost.
1	2	---Unused
0(LSB)	1	OPC operation completed. Indicates that the operation is complete. This bit is set when all pending operations are completed after the *OPC command.

Status Byte Register Bit Definition Table(SBR)

Bit Num.	7	6	5	4	3	2	1	0
Bit Name	---	MSS	ESB	MAV	---	---	---	---

Bit Num.	Decimal Value	Bit Description
7(MSB)	128	---Unused
6	64	MSS Main Status Summary. Query from *STB?. Summarizes ESB and MAV bits in SBR.
5	32	ESB Event Status Bit. Indicates the status that is enabled and present in the SESR.
4	16	MAV Information Available. Indicates the output available in the output queue.

Bit Num.	Decimal Value	Bit Description
3	8	---Unused
2	4	---Unused
1	2	---Unused
0(LSB)	1	---Unused

Enable register

The enable register is a read-write register, with a total of 3, namely the device event status enable register (DESER), the event status enable register (ESER), and the service request enable register (SRER). Setting the corresponding bit to 1 indicates enable, while setting it to 0 indicates disablement.

Device Event Status Enable Register Bit Definition Table (DESER)

Bit Num.	7	6	5	4	3	2	1	0
Bit Name	---	---	CME	EXE	DDE	QYE	---	OPC

Event Status Enable Register Bit Definition Table (ESER)

Bit Num.	7	6	5	4	3	2	1	0
Bit Name	---	---	CME	EXE	DDE	QYE	---	OPC

Service Request Enable Register Bit Definition Table (SRER)

Bit Num.	7	6	5	4	3	2	1	0
Bit Name	---	---	ESB	MAV	---	---	---	---

These commands mainly include:

- ALLEv?
- BUSY?
- *CLS
- DESE
- *ESE

- *ESR?
- EVENT?
- EVMsg?
- EVQry?
- *RST
- *SRE
- *STB?
- *WAI
- *OPC
- *PSC

ALLEv? (Query Only)

Command Format

*ALLEv?

Function Description

Query all events in the EventQueue, *EVMsg instruction returns one at a time, this instruction returns all.

Parameter

None.

Instruction

Before querying the event, *ESR? needs to be executed first to import the event into the EventQueue.

Example

None.

BUSY? (Query Only)

Command Format

BUSY?

Function Description

Query if the current oscilloscope is performing any time-consuming operations.

Parameter

None.

Instruction

"0" indicates that there are no time-consuming operations currently; "1" indicates that there are time-consuming operations currently.

Example

Query if there are any :BUSY?

time-consuming operations currently	
Return	0

*CLS (No Query Form)

Command Format

*CLS

Function Description

Clear status, including: EventQueue, Standard event status register, Status byte register (excluding MAV bits).

Parameter

None.

Instruction

None.

Example

None.

DESE

Command Format

DESE

DESE?

Function Description

Query or set the enable register value of the device event status register group.

Parameter

Integer, range: 0 - 255, default value is 255.

Instruction

Device event status enable register bit definition table, see Device event status enable register bit definition table, parameter <NR1> is the sum of the decimal values that enable the

device event status register bits. For example, to enable bit 2 (value 4), bit 3 (value 8), and bit 7 (value 128) of the register, <NR1> will be set to 140 (4+8+128).

Example

Set DESER register value to 200	DESE 200
Query DESER register value Return	DESE? 200

*ESE

Command Format

*ESE

*ESE?

Function Description

Set or query the enable register value of the event status register group.

Parameter

Integer, range: 0 - 255, default value is 255.

Instruction

Event Status Enable Register Bit Definition Table, see Event Status Enable Register Bit Definition Table, parameter <NR1> is the sum of the decimal values of the enabled event status register bits. For example, to enable bit 2 (value 4), bit 3 (value 8), and bit 7 (value 128) of the register, <NR1> will be set to 140 (4+8+128).

Example

Set ESER register value to 200	*ESE 200
Query ESER register value Return	*ESE? 200

*ESR? (Query Only)

Command Format

*ESR?

Function Description

Query and clear the event register values of the standard event status register group.

Parameter

None.

Instruction

Standard Event Status Register Bit Definition Table;Refer to the Standard Event Status Register Bit Definition Table.

Example

Query SESR register value	*ESR?
Return	32

EVENT? (Query Only)

Command Format

EVENT?

Function Description

Query returns the encoding of an event in an EventQueue.

Parameter

None.

Instruction

None.

Example

Query returns the encoding of an event in an EventQueue.	EVENT?
Return	121

EVMsg? (Query Only)

Command Format

EVMsg?

Function Description

Query returns an event in an EventQueue including encoding and message.

Parameter

None.

Instruction

None.

Example

None.

EVQty? (Query Only)

Command Format

EVQty?

Function Description

Query returns the number of events in the current EventQueue.

Parameter

None.

Instruction

None.

Example

None.

*RST (No Query Form)

Command Format

*RST

Function Description

Restore the instrument to factory default values.

Parameter

None.

Instruction

None.

Example

None.

*SRE

Command Format

*SRE

*SRE?

Function Description

Set or query the enable register value of the service request register group.

Parameter

Integer, range: 0 - 255, default value is 0.

Instruction

Service Request Enable Register Bit Definition Table，See Service Request Enable Register Bit Definition Table, parameter <NR1> is the sum of the decimal values of the register bits to be enabled. For example, to enable bit 2 (value 4), bit 3 (value 8), and bit 7 (value 128) of the register, <NR1> will be set to 140 (4+8+128).

Example

Set SRER switch register value to 120	*SRE 120
Query SRER switch register value Return	*SRE? 120

*STB? (Query Only)

Command Format

*STB?

Function Description

Query the event register value of the status byte register.

Parameter

None.

Instruction

Status Register Bit Definition Table;Refer to the status register bit definition table.

Example

Query SBR register value	*STB?
Return	0

*WAI (No Query Query)

Command Format

*WAI

Function Description

Prevents the oscilloscope from executing further commands or queries until all pending commands that generate OPC messages have completed.

Parameter

None.

Instruction

None.

Example

None.

*OPC

Command Format

*OPC

*OPC?

Function Description

Generate operation completion messages in the standard event status register when all pending operations are completed, or return "1" when all current operations are completed.

Parameter

None.

Instruction

None.

Example

None.

*PSC

Command Format

*PSC{0|1}

*PSC?

Function Description

Query or set whether to save the configuration of each switch register.

Parameter

- 1 : The oscilloscope sets the enabled register to the following default values when it is powered on: DESER 255 ESER 0 SRER 0
- 0 : The oscilloscope retains the value of the enabled register during a power cycle (power-on and power-off).

Instruction

None.

Example

None.

2.2 Autoset Command Subsystem

Used to set the related parameters of autoset.

These commands include:

- :AUTOSet
- :AUTOSet:OPENnch
- :AUTOSet:KEEPcoup

:AUTOSet (No Query Form)

Command Format

:AUTOSet {EXECute|UNDo}

Function Description

Execute or undo autoset.

Parameter

- EXECute: execute automatic setting.
- UNDo: undo automatic setting.

Instruction

None.

Return Format

None.

Example

Execute automatic setting	:AUTOSet EXECute

:AUTOSet:OPENch

Command Format

:AUTOSet:OPENch {ON|OFF|<NR1>}

:AUTOSet:OPENch?

Function Description

Set or query whether to detect only the open channels when executing AUTO operations.

Parameter

- 1 or ON indicates that the waveform auto-setting operation only detects the channels that are turned on.
- 0 or OFF indicates that the waveform auto-setting operation will sequentially detect all channels.If a channel is detected to have no signal, it will be turned off; if a channel is

detected to have a signal, it will be adjusted to the optimal setting for display.

- <NR1> is 0 when the waveform auto-setting operation will sequentially detect all channels, and for other values the waveform auto-setting operation only detects the channels that are turned on.

Instruction

This command is ineffective for the LA function.

Example

Set AUTOSET operation to detect only open channels	:AUToset:OPENch ON
Query AUTOSET detection status Return	:AUToset:OPENch? :AUTOSET:OPENCH 1

:AUTOSet:KEEPcoup

Command Format

:AUTOSet:KEEPcoup {ON|OFF|<NR1>}

:AUTOSet:KEEPcoup?

Function Description

Set or query whether coupling hold is enabled.

Parameter

- 1 or ON indicates that the channel coupling hold function is enabled, performs automatic setting operations, and the channel coupling settings remain unchanged.
- 0 or OFF indicates that the channel coupling hold function is disabled, and the channel coupling defaults to DC coupling.
- <NR1> is 0, this function is disabled; other values, this function is enabled.

Instruction

This command is ineffective for LA function.

Example

Set coupling hold to open	:AUToset:KEEPcoup ON
Query coupling hold status Return	:AUToset:KEEPcoup? :AUTOSET:KEEPCOUP 1

2.3 ACQuire Command Subsystem

Used to set the related parameters of the acquire function.

These commands include:

- :ACQuire?
- :ACQuire:FASTAcq[STATE]
- :ACQuire:MAXSamplerate?
- :ACQuire:MODe
- :ACQuire:NUMAVg
- :ACQuire:STATE

:ACQuire? (Query Only)

Command Format

:ACQuire?

Function Description

The query returns the following acquire parameters:

- Acquire state
- Acquire type
- Average number of times
- Current maximum sampling rate
- Fast Sampling enabled

Parameter

None.

Instruction

None.

Example

Query current acquire parameter	:ACQuire?
Return	:ACQUIRE:STATE 1;MODE SAMPle;NUMAVG 16; MAXSAMPLERATE 5.0000E+9;FASTACQ:STATE 0

:ACQuire:FASTAcq[:STATE]

Command Format

:ACQuire:FASTAcq[:STATE] {OFF|ON|<NR1>}

:ACQuire:FASTAcq[:STATE]?

Function Description

Set or query fast acquire related parameters, including state.

Parameter

- 1 or ON: Enable high refresh mode (Set "Low Refresh" in the Display menu to OFF);
- 0 or OFF: Disable high refresh mode (Set "Low Refresh" in the Display menu to ON).
- When <NR1> is set to 0, the high-refresh mode is turned off; for all other values, the device enters high-refresh mode.

Instruction

None.

Example

Set to enable high refresh mode	:ACQuire:FASTAcq:STATE ON
Query high refresh state Return	:ACQuire:FASTAcq:STATE? :ACQUIRE:FASTACQ:STATE 1

:ACQuire:MAXSamplerate? (No Query Form)

Command Format

:ACQuire:MACSamplerate?

Function Description

Query the maximum real-time sampling rate.

Parameter

None.

Instruction

None.

Example

Query the maximum real-time sampling rate	:ACQuire:MACSamplerate?
Return	:ACQUIRE:MAXSAMPLERATE 1.0000E+9

:ACQuire:MODe

Command Format

:ACQuire:MODe {SAMPle|AVERage|PEAK|HIRes}

:ACQuire:MODe?

Function Description

Set or query acquire mode.

Parameter

None.

Instruction

- SAMPle (Sample): In this mode, the oscilloscope does not perform any processing on the samples it collects; it is the oscilloscope's default mode.
- AVERage (Average): In this mode, the oscilloscope averages multiple acquired waveforms，reducing random noise in the input signal and improving vertical resolution.
- PEAK (Peak detect): In this mode, the oscilloscope retains the maximum and minimum values of all waveforms within each acquisition interval.
- HIRes (High resolution): In this mode, the oscilloscope improves resolution and reduces noise by extending the sampling time.

Example

Set acquire mode to peak detect	:ACQuire:MODe PEAK
Query current acquire mode Return	:ACQuire:MODe? :ACQUIRE:MODE PEAK

:ACQuire:NUMAVg

Command Format

:ACQuire:NUMAVg <NR1>

:ACQuire:NUMAVg?

Function Description

Set or query the average counts in the average acquire mode.

Parameter

Name	Type	Range	Default value
<NR1>	Discrete	2~65536, power of 2; scale is: 2|4|8|16|32|64|128|256|512|1024|2048| 4096|8192|16384|32768|65536	4

Instruction

None.

Example

Set average count to 16	:ACQuire:NUMAVg 16
Query average count Return	:ACQuire:NUMAVg? :ACQUIRE:NUMAVG 16

:ACQuire:STATE

Command Format

:ACQuire:STATE {OFF|ON|RUN|STOP|<NR1>}

:ACQuire:STATE?

Function Description

Set or query acquire status.

Parameter

- ON or RUN: Start acquire;
- OFF or STOP: Stop acquire;
- <NR1> is 0 to stop acquire; other values start acquire.

Instruction

- Return "0" indicates stop acquire;
- Return "1" indicates start acquire.

Example

Set start acquire	:ACQuire:STATE RUN
Query current average count Return	:ACQuire:STATE? :ACQUIRE:STATE 1

2.4 AFG Command Subsystem

Used to set the related parameters of AFG mode.

These commands include:

- :AFG[:SOURce[1|2]]:AMPLitude
- :AFG[:SOURce[1|2]]:FREQuency
- :AFG[:SOURce[1|2]]:FUNCtion
- :AFG[:SOURce[1|2]]:HIGHLevel
- :AFG[:SOURce[1|2]]:LOWLevel
- :AFG[:SOURce[1|2]]:OFFSet
- :AFG[:SOURce[1|2]]:PERIod
- :AFG[:SOURce[1|2]]:PHASe
- :AFG[:SOURce[1|2]]:PULse:WIDth
- :AFG[:SOURce[1|2]]:RAMP:SYMmetry
- :AFG[:SOURce[1|2]]:PULse:DUty
- :AFG[:SOURce[1|2]]:MODULation:AM:DEPth
- :AFG[:SOURce[1|2]]:MODULation:AM:FREQuency
- :AFG[:SOURce[1|2]]:MODULation:AM:WAVeform
- :AFG[:SOURce[1|2]]:MODULation:FM:DEViation
- :AFG[:SOURce[1|2]]:MODULation:FM:FREQuency
- :AFG[:SOURce[1|2]]:MODULation:FM:WAVeform
- :AFG[:SOURce[1|2]]:MODULation:TYPe
- :AFG[:SOURce[1|2]]:RUNMode
- :AFG[:SOURce[1|2]]:TRIGger
- :AFG[:SOURce[1|2]]:TRIGger:COUnt
- :AFG[:SOURce[1|2]]:TRIGger:INTerval
- :AFG[:SOURce[1|2]]:TRIGger:SOUrce
- :AFG:OUTPut[1|2]:IMPEDance
- :AFG:OUTPut[1|2][:STATE]
- :AFG[:SOURce[1|2]]:MODULation:PM:DEViation
- :AFG[:SOURce[1|2]]:MODULation:PM:FREQuency
- :AFG[:SOURce[1|2]]:MODULation:PM:WAVeform
- :AFG[:SOURce[1|2]]:MODULation:FSK:HOP
- :AFG[:SOURce[1|2]]:MODULation:FSK:FREQuency

- :AFG[:SOURce[1|2]]:SWEep:TIME
- :AFG[:SOURce[1|2]]:SWEep:SPACing
- :AFG[:SOURce[1|2]]:SWEep:FREQuency:STARt
- :AFG[:SOURce[1|2]]:SWEep:FREQuency:STOP
- :AFG[:SOURce[1|2]]:SWEep:FREQuency:CENTer
- :AFG[:SOURce[1|2]]:SWEep:FREQuency:SPAN
- :AFG[:SOURce[1|2]]:SWEep:SOURce
- :AFG[:SOURce[1|2]]:SWEep:TRIGger
- :AFG[:SOURce[1|2]]:ARBitrary:BUILtin
- :AFG[:SOURce[1|2]]:{TRACe|DATA}[:DATA]
- :AFGControl:FREQuency:SYNChronize:STATE
- :AFGControl:AMPLitude:SYNChronize:STATE
- :AFGControl:PHASe:SYNChronize
- :AFGControl:CSCopy

:AFG[:SOURce[1|2]]:AMPLitude

Command Format

:AFG[:SOURce[1|2]]:AMPLitude <NR3>

:AFG[:SOURce[1|2]]:AMPLitude?

Function Description

Set or query AFG amplitude, peak to peak.

Parameter

<NR3>: Float, indicates the amplitude of AFG[:SOURce[1|2]], peak-to- peak, in volts.

Instruction

Minimum and maximum allowed settings depend on the output load impedance setting (AFG[:SOURce[1|2]]:OUTPut:LOAd:IMPEDance) and (AFG[:SOURce[1|2]]: FUNCtion).

Example

Set amplitude value to 1V	:AFG:SOURce1:AMPLitude 1.0
Query amplitude value Return	:AFG:SOURce1:AMPLitude? :AFG:SOURCE1:AMPLITUDE 1.0000

:AFG[:SOURce[1|2]]:FREQuency

Command Format

:AFG[:SOURce[1|2]]:FREQuency <NR3>

:AFG[:SOURce[1|2]]:FREQuency?

Function Description

Query or set AFG frequency.

Parameter

<NR3>: Float, the float number of AFG[:SOURce[1|2]] frequency, unit is Hz.

Instruction

None.

Example

Set frequency to 1kHz	:AFG:SOURce1:FREQuency 1.0E3
Query frequency Return	:AFG:SOURce1:FREQuency? :AFG:SOURCE1:FREQUENCY 1.000000E+3

:AFG[:SOURce[1|2]]:FUNCtion

Command Format

:AFG[:SOURce[1|2]]:FUNCtion {SINE|SQUare|PULSe|RAMP|NOISe|ARBitrary}

:AFG[:SOURce[1|2]]:FUNCtion?

Function Description

Set or query AFG output waveform.

Parameter

- SINE: sine waveform.
- SQUare: square waveform.
- PULSe: pulse waveform.
- RAMP: ramp waveform.
- NOISe: noise waveform.
- ARBitrary: arbitrary waveform.

Instruction

None.

Example

Query channel 1 output waveform to sine	:AFG:SOURce1:FUNCtion SINE
Query channel 1 output waveform Return	:AFG:SOURce1:FUNCtion? :AFG:SOURCE1:FUNCTION SINE

:AFG[:SOURce[1|2]]:HIGHLevel

Command Format

:AFG[:SOURce[1|2]]:HIGHLevel <NR3>

:AFG[:SOURce[1|2]]:HIGHLevel?

Function Description

Set or query AFG high level.

Parameter

<NR3>: float number, representing AFG[:SOURce[1|2]] high level, unit is V.

Instruction

High-level value is limited by amplitude and offset requirements; updating this value will change amplitude and offset values.

Example

Set high level to 1V	:AFG:SOURce1:HIGHLevel 1
Query high level Return	:AFG:SOURce1:HIGHLevel? :AFG:SOURCE1:HIGHLEVEL 1.0000

:AFG[:SOURce[1|2]]:LOWLevel

Command Format

:AFG[:SOURce[1|2]]:LOWLevel <NR3>

:AFG[:SOURce[1|2]]:LOWLevel?

Function Description

Set or query AFG low level.

Parameter

<NR3>: float number, representing AFG[:SOURce[1|2]] low level, unit is V.

Instruction

Low-level value is limited by amplitude and offset requirements; updating this value will change amplitude and offset values.

Example

Set low level to 500mV	:AFG:SOURce1:LOWLevel 0.5
Query low level Return	:AFG:SOURce1:LOWLevel? :AFG:SOURCE1:LOWLEVEL 500.0000E-3

:AFG[:SOURce[1|2]]:OFFSet

Command Format

:AFG[:SOURce[1|2]]:OFFSet <NR3>

:AFG[:SOURce[1|2]]:OFFSet?

Function Description

Set or query AFG offset value.

Parameter

<NR3>: float number, representing AFG[:SOURce[1|2]] offset value, unit is V.

Instruction

None.

Example

Set offset value to 1V	:AFG:SOURce1:OFFSet 1.0
Query offset value Return	:AFG:SOURce1:OFFSet? :AFG:SOURCE1:OFFSET 1.0000

:AFG[:SOURce[1|2]]:PERIod

Command Format

:AFG[:SOURce[1|2]]:PERIod <NR3>

:AFG[:SOURce[1|2]]:PERIod?

Function Description

Set or query AFG waveform period..

Parameter

<NR3>: float number, representing AFG[:SOURce[1|2]] period value, unit is s.

Instruction

None.

Example

Set period to 1S	:AFG:SOURce1:PERIod 1
Query period Return	:AFG:SOURce1:PERIod? :AFG:SOURCE1:PERIOD 1.0000

:AFG[:SOURce[1|2]]:PHASe

Command Format

:AFG[:SOURce[1|2]]:PHASe <NR3>

:AFG[:SOURce[1|2]]:PHASe?

Function Description

Set or query AFG waveform phase.

Parameter

<NR3>: float number, representing AFG[:SOURce[1|2]] phase, unit is °.

Instruction

Set the phase of AFG[:SOURce[1|2]] controls the phase difference between the trigger signal output and the waveform output of AFG[:SOURce[1|2]]. The phase is expressed in degrees, with a range from 0.0 to 360.0, in increments of 0.1 degrees.

Example

Set phase to 145°	:AFG:SOURce1:PHASe 145.0
Query phase Return	:AFG:SOURce1:PHASe? :AFG:SOURCE1:PHASE 145.0000

:AFG[:SOURce[1|2]]:PULse:WIDth

Command Format

:AFG[:SOURce[1|2]]:PULse:WIDth <NR3>

:AFG[:SOURce[1|2]]:PULse:WIDth?

Function Description

Set or query AFG waveform pulse width.

Parameter

<NR3>: float number, representing the numerical value of the pulse width, unit is s.

Instruction

None.

Example

Set pulse width to 100us	:AFG:SOURce1:PULse:WIDth 100.0E-6
Query pulse width Return	:AFG:SOURce1:PULse:WIDth? :AFG:SOURCE1:PULSE:WIDTH 1.0000E-3

:AFG[:SOURce[1|2]]:RAMP:SYMmetry

Command Format

:AFG[:SOURce[1|2]]:RAMP:SYMmetry <NR3>

:AFG[:SOURce[1|2]]:RAMP:SYMmetry?

Function Description

Set or query AFG symmetry of ramp waveform.

Parameter

<NR3>: float number, representing AFG[:SOURce[1|2]] symmetry, unit is percentage.

Instruction

None.

Example

Set ramp waveform symmetry to 50%	:AFG:SOURce1:RAMP:SYMmetry 50.0
Query ramp waveform symmetry Return	:AFG:SOURce1:RAMP:SYMmetry? :AFG:SOURCE1:RAMP:SYMMETRY 50.0

:AFG[:SOURce[1|2]]:PULse:DUty

Command Format

:AFG[:SOURce[1|2]]:PULse:DUty <NR3>

:AFG[:SOURce[1|2]]:PULse:DUty?

Function Description

Set or query AFG duty of pulse waveform.

Parameter

<NR3>: float number, representing AFG[:SOURce[1|2]] duty, unit is percentage.

Instruction

None.

Example

Set pulse waveform duty to 50%	:AFG:SOURce1:PULse:DUty 50.0
Query pulse waveform duty Return	:AFG:SOURce1:PULse:DUty? :AFG:SOURCE1:PULSE:DUTY 50.0

:AFG[:SOURce[1|2]]:MODULation:AM:DEPth

Command Format

:AFG[:SOURce[1|2]]:MODULation:AM:DEPth <NR3>

:AFG[:SOURce[1|2]]:MODULation:AM:DEPth?

Function Description

Set or query AFG modulation depth of AM.

Parameter

<NR3>: range is 0.0 to 100.0, resolution is 0.1%.

Instruction

None.

Example

Set AM modulation depth to 10%	:AFG:SOURce1:MODULation:AM:DEPth 10
Query AM modulation depth Return	:AFG:SOURce1:MODULation:AM:DEPth? :AFG:SOURCE1:MODULATION:AM:DEPTH 10.0

:AFG[:SOURce[1|2]]:MODULation:AM:FREQuency

Command Format

:AFG[:SOURce[1|2]]:MODULation:AM:FREQuency <NR3>

:AFG[:SOURce[1|2]]:MODULation:AM:FREQuency?

Function Description

Set or query AFG modulation frequency of AM.

Parameter

<NR3>: float number, representing AFG[:SOURce[1|2]] frequency, unit is Hz. Range is 2 mHz to 20.00 kHz, resolution is 1 mHz.

Instruction

None.

Example

Set AM modulation frequency to 10kHz	:AFG:SOURce1:MODULation:AM:FREQuency 10.0E+3
Query AM modulation frequency Return	:AFG:SOURce1:MODULation:AM:FREQuency? :AFG:SOURCE1:MODULATION:AM:FREQUENCY 10.000000E+3

:AFG[:SOURce[1|2]]:MODULation:AM:WAVeform

Command Format

:AFG[:SOURce[1|2]]:MODULation:AM:WAVeform {SINE|SQUare|RAMP|NOISe}

:AFG[:SOURce[1|2]]:MODULation:AM:WAVeform?

Function Description

Set or query AFG modulation waveform of AM.

Parameter

- SINE: sine waveform.

- SQUare: square waveform.
- RAMP: ramp waveform.
- NOISe: noise waveform.

Instruction

None.

Example

Set AM modulation waveform to SINE	:AFG:SOURce1:MODULation:AM:WAVeform SINE
Query AM modulation waveform Return	:AFG:SOURce1:MODULation:AM:WAVeform? :AFG:SOURCE1:MODULATION:AM:WAVEFORM SINE

:AFG[:SOURce[1|2]]:MODULation:FM:DEViation

Command Format

:AFG[:SOURce[1|2]]:MODULation:FM:DEViation <NR3>

:AFG[:SOURce[1|2]]:MODULation:FM:DEViation?

Function Description

Set or query AFG modulation deviation of FM.

Parameter

<NR3>: The setting range of frequency deviation depends on the current carrier's frequency range.

Instruction

None.

Example

Set FM frequency deviation to 10kHz	:AFG:SOURce1:MODULation:FM:DEViation 10.0E+3
Query FM frequency deviation Return	:AFG:SOURce1:MODULation:FM:DEViation? :AFG:SOURCE1:MODULATION:FM:DEVIATION 10.000000E+3

:AFG[:SOURce[1|2]]:MODULation:FM:FREQuency

Command Format

:AFG[:SOURce[1|2]]:MODULation:FM:FREQuency <NR3>

:AFG[:SOURce[1|2]]:MODULation:FM:FREQuency?

Function Description

Set or query AFG modulation frequency of FM.

Parameter

<NR3>: Range is 2 mHz to 20.00 kHz, resolution is 1 mHz.

Instruction

None.

Example

Set FM frequency to 10kHz	:AFG:SOURce1:MODULation:FM:FREQuency 10.0E+3
Query FM frequency Return	:AFG:SOURce1:MODULation:FM:FREQuency? :AFG:SOURCE1:MODULATION:FM:FREQUENCY 10.000000E+3

:AFG[:SOURce[1|2]]:MODULation:FM:WAVeform

Command Format

:AFG[:SOURce[1|2]]:MODULation:FM:WAVeform {SINE|SQUare|RAMP|NOISe}

:AFG[:SOURce[1|2]]:MODULation:FM:WAVeform?

Function Description

Set or query AFG modulation waveform of FM.

Parameter

- SINE: sine waveform.
- SQUare: square waveform.
- RAMP: ramp waveform.
- NOISe: noise waveform.

Instruction

None.

Example

Set FM modulation waveform to SINE	:AFG:SOURce1:MODULation:FM:WAVeform SINE
Query FM modulation waveform Return	:AFG:SOURce1:MODULation:FM:WAVeform? :AFG:SOURCE1:MODULATION:FM:WAVEFORM SINE

:AFG[:SOURce[1|2]]:MODULation:TYPe

Command Format

:AFG[:SOURce[1|2]]:MODULation:TYPe {NONe|AM|FM|PM|FSK}

:AFG[:SOURce[1|2]]:MODULation:TYPe?

Function Description

Set or query AFG modulation type.

Parameter

NONe: The return value when RUNMode is not set to modulation.

Instruction

AFG[:SOURce[1|2]]: Must set RUNMode to set the desired type. Unless AFG[:SOURce[1|2]]: RUNMode is set to modulation, this command will return NONe.

Example

Set modulation type to AM	:AFG:SOURce1:MODULation:TYPe AM
Query modulation type Return	:AFG:SOURce1:MODULation:TYPe? :AFG:SOURCE1:MODULATION:TYPE AM

:AFG[:SOURce[1|2]]:RUNMode

Command Format

:AFG[:SOURce[1|2]]:RUNMode {CONtinuous|MODUlation|SWEep|BURst}

:AFG[:SOURce[1|2]]:RUNMode?

Function Description

Set or query AFG run mode.

Parameter

- CONtinuous: continuous.
- MODUlation: modulation.
- SWEep: sweep.
- BURst: burst.

Instruction

None.

Example

Set run mode to continuous	:AFG:SOURce1:RUNMode CONtinuous
Query run mode Return	:AFG:SOURce1:RUNMode? :AFG:SOURCE1:RUNMODE CONTINUOUS

:AFG[:SOURce[1|2]]:TRIGger (No Query Form)

Command Format

:AFG[:SOURce[1|2]]:TRIGger {FORCE}

Function Description

Set AFG force trigger.

Parameter

FORCE: Manually trigger once for the trigger source within a burst pulse train.

Instruction

None.

Example

Set AFG force trigger	:AFG:SOURce1:TRIGger FORCE

:AFG[:SOURce[1|2]]:TRIGger:COUnt

Command Format

:AFG[:SOURce[1|2]]:TRIGger:COUnt <NR1>

:AFG[:SOURce[1|2]]:TRIGger:COUnt?

Function Description

Set or query the trigger (pulse train) count for AFG.

Parameter

<NR1>: The trigger count value ranges from 0 to 400,000 with a resolution of 1. A value of 0 is equivalent to infinity.

Instruction

None.

Example

Set the trigger count to 1	:AFG:SOURce1:TRIGger:COUnt 1
Query the trigger count Return	:AFG:SOURce1:TRIGger:COUnt? :AFG:SOURCE1:TRIGGER:COUNT 1

:AFG[:SOURce[1|2]]:TRIGger:INTerval

Command Format

:AFG[:SOURce[1|2]]:TRIGger:INTerval <NR3>

:AFG[:SOURce[1|2]]:TRIGger:INTerval?

Function Description

Set or query the trigger (pulse train) interval for AFG.

Parameter

<NR3> : The trigger interval value ranges from 1.0E-3 to 500, with a resolution of 1.0E-9. The unit is s.

Instruction

None.

Example

Set trigger interval time to 1s	:AFG:SOURce1:TRIGger:INTerval 1
Query trigger interval time Return	:AFG:SOURce1:TRIGger:INTerval? :AFG:SOURCE1:TRIGGER:INTERVAL 1.0000

:AFG[:SOURce[1|2]]:TRIGger:SOUrce

Command Format

:AFG[:SOURce[1|2]]:TRIGger:SOUrce {INTERNal|MANual}

:AFG[:SOURce[1|2]]:TRIGger:SOUrce?

Function Description

Set or query AFG the trigger source for the AFG trigger.

Parameter

- INTERNal: internal.
- MANual: manual.

Instruction

None.

Example

Set trigger source to internal	:AFG:SOURce1:TRIGger:SOUrce INTERNal
Query trigger source Return	:AFG:SOURce1:TRIGger:SOUrce? :AFG:SOURCE1:TRIGGER:SOURCE INTERNAL

:AFG:OUTPut[1|2]:IMPEDance

Command Format

:AFG:OUTPut[1|2]:IMPEDance {<NR1>|HIGHZ}

:AFG:OUTPut[1|2]:IMPEDance?

Function Description

Set or query AFG output load impedance.

Parameter

- <NR1>: Range is 1-10000.
- HIGHZ: set high impedance.

Instruction

None.

Example

Set output load impedance to high impedance	:AFG:OUTPut1:IMPEDance HIGHZ
Query output load impedance Return	:AFG:OUTPut1:IMPEDance? :AFG:OUTPUT1:IMPEDANCE HIGHZ

:AFG:OUTPut[1|2][:STATE]

Command Format

:AFG:OUTPut[1|2][:STATE] {OFF|ON|<NR1>}

:AFG:OUTPut[1|2][:STATE]?

Function Description

Set or query AFG channel output status.

Parameter

- ON: open specified channel output.
- OFF: close specified channel output.
- <NR1> is 0 to close specified channel output; other values to open specified channel output.

Instruction

None.

Example

Set channel output status to ON	:AFG:OUTPut1:STATE ON
Query channel output status Return	:AFG:OUTPut1:STATE? :AFG:OUTPUT1:STATE 1

:AFG[:SOURce[1|2]]:MODULation:PM:DEViation

Command Format

:AFG[:SOURce[1|2]]:MODULation:PM:DEViation <NR3>

:AFG[:SOURce[1|2]]:MODULation:PM:DEViation?

Function Description

Set or query AFG modulation deviation of PM.

Parameter

<NR3>: Range is 0-180, resolution is 0.1.

Instruction

None.

Example

Set PM modulation deviation to 1	:AFG:SOURce1:MODULation:PM:DEViation 1
Query PM modulation deviation Return	:AFG:SOURce1:MODULation:PM:DEViation? :AFG:SOURCE1:MODULATION:PM:DEVIATION 1.0000

:AFG[:SOURce[1|2]]:MODULation:PM:FREQuency

Command Format

:AFG[:SOURce[1|2]]:MODULation:PM:FREQuency <NR3>

:AFG[:SOURce[1|2]]:MODULation:PM:FREQuency?

Function Description

Set or query AFG modulation frequency of PM.

Parameter

<NR3>: Range is 2 mHz to 20.00 kHz, resolution is 1 mHz.

Instruction

None.

Example

Set PM modulation frequency to 10kHz	:AFG:SOURce1:MODULation:PM:FREQuency 10.0E+3
Query PM modulation frequency Return	:AFG:SOURce1:MODULation:PM:FREQuency? :AFG:SOURCE1:MODULATION:PM:FREQUENCY 10.000000E+3

:AFG[:SOURce[1|2]]:MODULation:PM:WAVeform

Command Format

:AFG[:SOURce[1|2]]:MODULation:PM:WAVeform {SINE|SQUare|RAMP|NOISe}

:AFG[:SOURce[1|2]]:MODULation:PM:WAVeform?

Function Description

Set or query AFG modulation waveform of PM.

Parameter

- SINE: sine waveform.
- SQUare: square waveform.
- RAMP: ramp waveform.
- NOISe: noise waveform.

Instruction

None.

Example

Set PM modulation waveform to SINE	:AFG:SOURce1:MODULation:PM:WAVeform SINE
Query PM modulation waveform Return	:AFG:SOURce1:MODULation:PM:WAVeform? :AFG:SOURCE1:MODULATION:PM:WAVEFORM SINE

:AFG[:SOURce[1|2]]:MODULation:FSK:HOP

Command Format

:AFG[:SOURce[1|2]]:MODULation:FSK:HOP <NR3>

:AFG[:SOURce[1|2]]:MODULation:FSK:HOP?

Function Description

Set or query AFG hop frequency of FSK.

Parameter

<NR3>: consistent with the carrier's frequency range.

Instruction

None.

Example

Set FSK hop frequency to 100Hz	:AFG:SOURce1:MODULation:FSK:HOP 100
Query FSK hop frequency Return	:AFG:SOURce1:MODULation:FSK:HOP? :AFG:SOURCE1:MODULATION:FSK:HOP 100.000000

:AFG[:SOURce[1|2]]:MODULation:FSK:FREQuency

Command Format

:AFG[:SOURce[1|2]]:MODULation:FSK:FREQuency <NR3>

:AFG[:SOURce[1|2]]:MODULation:FSK:FREQuency?

Function Description

Set or query AFG modulation frequency of FSK.

Parameter

<NR3>: Range is 2 mHz to 10.00 kHz, resolution is 1 mHz.

Instruction

None.

Example

Set FSK modulation frequency to10kHz	:AFG:SOURce1:MODULation:FSK:FREQuency 10.0E+3
Query FSK modulation frequency Return	:AFG:SOURce1:MODULation:FSK:FREQuency? :AFG:SOURCE1:MODULATION:FSK:FREQUENCY 10.000000E+3

:AFG[:SOURce[1|2]]:SWEep:TIME

Command Format

:AFG[:SOURce[1|2]]:SWEep:TIME <NR3>

:AFG[:SOURce[1|2]]:SWEep:TIME?

Function Description

Set or query AFG sweep time of sweep.

Parameter

<NR3>: range is 1.0E-3 to 500, resolution is 1.0E-9.

Instruction

None.

Example

Set sweep time of sweep to 1s	:AFG:SOURce1:SWEep:TIME 1
Query sweep time of sweep Return	:AFG:SOURce1:SWEep:TIME? :AFG:SOURCE1:SWEEP:TIME 1.0000

:AFG[:SOURce[1|2]]:SWEep:SPACing

Command Format

:AFG[:SOURce[1|2]]:SWEep:SPACing {LINear|LOGarithmic}

:AFG[:SOURce[1|2]]:SWEep:SPACing?

Function Description

Set or query AFG sweep mode of sweep.

Parameter

- LINear: linear.
- LOGarithmic: logarithmic.

Instruction

None.

Example

Set sweep mode of sweep to linear	:AFG:SOURce1:SWEep:SPACing LINear
Query sweep mode of sweep Return	:AFG:SOURce1:SWEep:SPACing? :AFG:SOURCE1:SWEEP:SPACING LINEAR

:AFG:SWEep:FREQuency:STARt

Command Format

:AFG:SWEep:FREQuency:STARt <NR3>

:AFG:SWEep:FREQuency:STARt?

Function Description

Set or query AFG start frequency of sweep.

Parameter

<NR3>: consistent with the carrier's frequency range.

Instruction

None.

Example

Set start frequency of sweep to 100Hz	:AFG:SOURce1:SWEep:FREQuency:STARt 100
Query start frequency of sweep Return	:AFG:SOURce1:SWEep:FREQuency:STARt? :AFG:SOURCE1:SWEEP:FREQUENCY:START 100.000000

:AFG:SWEep:FREQuency:STOP

Command Format

:AFG:SWEep:FREQuency:STOP <NR3>

:AFG:SWEep:FREQuency:STOP?

Function Description

Set or query AFG stop frequency of sweep.

Parameter

<NR3>: consistent with the carrier's frequency range.

Instruction

None.

Example

Set stop frequency of sweep to 100Hz	:AFG:SOURce1:SWEep:FREQuency:STOP 100
Query stop frequency of sweep Return	:AFG:SOURce1:SWEep:FREQuency:STOP? :AFG:SOURCE1:SWEEP:FREQUENCY:STOP 100.000000

:AFG:SWEep:FREQuency:CENTer

Command Format

:AFG:SWEep:FREQuency:CENTer <NR3>

:AFG:SWEep:FREQuency:CENTer?

Function Description

Set or query AFG center frequency of sweep.

Parameter

<NR3>: abs(span freq)/2 to start freq.

Instruction

None.

Example

Set center frequency of sweep to 100Hz	:AFG:SOURce1:SWEep:FREQuency:CENTer 100
Query center frequency of sweep Return	:AFG:SOURce1:SWEep:FREQuency:CENTer? :AFG:SOURCE1:SWEEP:FREQUENCY:CENTER 100.000000

:AFG:SWEep:FREQuency:SPAN

Command Format

:AFG:SWEep:FREQuency:SPAN <NR3>

:AFG:SWEep:FREQuency:SPAN?

Function Description

Set or query AFG frequency range of sweep.

Parameter

<NR3>: (center freq) X2 to (center freq) X2.

Instruction

None.

Example

Set frequency range of sweep to 900Hz	:AFG:SOURce1:SWEep:FREQuency:SPAN 900
Query frequency range of sweep Return	:AFG:SOURce1:SWEep:FREQuency:SPAN? :AFG:SOURCE1:SWEEP:FREQUENCY:SPAN 900.000000

:AFG[:SOURce[1|2]]:SWEep:SOURce

Command Format

:AFG[:SOURce[1|2]]:SWEep:SOURce {INTERNal|MANual}

:AFG[:SOURce[1|2]]:SWEep:SOURce?

Function Description

Set or query AFG trigger source of sweep.

Parameter

- INTERNal: internal.
- MANual: manual.

Instruction

None.

Example

Set trigger source of sweep to internal	:AFG:SOURce1:SWEep:SOURce INTERNal
Query trigger source of sweep Return	:AFG:SOURce1:SWEep:SOURce? :AFG:SOURCE1:SWEEP:SOURCE INTERNAL

:AFG[:SOURce[1|2]]:SWEep:TRIGger (No Query Form)

Command Format

:AFG[:SOURce[1|2]]:SWEep:TRIGger {FORCE}

Function Description

Set AFG sweep manual trigger once.

Parameter

FORCE: manual trigger once.

Instruction

None.

Example

Set AFG sweep manual trigger once	:AFG:SOURce1:SWEep:TRIGger FORCE

:AFG[:SOURce[1|2]]:{TRACe|DATA}[:DATA]

Command Format

:AFG[:SOURce[1|2]]:{TRACe|DATA}[:DATA] USER<X>,#<XXXXX><XXX...>

:AFG[:SOURce[1|2]]:{TRACe|DATA}[:DATA]?

Function Description

Set or query AFG waveform.

Parameter

None.

Instruction

None.

Example

Set AFG waveform	:AFG:SOURce1:TRACe:DATA USER0,#31003A 43 55 52 56 45 20 23 34 31 38 30 30 F4 6F 6F 6F 6F 70 6F 70 6F 70 6F 6F 6F 70 6F 70 6F 70 6F 70 6F 6F 6E 6F 6C 6C 69 69 63 63 5B 5B 50 50 43 43 35 35 2A 2A 20 20 18 18 11 11 0C 0C 07 07 04 04 01 01 FF FF FD FE FC FC FB FB F9 FA F9 F9 F8 F8 F7 F7 F7 F7 F6 F7 F6 F6 F6 F6 F5 F6 F5 F5 F5 F5 F4 F5 F4
Query AFG waveform Return	:AFG:SOURce1:TRACe:DATA? :AFG:SOURCE1:TRACE:DATA 8191,8194,8197,8200,8203,8206, 8209,8212,8216,8219,8222,8225,8228,8231,8234,8238,8241, 8244,8247,8250,8253,8256,8260,8263,8266,8269,8272,8275, 8278,8282,8285,8288,8291,8294,8297,8300,8304,8307,8310,. .....(ellipses indicate remaining data)

:AFGControl:FREQuency:SYNChronize:STATE

Command Format

:AFG:FREQuency:SYNChronize:STATE {OFF|ON|<NR1>}

:AFG:FREQuency:SYNChronize:STATE?

Function Description

Set or query frequency lock.

Parameter

- ON: enable frequency lock.
- OFF: disable frequency lock.
- <NR1> is 0 to disable frequency lock; other values to enable frequency lock.

Instruction

None.

Example

Set frequency lock to ON	:AFGControl:FREQuency:SYNChronize:STATE 1
Query frequency lock status Return	:AFGControl:FREQuency:SYNChronize:STATE? :AFGCONTROL:FREQUENCY:SYNCHRONIZE:STATE 1

:AFGControl:FREQuency:SYNChronize:STATE

Command Format

:AFGControl:AMPLitude:SYNChronize:STATE {OFF|ON|<NR1>}

:AFGControl:AMPLitude:SYNChronize:STATE?

Function Description

Set or query amplitude lock.

Parameter

- ON: enable amplitude lock.
- OFF: disable amplitude lock.
- <NR1> is 0 to disable amplitude lock; other values to enable amplitude lock.

Instruction

None.

Example

Set amplitude lock to ON	:AFGControl:AMPLitude:SYNChronize:STATE 1
Query amplitude lock status Return	:AFGControl:AMPLitude:SYNChronize:STATE? :AFGCONTROL:AMPLITUDE:SYNCHRONIZE:STATE 1

:AFGControl:PHASe:SYNChronize (No Query Form)

Command Format

:AFGControl:PHASe:SYNChronize EXECute

Function Description

Set phase sync once.

Parameter

EXECute: Execute phase synchronization.

Instruction

None.

Example

Set phase sync once	:AFGControl:PHASe:SYNChronize EXECute

:AFG[:SOURce[1|2]]:ARBitrary:BUILtin

Command Format

:AFG[:SOURce[1|2]]:ARBitrary:BUILtin {Butterworth|Combin|CPulse 等}

:AFG[:SOURce[1|2]]:ARBitrary:BUILtin?

Function Description

Set or query arbitrary waveform type.

Parameter

None.

Instruction

None.

Example

Set arbitrary waveform to Butterworth	:AFG:SOURce1:ARBitrary:BUILtin Butterworth
Query arbitrary waveform Return	:AFG:SOURce1:ARBitrary:BUILtin? :AFG:SOURCE1:ARBITRARY:BUILTIN BUTTERWORTH

:AFGControl:CSCopy (No Query Form)

Command Format

:AFGControl:CSCopy{CH1|CH2},{CH1|CH2}

Function Description

Set channel copy.

Parameter

- CH1,CH2: Copy Channel 1 to Channel 2.
- CH2,CH1: Copy Channel 2 to Channel 1.

Instruction

None.

Example

Set channel CH1 copied to CH2	:AFGControl:CSCopy CH1,CH2

2.5 BUS Command Subsystem

This chapter mainly introduces the settings of the trigger system, including the following Command Subsystem:

- Bus Base Command Subsystem
- Bus RS232C Command Subsystem
- Bus I2C Command Subsystem
- Bus SPI Command Subsystem
- Bus CAN Command Subsystem
- Bus LIN Command Subsystem

Bus Base Command Subsystem

Used to set the related basic parameters of decoding mode.

These commands include:

- :BUS?
- :BUS:B<x>:STATE
- :BUS:B<x>:POSition
- :BUS:B<x>:LABel
- :BUS:B<x>:DISplay:FORMat
- :BUS:B<x>:TYPe
- :BUS:B<x>:COPYTrig
- :BUS:B<x>:EVENTtable:STATE
- :SAVe:EVENTtable:{BUS<x>|B<x>}
- :SAVe:EVENTtable:{BUS<x>|B<x>}:PATH

:BUS? (Query Only)

Command Format

:BUS?

Function Description

Query the related parameters of decoding.

Parameter

None.

Instruction

None.

Example

Query the related parameters of decoding	:BUS?
Return	:BUS:B1:STATE 1;:BUS:B2:STATE 0;:BUS:B1:POSITION 0.0000;:BUS:B2:POSITION 0.0000;:BUS:B1:LABEL "ACK";:BUS:B2:LABEL "AD0";:BUS:B1:DISPLAY:FORMAT HEXADECIMAL;:BUS:B2:DISPLAY:FORMAT HEXADECIMAL;:BUS:B1:TYPE LIN;:BUS:B2:TYPE LIN;:BUS:B1:LIN:SOURCE CH3;THRESHOLD 1.0000;BITRATE 2000;STANDARD V2X;POLARITY 1;:BUS:B2:LIN:SOURCE CH2;THRESHOLD 0.0000;BITRATE 600;STANDARD V1X;POLARITY 1;:BUS:B1:EVENTTABLE:STATE 0;:BUS:B2:EVENTTABLE:STATE 0;:SAVE:EVENTTABLE:BUS1:PATH INTERNAL;:SAVE:EVENTTABLE:BUS2:PATH INTERNAL

:BUS:B<x>:STATE

Command Format

:BUS:B<x>:STATE {OFF|ON|<NR1>}

:BUS:B<x>:STATE?

Function Description

Set or query decode status.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- ON: enable decode function.
- OFF: disable decode function.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set decode 1 function to ON	:BUS:B1:STATE 1
Query decode 1 function status Return	:BUS:B1:STATE? :BUS:B1:STATE 1

:BUS:B<x>:POSition

Command Format

:BUS:B<x>:POSition <NR3>

:BUS:B<x>:POSition?

Function Description

Set or query position of decode waveform on the display.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR3>: float number that specifies the desired position, from the center horizontal grid division. The range is from -5.0 to 5.0 sectors.

Instruction

None.

Example

Set decode 1 waveform position to 1	:BUS:B1:POSition 1
Query decode 1 waveform position Return	:BUS:B1:POSition? :BUS:B1:POSITION 1.0000

:BUS:B<x>:LABel

Command Format

:BUS:B<x>:LABel <Qstring>

:BUS:B<x>:LABel?

Function Description

Set or query decode waveform label name.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <Qstring>: label name.

Instruction

None.

Example

Set decode 1 waveform label name to abc	:BUS:B1:LABel "abc"
Query decode 1 waveform label name Return	:BUS:B1:LABel? :BUS:B1:LABEL "abc"

:BUS:B<x>:DISplay:FORMat

Command Format

:BUS:B<x>:DISplay:FORMat {BINary|HEXadecimal|DECimal|ASCII}

:BUS:B<x>:DISplay:FORMat?

Function Description

Set or query the display format of the digital information of the decode waveform.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.

- BINary: binary format.
- HEXadecimal: hexadecimal format.
- DECimal: decimal format.
- ASCII: ASCII format.

Instruction

None.

Example

Set data information display format to ASCII	:BUS:B1:DISplay:FORMat ASCII
Query data information display format Return	:BUS:B1:DISplay:FORMat? :BUS:B1:DISPLAY:FORMAT ASCII

:BUS:B<x>:TYPe

Command Format

:BUS:B<x>:TYPe {I2C|SPI|CAN|RS232C|LIN}

:BUS:B<x>:TYPe?

Function Description

Set or query decode type.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.

Instruction

None.

Example

Set decode type to I2C	:BUS:B1:TYPe I2C
Query decode type Return	:BUS:B1:TYPe? :BUS:B1:TYPE I2C

:BUS:B<x>:COPYTrig (No Query Form)

Command Format

:BUS:B<x>:COPYTrig

Function Description

Set execute copy decode.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.

Instruction

None.

Example

Set execute copy decode	:BUS:B1:COPYTrig

:BUS:B<x>:EVENTtable:STATE

Command Format

:BUS:B<x>:EVENTtable:STATE {OFF|ON|<NR1>}

:BUS:B<x>:EVENTtable:STATE?

Function Description

Set or query decode event table function status.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- ON: enable decode event table.
- OFF: disable decode event table.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set decode 1 event table to ON	:BUS:B1:EVENTtable:STATE 1
Query decode 1 event table status Return	:BUS:B1:EVENTtable:STATE? :BUS:B1:EVENTTABLE:STATE 1

:SAVe:EVENTtable:{BUS<x>|B<x>} (No Query Form)

Command Format

:SAVe:EVENTtable:{BUS<x>|B<x>} <file name>

Function Description

Save event table contents.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.

Instruction

None.

Example

Save event table contents	:SAVe:EVENTtable:BUS1 abc

:SAVe:EVENTtable:{BUS<x>|B<x>}:PATH

Command Format

:SAVe:EVENTtable:{BUS<x>|B<x>}:PATH {INTERNal|EXTERNal}

:SAVe:EVENTtable:{BUS<x>|B<x>}:PATH?

Function Description

Set or query save event table path.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- INTERNal: save path is internal.
- EXTERNal: save path is external.

Instruction

None.

Example

Set decode 1 save path to external	:SAVe:EVENTtable:BUS1:PATH EXTERNal or :SAVe:EVENTtable:B1:PATH EXTERNal
Query decode 1 save path Return	:SAVe:EVENTtable:BUS1:PATH? or :SAVe:EVENTtable:B1:PATH? :SAVE:EVENTTABLE:BUS1:PATH EXTERNAL or :SAVE:EVENTTABLE:B1:PATH EXTERNAL

Bus CAN Command Subsystem

Used to set the related parameters of CAN decode mode.

These commands include:

- :BUS:B<x>:CAN:SOUrce
- :BUS:B<x>:CAN:THReshold
- :BUS:B<x>:CAN:SAMPLEpoint
- :BUS:B<x>:CAN:BITRate
- :BUS:B<x>:CAN:PRObe

:BUS:B<x>:CAN:SOUrce

Command Format

:BUS:B<x>:CAN:SOUrce {CH1|CH2|CH3|CH4}

:BUS:B<x>:CAN:SOUrce?

Function Description

Set or query CAN decode source.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- CH1-4: Channel 1~4.

Instruction

None.

Example

Set CAN decode 1 source to CH1	:BUS:B1:CAN:SOUrce CH1
Query CAN decode 1 source Return	:BUS:B1:CAN:SOUrce? :BUS:B1:CAN:SOURCE CH1

:BUS:B<x>:CAN:THReshold

Command Format

:BUS:B<x>:CAN:THReshold <NR3>

:BUS:B<x>:CAN:THReshold?

Function Description

Set or query CAN decode threshold.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR3>: Thresholds for each logic decoding channel (in Volts). Settings are rounded to the nearest allowable value.

Instruction

None.

Example

Set decode 1 threshold to 1V	:BUS:B1:CAN:THReshold 1.0
Query decode 1 threshold Return	:BUS:B1:CAN:THReshold? :BUS:B1:CAN:THRESHOLD 1.0000

:BUS:B<x>:CAN:SAMPLEpoint

Command Format

:BUS:B<x>:CAN:SAMPLEpoint <NR3>

:BUS:B<x>:CAN:SAMPLEpoint?

Function Description

Set or query CAN decode sample points.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR3>: Range to 0.5-95.

Instruction

None.

Example

Set decode 1 sample point to 1	:BUS:B1:CAN:SAMPLEpoint 1
Query decode 1 sample point Return	:BUS:B1:CAN:SAMPLEpoint? :BUS:B1:CAN:SAMPLEPOINT 1.0

:BUS:B<x>:CAN:BITRate

Command Format

:BUS:B<x>:CAN:BITRate <NR1>

:BUS:B<x>:CAN:BITRate?

Function Description

Set or query CAN decode baud rate.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR1>: Range to 10000-1000000,=-990000, unit is bps.

Instruction

None.

Example

Set decode 1 baud rate to 10000bps	:BUS:B1:CAN:BITRate 10000
Query decode 1 baud rate Return	:BUS:B1:CAN:BITRate? :BUS:B1:CAN:BITRATE 10000

:BUS:B<x>:CAN:PRObe

Command Format

:BUS:B<x>:CAN:PRObe {CAN_H|CAN_L|TX|RX}

:BUS:B<x>:CAN:PRObe?

Function Description

Set or query CAN decode type.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.

Instruction

None.

Example

Set CAN decode type to TX	:BUS:B1:CAN:PRObe TX
Query CAN decode type Return	:BUS:B1:CAN:PRObe? :BUS:B1:CAN:PROBE TX

Bus I2C Command Subsystem

Used to set the related parameters of I2C decode mode.

These commands include:

- :BUS:B<x>:I2C{:CLOCk|:SCLk}:SOUrce
- :BUS:B<x>:I2C{:CLOCk|:SCLk}:THReshold
- :BUS:B<x>:I2C{:DATa|:SDAta}:SOUrce
- :BUS:B<x>:I2C{:DATa|:SDAta}:THReshold
- :BUS:B<x>:I2C:ADDRess:RWINClude

:BUS:B<x>:I2C{:CLOCk|:SCLk}:SOUrce

Command Format

:BUS:B<x>:I2C{:CLOCk|:SCLk}:SOUrce {CH1|CH2|CH3|CH4}

:BUS:B<x>:I2C{:CLOCk|:SCLk}:SOUrce?

Function Description

Set or query I2C decode SCL source.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- CH1-4: Channel 1~4.

Instruction

None.

Example

Set I2C decode 1 SCL source to CH1	:BUS:B1:I2C:CLOCk:SOUrce CH1 or :BUS:B1:I2C:SCLk:SOUrce CH1
Query I2C decode 1 SCL source Return	:BUS:B1:I2C:CLOCk:SOUrce? or :BUS:B1:I2C:SCLk:SOUrce? :BUS:B1:I2C:CLOCK:SOURCE CH1 or :BUS:B1:I2C:SCLK:SOURCE CH1

:BUS:B<x>:I2C{:CLOCk|:SCLk}:THReshold

Command Format

:BUS:B<x>:I2C{:CLOCk|:SCLk}:THReshold <NR3>

:BUS:B<x>:I2C{:CLOCk|:SCLk}:THReshold?

Function Description

Set or query the threshold of the currently selected SCL source for I2C decode.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.

- <NR3>: Thresholds for each logic decoding channel (in Volts). Settings are rounded to the nearest allowable value.

Instruction

None.

Example

Set I2C the SCL selected source threshold for I2C decode 1 to 1V	:BUS:B1:I2C:CLOCk:THReshold 1.0 or :BUS:B1:I2C:SCLk:THReshold 1.0
Query the SCL selected source threshold for I2C decode 1 Return	:BUS:B1:I2C:CLOCk:THReshold? or :BUS:B1:I2C:SCLk:THReshold? :BUS:B1:I2C:CLOCK:THRESHOLD 1.0000 or :BUS:B1:I2C:SCLK:THRESHOLD 1.0000

:BUS:B<x>:I2C{:DATa|:SDAta}:SOUrce

Command Format

:BUS:B<x>:I2C{:DATa|:SDAta}:SOUrce {CH1|CH2|CH3|CH4}

:BUS:B<x>:I2C{:DATa|:SDAta}:SOUrce?

Function Description

Set or query I2C decode SDA source.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- CH1-4: Channel 1~4.

Instruction

None.

Example

Set I2C decode 1 SDA source to CH1	:BUS:B1:I2C:SDAta:SOUrce CH1 or :BUS:B1:I2C:DATa:SOUrce CH1
Query I2C decode 1 SDA source Return	:BUS:B1:I2C:SDAta:SOUrce? or :BUS:B1:I2C:DATa:SOUrce? :BUS:B1:I2C:SDATA:SOURCE CH1 or :BUS:B1:I2C:DATA:SOURCE CH1

:BUS:B<x>:I2C{:DATa|:SDAta}:THReshold

Command Format

:BUS:B<x>:I2C{:DATa|:SDAta}:THReshold <NR3>

:BUS:B<x>:I2C{:DATa|:SDAta}:THReshold?

Function Description

Set or query the threshold of the currently selected SDA source for I2C decode..

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR3>: Thresholds for each logic decoding channel (in Volts). Settings are rounded to the nearest allowable value.

Instruction

None.

Example

Set I2C the SDA selected source threshold for I2C decode 1 to 1V	:BUS:B1:I2C:SDAta:THReshold 1.0 or :BUS:B1:I2C:DATa:THReshold 1.0
Query the SDA selected source threshold for I2C decode 1 Return	:BUS:B1:I2C:SDAta:THReshold? or :BUS:B1:I2C:DATa:THReshold? :BUS:B1:I2C:SDATA:THRESHOLD 1.0000 or :BUS:B1:I2C:DATA:THRESHOLD 1.0000

:BUS:B<x>:I2C:ADDRess:RWINClude

Command Format

:BUS:B<x>:I2C:ADDRess:RWINClude {OFF|ON|<NR1>}

:BUS:B<x>:I2C:ADDRess:RWINClude?

Function Description

Set or query whether the address contains read/write bits.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- ON: contains read/write bits.
- OFF: not contain read/write bits.
- <NR1> is not included when it is 0, and is included when it is other values.

Instruction

None.

Example

Set the address contains read/write bits	:BUS:B1:I2C:ADDRess:RWINClude 1
Query whether the address contains read/write bits Return	:BUS:B1:I2C:ADDRess:RWINClude? :BUS:B1:I2C:ADDRESS:RWINCLUDE 1

Bus LIN Command Subsystem

Used to set the related parameters of LIN decode mode.

These commands include:

- :BUS:B<x>:LIN:SOUrce
- :BUS:B<x>:LIN:THReshold
- :BUS:B<x>:LIN:BITRate
- :BUS:B<x>:LIN:STANDard
- :BUS:B<x>:LIN:POLarity

:BUS:B<x>:LIN:SOUrce

Command Format

:BUS:B<x>:LIN:SOUrce {CH1|CH2|CH3|CH4}

:BUS:B<x>:LIN:SOUrce?

Function Description

Set or query LIN decode source.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- CH1-4: Channel 1~4.

Instruction

None.

Example

Set LIN decode 1 source to CH1	:BUS:B1:LIN:SOUrce CH1
Query LIN decode 1 source Return	:BUS:B1:LIN:SOUrce? :BUS:B1:LIN:SOURCE CH1

:BUS:B<x>:LIN:THReshold

Command Format

:BUS:B<x>:LIN:THReshold <NR3>

:BUS:B<x>:LIN:THReshold?

Function Description

Set or query LIN decode threshold.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR3>: Thresholds for each logic decoding channel (in Volts). Settings are rounded to the nearest allowable value.

Instruction

None.

Example

Set decode 1 threshold to 1V	:BUS:B1:LIN:THReshold 1.0
Query decode 1 threshold Return	:BUS:B1:LIN:THReshold? :BUS:B1:LIN:THRESHOLD 1.0000

:BUS:B<x>:LIN:BITRate

Command Format

:BUS:B<x>:LIN:BITRate <NR1>

:BUS:B<x>:LIN:BITRate?

Function Description

Set or query LIN decode baud rate.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR1>: Range to 1-20k, unit to bps.

Instruction

None.

Example

Set decode 1 baud rate to 2000bps	:BUS:B1:LIN:BITRate 2000
Query decode 1 baud rate Return	:BUS:B1:LIN:BITRate? :BUS:B1:LIN:BITRATE 2000

:BUS:B<x>:LIN:STANDard

Command Format

:BUS:B<x>:LIN:STANDard {V1X|V2X|MIXed}

:BUS:B<x>:LIN:STANDard?

Function Description

Set or query LIN decode version.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.

Instruction

None.

Example

Set decode 1 version to V2X	:BUS:B1:LIN:STANDard V2X
Query decode 1 version Return	:BUS:B1:LIN:STANDard? :BUS:B1:LIN:STANDARD V2X

:BUS:B<x>:LIN:POLarity

Command Format

:BUS:B<x>:LIN:POLarity {OFF|ON|<NR1>}

:BUS:B<x>:LIN:POLarity?

Function Description

Set or query LIN decode check bit.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- ON: includes check bit.
- OFF: does not include check bit.
- <NR1> to 0 to indicate no check bit, and any other value indicates check bit.

Instruction

None.

Example

Set decode 1 check bit to ON	:BUS:B1:LIN:POLarity 1
Query decode 1 check bit Return	:BUS:B1:LIN:POLarity? :BUS:B1:LIN:POLARITY 1

Bus RS232C Command Subsystem

Used to set the related parameters of RS232C decode mode.

These commands include:

- :BUS:B<x>:RS232C:SOUrce
- :BUS:B<x>:RS232C:THReshold
- :BUS:B<x>:RS232C:POLarity
- :BUS:B<x>:RS232C:BITRate
- :BUS:B<x>:RS232C:DATABits
- :BUS:B<x>:RS232C:PARity
- :BUS:B<x>:RS232C:STOPBits
- :BUS:B<x>:RS232C:BITOrder

:BUS:B<x>:RS232C:SOUrce

Command Format

:BUS:B<x>:RS232C:SOUrce {CH1|CH2|CH3|CH4}

:BUS:B<x>:RS232C:SOUrce?

Function Description

Set or query RS232C decode source.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- CH1-4: Channel 1~4.

Instruction

None.

Example

Set RS232C decode 1 source to CH1	:BUS:B1:RS232C:SOUrce CH1
Query RS232C decode 1 source Return	:BUS:B1:RS232C:SOUrce? :BUS:B1:RS232C:SOURCE CH1

:BUS:B<x>:RS232C:THReshold

Command Format

:BUS:B<x>:RS232C:THReshold <NR3>

:BUS:B<x>:RS232C:THReshold?

Function Description

Set or query RS232C decode threshold.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR3>: Thresholds for each logic decoding channel (in Volts). Settings are rounded to the nearest allowable value.

Instruction

None.

Example

Set decode 1 threshold to 1V	:BUS:B1:RS232C:THReshold 1.0
Query decode 1 threshold Return	:BUS:B1:RS232C:THReshold? :BUS:B1:RS232C:THRESHOLD 1.0000

:BUS:B<x>:RS232C:POLarity

Command Format

:BUS:B<x>:RS232C:POLarity {NORMal|INVERTed}

:BUS:B<x>:RS232C:POLarity?

Function Description

Set or query RS232C decode polarity.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- NORMal: positive polarity.
- INVERTed: negative polarity.

Instruction

None.

Example

Set decode polarity to NORMal	:BUS:B1:RS232C:POLarity NORMal
Query decode polarity Return	:BUS:B1:RS232C:POLarity? :BUS:B1:RS232C:POLARITY NORMAL

:BUS:B<x>:RS232C:BITRate

Command Format

:BUS:B<x>:RS232C:BITRate <NR1>

:BUS:B<x>:RS232C:BITRate?

Function Description

Set or query RS232C decode baud rate.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR1>: Range to 50-10M, unit is bps.

Instruction

None.

Example

Set decode 1 baud rate to 9600bps	:BUS:B1:RS232C:BITRate 9600
Query decode 1 baud rate	:BUS:B1:RS232C:BITRate?
Return	:BUS:B1:RS232C:BITRATE 9600

:BUS:B<x>:RS232C:DATABits

Command Format

:BUS:B<x>:RS232C:DATABits {5|6|7|8}

:BUS:B<x>:RS232C:DATABits?

Function Description

Set or query RS232C decode data length.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.

Instruction

None.

Example

Set decode data length to 5	:BUS:B1:RS232C:DATABits 5
Query decode data length	:BUS:B1:RS232C:DATABits?
Return	:BUS:B1:RS232C:DATABITS 5

:BUS:B<x>:RS232C:PARity

Command Format

:BUS:B<x>:RS232C:PARity {NONe|EVEN|ODD}

:BUS:B<x>:RS232C:PARity?

Function Description

Set or query RS232C decode parity check.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- NONe: parity not specified.
- EVEN: event parity specified.
- ODD: odd parity specified.

Instruction

None.

Example

Set decode parity to ODD	:BUS:B1:RS232C:PARity ODD
Query decode parity Return	:BUS:B1:RS232C:PARity? :BUS:B1:RS232C:PARITY ODD

:BUS:B<x>:RS232C:STOPBits

Command Format

:BUS:B<x>:RS232C:STOPBits {1|1.5|2}

:BUS:B<x>:RS232C:STOPBits?

Function Description

Set or query RS232C decode stop bit.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.

Instruction

None.

Example

Set decode stop bit to 1	:BUS:B1:RS232C:STOPBits 1
Query decode stop bit Return	:BUS:B1:RS232C:STOPBits? :BUS:B1:RS232C:STOPBITS 1

:BUS:B<x>:RS232C:BITOrder

Command Format

:BUS:B<x>:RS232C:BITOrder {MSB|LSB}

:BUS:B<x>:RS232C:BITOrder?

Function Description

Set or query RS232C decode bit order.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- MSB: bit order is in larger-endian mode.
- LSB: bit order is in little-endian mode.

Instruction

None.

Example

Set decode bit order to LSB	:BUS:B1:RS232C:BITOrder LSB
Query decode bit order Return	:BUS:B1:RS232C:BITOrder? :BUS:B1:RS232C:BITORDER LSB

Bus SPI Command Subsystem

Used to set the related parameters of SPI decode mode.

These commands include:

- :BUS:B<x>:SPI:FRAMING
- :BUS:B<x>:SPI{:CLOCk|:SCLk}:SOUrce
- :BUS:B<x>:SPI{:CLOCk|:SCLk}:THReshold
- :BUS:B<x>:SPI{:DATa|:SDAta}:SOUrce
- :BUS:B<x>:SPI{:DATa|:SDAta}:THReshold
- :BUS:B<x>:SPI:IDLETime
- :BUS:B<x>:SPI{:CLOCk|:SCLk}:POLarity
- :BUS:B<x>:SPI:POLarity
- :BUS:B<x>:SPI:DATa:SIZe
- :BUS:B<x>:SPI:BITOrder
- :BUS:B<x>:SPI:DATa{:IN|:MISO}:SOUrce
- :BUS:B<x>:SPI:DATa{:IN|:MISO}:THReshold
- :BUS:B<x>:SPI:DATa{:OUT|:MOSI}:SOUrce
- :BUS:B<x>:SPI:DATa{:OUT|:MOSI}:THReshold
- :BUS:B<x>:SPI{:SELect|:SS}:SOUrce
- :BUS:B<x>:SPI{:SELect|:SS}:POLarity
- :BUS:B<x>:SPI{:SELect|:SS}:THReshold

:BUS:B<x>:SPI:FRAMING

Command Format

:BUS:B<x>:SPI:FRAMING {SS|IDLEtime}

:BUS:B<x>:SPI:FRAMING?

Function Description

Set or query decode mode of SPI decode.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- SS: chip select.
- IDLEtime: timeout.

Instruction

None.

Example

Set decode 1 decode mode of SPI decode to SS	:BUS:B1:SPI:FRAMING SS
Query decode 1 decode mode of SPI decode Return	:BUS:B1:SPI:FRAMING? :BUS:B1:SPI:FRAMING SS

:BUS:B<x>:SPI{:CLOCk|:SCLk}:SOUrce

Command Format

:BUS:B<x>:SPI{:CLOCk|:SCLk}:SOUrce {CH1|CH2|CH3|CH4}

:BUS:B<x>:SPI{:CLOCk|:SCLk}:SOUrce?

Function Description

Set or query SPI decode SCL source.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- CH1-4: Channel 1~4.

Instruction

None.

Example

Set SPI decode 1 SCL source to CH1	:BUS:B1:SPI:CLOCk:SOUrce CH1 or :BUS:B1:SPI:SCLk:SOUrce CH1
Query SPI decode 1 SCL source Return	:BUS:B1:SPI:CLOCk:SOUrce? or :BUS:B1:SPI:SCLk:SOUrce? :BUS:B1:SPI:CLOCK:SOURCE CH1 or :BUS:B1:SPI:SCLK:SOURCE CH1

:BUS:B<x>:SPI{:CLOCk|:SCLk}:THReshold

Command Format

:BUS:B<x>:SPI{:CLOCk|:SCLk}:THReshold <NR3>

:BUS:B<x>:SPI{:CLOCk|:SCLk}:THReshold?

Function Description

Set or query SPI threshold of SPI decode current SCL selected source.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR3>: Thresholds for each logic decoding channel (in Volts). Settings are rounded to the nearest allowable value.

Instruction

None.

Example

Set threshold of the SCL selected source for SPI decode 1 to 1V	:BUS:B1:SPI:CLOCk:THReshold 1.0 or :BUS:B1:SPI:SCLk:THReshold 1.0
Query threshold of the SCL selected source for SPI decode 1 Return	:BUS:B1:SPI:CLOCk:THReshold? or :BUS:B1:SPI:SCLk:THReshold? :BUS:B1:SPI:CLOCK:THRESHOLD 1.0000 or :BUS:B1:SPI:SCLK:THRESHOLD 1.0000

:BUS:B<x>:SPI{:DATa|:SDAta}:SOUrce

Command Format

:BUS:B<x>:SPI{:DATa|:SDAta}:SOUrce {CH1|CH2|CH3|CH4}

:BUS:B<x>:SPI{:DATa|:SDAta}:SOUrce?

Function Description

Set or query SPI decode SDA source.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- CH1-4: Channel 1~4.

Instruction

None.

Example

Set SPI decode 1 SDA source to CH1	:BUS:B1:SPI:SDAta:SOUrce CH1 or :BUS:B1:SPI:DATa:SOUrce CH1
Query SPI decode 1 SDA source Return	:BUS:B1:SPI:SDAta:SOUrce? or :BUS:B1:SPI:DATa:SOUrce? :BUS:B1:SPI:SDATA:SOURCE CH1 or :BUS:B1:SPI:DATA:SOURCE CH1

:BUS:B<x>:SPI{:DATa|:SDAta}:THReshold

Command Format

:BUS:B<x>:SPI{:DATa|:SDAta}:THReshold <NR3>

:BUS:B<x>:SPI{:DATa|:SDAta}:THReshold?

Function Description

Set or query SPI threshold of SPI decode current SDA selected source.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.

- <NR3>: Thresholds for each logic decoding channel (in Volts). Settings are rounded to the nearest allowable value.

Instruction

None.

Example

Set threshold of the SDA selected source for SPI decode 1 to 1V	:BUS:B1:SPI:SDAta:THReshold 1.0 or :BUS:B1:SPI:DATa:THReshold 1.0
Query threshold of the SDA selected source for SPI decode 1 Return	:BUS:B1:SPI:SDAta:THReshold? or :BUS:B1:SPI:DATa:THReshold? :BUS:B1:SPI:SDATA:THRESHOLD 1.0000 or :BUS:B1:SPI:DATA:THRESHOLD 1.0000

:BUS:B<x>:SPI:IDLETime

Command Format

:BUS:B<x>:SPI:IDLETime <NR3>

:BUS:B<x>:SPI:IDLETime?

Function Description

Set or query SPI decode idle time.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR3>: Set decode idle time, unit is s.

Instruction

None.

Example

Set decode idle time to 1s	:BUS:B1:SPI:IDLETime 1
Query decode idle time Return	:BUS:B1:SPI:IDLETime? :BUS:B1:SPI:IDLETIME 1.0000

:BUS:B<x>:SPI{:CLOCk|:SCLk}:POLarity

Command Format

:BUS:B<x>:SPI{:CLOCk|:SCLk}:POLarity {RISe|FALL}

:BUS:B<x>:SPI{:CLOCk|:SCLk}:POLarity?

Function Description

Set or query SPI decode clock edges.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- RISe: rise edge.
- FALL: fall edge.

Instruction

None.

Example

Set SPI decode 1 clock edge to rise	:BUS:B1:SPI:CLOCk:POLarity RISe or :BUS:B1:SPI:SCLk:POLarity RISe
Query SPI decode 1 clock edge Return	:BUS:B1:SPI:CLOCk:POLarity? or :BUS:B1:SPI:SCLk:POLarity? :BUS:B1:SPI:CLOCK:POLARITY RISE or :BUS:B1:SPI:SCLK:POLARITY RISE

:BUS:B<x>:SPI:POLarity

Command Format

:BUS:B<x>:SPI:POLarity {LOW|HIGH}

:BUS:B<x>:SPI:POLarity?

Function Description

Set or query SPI decode polarity.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- HIGH: positive polarity.
- LOW: negative polarity.

Instruction

None.

Example

Set SPI decode 1 polarity to LOW	:BUS:B1:SPI:POLarity LOW
Query SPI decode 1 polarity Return	:BUS:B1:SPI:POLarity? :BUS:B1:SPI:POLARITY LOW

:BUS:B<x>:SPI:DATa:SIZe

Command Format

:BUS:B<x>:SPI:DATa:SIZe <NR1>

:BUS:B<x>:SPI:DATa:SIZe?

Function Description

Set or query SPI decode data size.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR1>: Range to 4-32.

Instruction

None.

Example

Set SPI decode 1 data size to 5	:BUS:B1:SPI:DATa:SIZe 5
Query SPI decode 1 data size Return	:BUS:B1:SPI:DATa:SIZe? :BUS:B1:SPI:DATA:SIZE 5

:BUS:B<x>:SPI:BITOrder

Command Format

:BUS:B<x>:SPI:BITOrder {LSB|MSB}

:BUS:B<x>:SPI:BITOrder?

Function Description

Set or query SPI decode bit order.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- MSB: bit order is in larger-endian mode.
- LSB: bit order is in little-endian mode.

Instruction

None.

Example

Set SPI decode 1 bit order to MSB	:BUS:B1:SPI:BITOrder MSB
Query SPI decode 1 bit order Return	:BUS:B1:SPI:BITOrder? :BUS:B1:SPI:BITORDER MSB

:BUS:B<x>:SPI:DATa{:IN|:MISO}:SOUrce

Command Format

:BUS:B<x>:SPI:DATa{:IN|:MISO}:SOUrce {CH1|CH2|CH3|CH4}

:BUS:B<x>:SPI:DATa{:IN|:MISO}:SOUrce?

Function Description

Set or query the SPI decode chip select mode MISO source.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- CH1-4: Channel 1~4.

Instruction

None.

Example

Set SPI decode 1 chip select mode MISO source to CH1	:BUS:B1:SPI:DATa:IN:SOUrce CH1 or :BUS:B1:SPI:DATa:MISO:SOUrce CH1
Query SPI decode 1 chip select mode MISO source Return	:BUS:B1:SPI:DATa:IN:SOUrce? or :BUS:B1:SPI:DATa:MISO:SOUrce? :BUS:B1:SPI:DATA:IN:SOURCE CH1 or :BUS:B1:SPI:DATA:MISO:SOURCE CH1

:BUS:B<x>:SPI:DATa{:IN|:MISO}:THReshold

Command Format

:BUS:B<x>:SPI:DATa{:IN|:MISO}:THReshold <NR3>

:BUS:B<x>:SPI:DATa{:IN|:MISO}:THReshold?

Function Description

Set or query SPI decode chip select mode MISO threshold.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR3>: Thresholds for each logic decoding channel (in Volts). Settings are rounded to the nearest allowable value.

Instruction

None.

Example

Set SPI decode 1 chip select mode MISO threshold to 1V	:BUS:B1:SPI:DATa:IN:THReshold 1.0 or :BUS:B1:SPI:DATa:MISO:THReshold 1.0
Query SPI decode 1 chip select mode MISO threshold Return	:BUS:B1:SPI:DATa:IN:THReshold? or :BUS:B1:SPI:DATa:MISO:THReshold? :BUS:B1:SPI:DATA:IN:THRESHOLD 1.0000 or :BUS:B1:SPI:DATA:MISO:THRESHOLD 1.0000

:BUS:B<x>:SPI:DATa{:OUT|:MOSI}:SOUrce

Command Format

:BUS:B<x>:SPI:DATa{:OUT|:MOSI}:SOUrce {CH1|CH2|CH3|CH4|OFF}

:BUS:B<x>:SPI:DATa{:OUT|:MOSI}:SOUrce?

Function Description

Set or query SPI decode chip select mode MOSI source.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- CH1-4: Channel 1~4.
- OFF: off.

Instruction

None.

Example

Set SPI decode 1 chip select mode MOSI source to CH1	:BUS:B1:SPI:DATa:OUT:SOUrce CH1 or :BUS:B1:SPI:DATa:MOSI:SOUrce CH1
Query SPI decode 1 chip select mode MOSI source Return	:BUS:B1:SPI:DATa:OUT:SOUrce? or :BUS:B1:SPI:DATa:MOSI:SOUrce? :BUS:B1:SPI:DATA:OUT:SOURCE CH1 or :BUS:B1:SPI:DATA:MOSI:SOURCE CH1

:BUS:B<x>:SPI:DATa{:OUT|:MOSI}:THReshold

Command Format

:BUS:B<x>:SPI:DATa{:OUT|:MOSI}:THReshold <NR3>

:BUS:B<x>:SPI:DATa{:OUT|:MOSI}:THReshold?

Function Description

Set or query SPI decode chip select mode MOSI threshold.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR3>: Thresholds for each logic decoding channel (in Volts). Settings are rounded to the nearest allowable value.

Instruction

None.

Example

Set SPI decode 1 chip select mode MOSI threshold to 1V	:BUS:B1:SPI:DATa:OUT:THReshold 1.0 or :BUS:B1:SPI:DATa:MOSI:THReshold 1.0
Query SPI decode 1 chip select mode MOSI threshold Return	:BUS:B1:SPI:DATa:OUT:THReshold? or :BUS:B1:SPI:DATa:MOSI:THReshold? :BUS:B1:SPI:DATA:OUT:THRESHOLD 1.0000 or :BUS:B1:SPI:DATA:MOSI:THRESHOLD 1.0000

:BUS:B<x>:SPI{:SELect|:SS}:SOUrce

Command Format

:BUS:B<x>:SPI{:SELect|:SS}:SOUrce {CH1|CH2|CH3|CH4}

:BUS:B<x>:SPI{:SELect|:SS}:SOUrce?

Function Description

Set or query SPI decode chip select mode CS source.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- CH1-4: Channel 1~4.

Instruction

None.

Example

Set SPI decode 1 chip select mode CS source to CH1	:BUS:B1:SPI:SELect:SOUrce CH1 or :BUS:B1:SPI:SS:SOUrce CH1
Query SPI decode 1 chip select mode CS source Return	:BUS:B1:SPI:SELect:SOUrce? or :BUS:B1:SPI:SS:SOUrce? :BUS:B1:SPI:SELECT:SOURCE CH1or :BUS:B1:SPI:SS:SOURCE CH1

:BUS:B<x>:SPI{:SELect|:SS}:POLarity

Command Format

:BUS:B<x>:SPI{:SELect|:SS}:POLarity {LOW|HIGH}

:BUS:B<x>:SPI{:SELect|:SS}:POLarity?

Function Description

Set or query SPI decode chip select mode CS polarity.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- HIGH: positive polarity.
- LOW: negative polarity.

Instruction

None.

Example

Set SPI decode 1 chip select mode CS polarity to LOW	:BUS:B1:SPI:SELect:POLarity LOW or :BUS:B1:SPI:SS:POLarity LOW
Query SPI decode 1 chip select mode CS polarity Return	:BUS:B1:SPI:SELect:POLarity? or :BUS:B1:SPI:SS:POLarity? :BUS:B1:SPI:SELECT:POLARITY LOW or :BUS:B1:SPI:SS:POLARITY LOW

:BUS:B<x>:SPI{:SELect|:SS}:THReshold

Command Format

:BUS:B<x>:SPI{:SELect|:SS}:THReshold <NR3>

:BUS:B<x>:SPI{:SELect|:SS}:THReshold?

Function Description

Set or query SPI decode chip select mode CS threshold.

Parameter

- <x>: It can be 1 or 2, indicating decoding one or decoding two.
- <NR3>: Thresholds for each logic decoding channel (in Volts). Settings are rounded to the nearest allowable value.

Instruction

None.

Example

Set SPI decode 1 chip select mode CS threshold to 1V	:BUS:B1:SPI:SELect:THReshold 1.0 or :BUS:B1:SPI:SS:THReshold 1.0
Query SPI decode 1 chip select mode CS threshold Return	:BUS:B1:SPI:SELect:THReshold? or :BUS:B1:SPI:SS:THReshold? :BUS:B1:SPI:SELECT:THRESHOLD 1.0000 or :BUS:B1:SPI:SS:THRESHOLD 1.0000

2.6 Vertical Command Subsystem

Used to set the related parameters of the channel.

Note: :CH<x> and related commands, where x takes values of {1|2} in dual-channel models and {1|2|3|4} in four-channel models; this will not be repeated in the following text.

These commands include:

- :CH<x>?
- :CH<x>:BANdwidth
- :CH<x>:COUPling
- :CH<x>:INVert
- :CH<x>:LABel
- :CH<x>:POSition
- :CH<x>:SCALe
- :CH<x>:TERmination
- :CH<x>:YUNits
- :CH<x>PRObe:GAIN
- :SELect?
- :SELect:CH<x>
- :SELect:MATH
- :SELect:CONTROI

:CH<x>? (Query Only)

Command Format

:CH<x>?

Function Description

Query the relevant information for the specified channel.

Parameter

None.

Instruction

None.

Example

Query Channel 1 information	:CH1?
Return	:CH1:PROBE:GAIN 1.0000E+1;:CH1:BANDWIDTH FULL;COUPLING DC;INVERT 0;POSITION 2.0; SCALE 1.0000E-4;YUNITS V;TERMINATION 1.0000E+6; LABEL "ACK"

:CH<x>:BANdwidth

Command Format

:CH<x>:BANdwidth {FULl|<NR3>}

:CH<x>:BANdwidth?

Function Description

Set or query the low-pass bandwidth limit filter for the specified channel.

Parameter

None.

Instruction

- FULl: full bandwidth, automatically selects the maximum bandwidth based on the different

models.

- <NR3> set bandwidth for floating-point numbers, and take the bandwidth limit upwards based on the set value. According to the current model conditions, set to less than 20M to use 20M bandwidth, and greater than 20M to use full bandwidth.

Example

Set the bandwidth limit for channel 1 to 20MHz	:CH1:BANdwidth 20E+6
Query Channel 1 bandwidth Return	:CH1:BANdwidth? :CH1:BANDWIDTH1 20E+6

:CH<x>:COUPling

Command Format

:CH<x>:COUPling {AC|DC|GND}

:CH<x>:COUPling?

Function Description

Set or query the couple mode of the specified channel.

Parameter

None.

Instruction

- AC (Alternating current): The DC component of the measured signal is blocked.
- DC (Direct current): Both the DC and AC components of the measured signal can pass through.
- GND (Ground): Both the DC and AC components of the measured signal are blocked.

Example

Set Channel 1 couple mode to AC	:CH1:COUPling AC
Query Channel 1 couple mode	:CH1:COUPling?
Return	:CH1:COUPLING AC

:CH<x>:INVert

Command Format

:CH<x>:INVert {ON|OFF|<NR1>}

:CH<x>:INVert?

Function Description

Set or query the reverse switch of the specified channel.

Parameter

- ON: turn on reverse.
- OFF: turn off reverse.
- <NR1> is 0, turn off reverse; other values, turn on reverse.

Instruction

None.

Example

Set Channel 1 reverse to off	:CH1:INVert OFF
Query Channel 1 reverse status Return	:CH1:INVert? :CH1:INVERT 0

:CH<x>:LABel

Command Format

:CH<x>:LABel <Qstring>

:CH<x>:LABel?

Function Description

Set or query the label of the specified channel.

Note: Labels are divided into common and custom. After the command is issued, it automatically switches to custom and inputs the command parameters as Label. When reading, if it is currently common, it returns the common options; if it is custom, it returns the custom content.

Parameter

Name	Type	Range	Default Value
<Qstring>	String	Common | Custom	--

Instruction

Parameters entered in the command must be enclosed in double quotes.

Example

Set Channel 1 label to "ACK"	:CH1:LABel "ACK"
Query Channel 1 label Return	:CH1:LABel? :CH1:LABEL "ACK"

:CH<x>:POSition

Command Format

:CH<x>:POSition <NR3>

:CH<x>:POSition?

Function Description

Set or query the vertical position of the specified channel.

Parameter

None.

Instruction

Measured in units, above the center line is positive, below the center line is negative.

Example

Set Channel 1 position to 1.3 grid positions above the vertical center line	:CH1:POSition 1.3
Query Channel 1 position Return	:CH1:POSition? :CH1:POSITION 1.3

:CH<x>:SCALe

Command Format

:CH<x>:SCALe <NR3>

:CH<x>:SCALe?

Function Description

Set or query scale of the specified channel.

Parameter

None.

Instruction

Set the vertical channel scale in V/div. Upon command execution, the system will automatically select the nearest available scale to the given parameter.

Example

Set Channel 1 scale to 100mV/div	:CH1:SCALe 0.1
Query Channel 1 scale Return	:CH1:SCALe? :CH1:SCALE 1.0000E-5

:CH<x>:TERmination

Command Format

:CH<x>:TERmination {FIFty|MEG}

:CH<x>:TERmination?

Function Description

Set or query the input impedance of the specified channel.

Note: this function is optional.

Parameter

- FIFty: input impedance is 50Ω;
- MEG: input impedance is 1MΩ.

Instruction

None.

Example

Set Channel 1 input impedance to 1MΩ	:CH1:TERmination MEG
Query Channel 1 input impedance Return	:CH1:TERmination? :CH1:TERMINATION 1.0000E+6

:CH<x>:YUNits

Command Format

:CH<x>:YUNits <Qstring>

:CH<x>:YUNits?

Function Description

Set or query the unit of specified channel.

Parameter

Name	Type	Range	Default Value
<Qstring>	String	"V", "A", "W", "U"	"V"

Instruction

None.

Example

Set Channel 1 unit to V	:CH1:YUNits "V"
Query Channel 1 unit Return	:CH1:YUNits? :CH1:YUNITS V

:CH<x>:PRObe:GAIN

Command Format

:CH<x>:PRObe:GAIN <NR3>

:CH<x>:PRObe:GAIN?

Function Description

Set or query probe ration of the specified channel.

Note: Probe magnification consists of two parts: common and custom. When a command is received, it directly switches to the custom mode, assigns the parameter value to the custom magnification, and reads according to the current selection.

Parameter

Name	Type	Range	Default Value
<NR3>	Float	1uX~1MX	--

Instruction

Range accurate to two decimal places.

Example

Set Channel 1 probe ratio to 0.01X	:CH1:PRObe:GAIN 10.000E-3
Query Channel 1 probe ratio Return	:CH1:PRObe:GAIN? :CH1:PROBE:GAIN 1.0000E-2

:SELect? (Query Only)

Command Format

:SELect?

Function Description

Query currently enabled channels and selected channels.

Note:Currently includes analog channels and Math, analog channels are configured based on the model, with either two channels or four channels.

Parameter

None.

Instruction

None.

Example

Query currently enabled channels and selected channels	:SELect?
Return	:SELECT:CH1 1;CH2 1;CH3 1;CH4 1;MATH 0;CONTROL CH1

:SELect:CH<x>

Command Format

:SELect:CH<x> {ON|OFF|<NR1>}

:SELect:CH<x>?

Function Description

Set or query the display status of the specified channel.

Parameter

- ON: channel display is turned on.
- OFF: channel display is turned off.
- <NR1> is 0 to turn off channel display; other values turn on channel display.

Instruction

None.

Example

Turn off the display of Channel 1	:SELect:CH1 OFF
Query Channel 1 display status Return	:SELect:CH1? :SELECT:CH1 0

:SELect:MATH

Command Format

:SELect:MATH {ON|OFF|<NR1>}

:SELect:MATH?

Function Description

Set or query MATH display status.

Parameter

- ON: turn on MATH display.
- OFF: turn off MATH display.
- <NR1> is 0 to turn off this function; other values to turn on this function.

Instruction

None.

Example

Turn off the display of MATH	:SELect:MATH OFF
Query MATH display status Return	:SELect:MATH? :SELECT:MATH 0

:SELect:CONTROl

Command Format

:SELect:CONTROl {CH1|CH2|CH3|CH4}

:SELect:CONTROl?

Function Description

Set or query the selected channel; if the specified channel's display is not open, it will be opened.

Note: In the cursor module, the SOURCE instruction has an AUTO parameter, which can select the channel based on the CONTROL instruction.

Parameter

- CH1: Channel 1.
- CH2: Channel 2.
- CH3: Channel 3.
- CH4: Channel 4.

Instruction

Currently only analog channels are supported for selection.

Example

Set channel 4 as selected	:SELect:CONTROl CH4
Query the selected channel Return	:SELect:CONTROl? :SELECT:CONTROL CH4

2.7 COUNter Command Subsystem

Used to set the related parameters of counter.

These commands include:

- :COUNTer?
- :COUNTer:STATE
- :COUNTer:VALue?
- :COUNTer:UNIts?
- :COUNTer:SOURce
- :COUNTer:TYPe
- :COUNTer:STATistics
- :COUNTer:STATistics:STATE
- :COUNTer:STATistics:MAXimum?
- :COUNTer:STATistics:MINimum?
- :COUNTer:STATistics:{AVG|AVErage}

:COUNTer? (Query Only)

Command Format

:COUNTer?

Function Description

Query counter parameters.

Parameter

None.

Instruction

None.

Example

Query counter parameters	:COUNTer?
Return	:COUNTER:STATE 1;VALUE 0.0000E+0;UNITS Hz; SOURCE AUTO;TYPE FREQUIENCY

:COUNTer:STATE

Command Format

:COUNTer:STATE {ON|OFF|<NR1>}

:COUNTer:STATE?

Function Description

Set or query counter status.

Parameter

- ON: enable counter.
- OFF: disable counter.
- <NR1> is 0 to disable counter; other values to enable counter.

Instruction

- Return "0" indicates the counter is turned off.

- Return "1" indicates the counter is turned on.

Example

Set enable counter	:COUNTer:STATE ON
Query counter status	:COUNTer:STATE?
Return	:COUNTER:STATE 1

:COUNTer:VALue? (Query Only)

Command Format

:COUNTer:VALue?

Function Description

Query counter reading.

Note: The reading is expressed in the units retrieved via :COUNTER:UNITS. If the trigger frequency is unavailable, the IEEE Not a Number (NaN) value (99.10E+36) is returned. Returned values have a maximum precision of 12 digits.

Parameter

None.

Instruction

None.

Example

Query counter reading	:COUNTer:VALue?
Return	:COUNTER:VALUE 0.0000E+0

:COUNTer:UNIts? (Query Only)

Command Format

:COUNTer:UNIts?

Function Description

Query counter unit.

Parameter

None.

Instruction

The unit of the frequency counter is determined by its type: Hertz (Hz) for Frequency, and seconds (s) for Period.

Example

Query counter unit	:COUNTer:UNIts?
Return	:COUNTER:UNITS Hz

:COUNTer:SOURce

Command Format

:COUNTer:SOURce {CH1|CH2|CH3|CH4|D<x>|AUTO}

:COUNTer:SOURce?

Function Description

Set or query counter's source channel.

Parameter

- CH1|CH2|CH3|CH4: indicates Channel 1, Channel 2, Channel 3, Channel 4.
- D<x>: indicates digital channels 0-15.
- AUTO: indicates following the trigger channel.

Instruction

None.

Example

Set counter source to CH1	:COUNter:SOURce CH1
Query counter source Return	:COUNter:SOURce? :COUNter:SOURce CH1

:COUNTer:TYPe

Command Format

:COUNTer:TYPe {FREQuency|PERiod}

:COUNTer:TYPe?

Function Description

Set or query counter reading type.

Parameter

- FREQuency: indicates reading type is frequency.
- PERiod: indicates reading type is period.

Instruction

None.

Example

Set counter reading type to frequency	:COUNter:TYPe FREQuency
Query counter reading type Return	:COUNter:TYPe? :COUNTER:TYPE FREQUENCY

:COUNTer:STATistics

Command Format

:COUNTer:STATistics {RESet}

:COUNTer:STATistics?

Function Description

Query counter statistics parameters and results.

Parameter

- RESet: Reset statistics.

Instruction

None.

Example

Reset counter statistics	:COUNter:STATistics RESet
Query counter statistics results Return	:COUNter:STATistics? :COUNTER:STATISTICS:STATE 1; MAXIMUM 0.0000E+0;MINIMUM 0.0000E+0; AVG 0.0000E+0

:COUNTer:STATistics:STATE

Command Format

:COUNTer:STATistics:STATE {ON|OFF|<NR1>}

:COUNTer:STATistics:STATE?

Function Description

Set or query counter statistics status.

Parameter

- ON: enable counter statistics function.
- OFF: disable counter statistics function.
- <NR1> is 0 to disable counter statistics function; other values to enable counter statistics function.

Instruction

- Return "0" indicates disable counter statistics function.
- Return "1" indicates enable counter statistics function.

Example

Set enable counter statistics function	:COUNter:STATistics:STATE ON
Query counter statistics function status Return	:COUNter:STATistics:STATE? :COUNTER:STATISTICS:STATE 1

:COUNTer:STATistics:MAXimum? (Query Only)

Command Format

:COUNTer:STATistics:MAXimum?

Function Description

Query the maximum value reading from the counter statistics.

Note: The unit is **:COUNTer:UNIts?** obtained.

Parameter

None.

Instruction

None.

Example

Query the maximum value reading from the counter statistics	:COUNter:STATistics:MAXimum?
Return	:COUNTER:STATISTICS:MAXIMUM 99.1000E+36 Indicates that the current maximum value of the counter statistics is disable

:COUNTer:STATistics:MINimum? (Query Only)

Command Format

:COUNTer:STATistics:MINimum?

Function Description

Query the minimum value reading of counter statistics.

Note: The unit is :COUNTer:UNIts? obtained.

Parameter

None.

Instruction

None.

Example

Query minimum value of counter statistics	:COUNter:STATistics:MINimum?
Return	:COUNTER:STATISTICS:MINIMUM 99.1000E+36 The current minimum value of counter statistics is disable

:COUNTer:STATistics:{AVG|AVErage}? (Query Only)

Command Format

:COUNTer:STATistics:{AVG|AVErage}?

Function Description

Query the average value reading of counter statistics.

Note: The unit is :COUNTer:UNIts? obtained.

Parameter

None.

Instruction

None.

Example

Query the average value reading of counter statistics	:COUNter:STATistics:AVErage?
Return	:COUNTER:STATISTICS:AVERAGE 99.1000E+36 The current average value of counter statistics is disable

2.8 Cursor Command Subsystem

Used to set the related parameters of Cursor mode.

These commands include:

- :CURSor?
- :CURSor:FUNCtion
- :CURSor:AREA
- :CURSor:MODe
- :CURSor:SOUrce
- :CURSor:TIME:TYPE
- :CURSor[:TIME]:AUTO:SOURCE<x>
- :CURSor:HBArs?
- :CURSor:HBArs:DELTa?
- :CURSor:HBArs:POSITION<x>
- :CURSor:HBArs:UNIts
- :CURSor:HBArs:DIVISION<x>
- :CURSor:HBArs:USE CURrent
- :CURSor:VBArs?
- :CURSor:VBArs:HPOS<x>?
- :CURSor:VBArs:POSITION<x>
- :CURSor:VBArs:UNIts
- :CURSor:VBArs:DIVISION<x>
- :CURSor:VBArs:USE CURrent
- :CURSor:VBArs:VDELTa?
- :CURSor:XY:POLar:RADIUS:DELta?
- :CURSor:XY:POLar:RADIUS:POSITION<x>?
- :CURSor:XY:POLar:RADIUS:UNIts?
- :CURSor:XY:POLar:THETA:DELta?
- :CURSor:XY:POLar:THETA:POSITION<x>?
- :CURSor:XY:POLar:THETA:UNIts?
- :CURSor:XY:PRODUCT:DELta?
- :CURSor:XY:PRODUCT:POSITION<x>?
- :CURSor:XY:PRODUCT:UNIts?
- :CURSor:XY:RATIO:DELta?

- :CURSor:XY:RATIO:POSITION<x>?
- :CURSor:XY:RATIO:UNIts?
- :CURSor:XY:RECTangular:X:DELta?
- :CURSor:XY:RECTangular:X:POSITION<x>
- :CURSor:XY:RECTangular:X:UNIts?
- :CURSor:XY:RECTangular:Y:DELta?
- :CURSor:XY:RECTangular:Y:POSITION<x>
- :CURSor:XY:RECTangular:Y:UNIts?

:CURSor? (Query Only)

Command Format

:CURSor?

Function Description

Query return the parameters of the cursor, including FUNC, AREA, MODe, SOURCE, TIME:TYPE, TIME:AUTO:SOURCE, HBArs, VBArs, etc..

Parameter

- FUNCTION: corresponding type.
- AREA
- HBARS: Y1 position, Y2 position, unit of Y.
- CURSOR:MODE: cursor movement method.
- VBARS: X1 position, X2 position, unit of X.

Instruction

None.

Example

Query CURSor parameter	:CURSor?
Return	:CURSOR:FUNCTION OFF;AREA ZOOM;HBARS: POSITION1 -1.0000;POSITION2 -3.0000;UNITS BASE; :CURSOR:MODE INDEPENDENT;VBARS:POSITION1 -4.0000E-3; POSITION2 4.0000E-3;UNITS SECONDS

:CURSor:FUNCtion

Command Format

:CURSor:FUNCtion {OFF|SCREEN|TIME|AMPLitude}

:CURSor:FUNCtion?

Function Description

Set or query cursor type.

Parameter

- OFF: disable cursor function.
- SCREEN: enable cursor function and select XY.
- TIME: enable cursor function and select X.
- AMPLitude: enable cursor function and select Y.

Instruction

None.

Example

Set cursor type to TIME	:CURSor:FUNCtion TIME
Query cursor type Return	:CURSor:FUNCtion? :CURSOR:FUNCTION TIME

:CURSor:AREA

Command Format

:CURSor:AREA {MAIN|ZOOM|XY|FFT|EXPANsion}

:CURSor:AREA?

Function Description

Query or set the cursor waveform area.

Note: After enabling the XY|FFT|ZOOM function, it can be set. If there is only one waveform area, it can only be MAIN; subsequent basic commands need to determine the area to which the current waveform area belongs and return the cursor information corresponding to the waveform area.

Parameter

- MAIN: Set the waveform area as the main waveform area.
- ZOOM: Set the waveform area as ZOOM (requires ZOOM to be enabled).
- XY: Set the waveform area as XY (requires XY to be enabled).
- FFT: Set the waveform area to FFT (requires FFT to be enabled).
- EXPANsion: Set to the extended area, i.e., in ZOOM mode set to the ZOOM window, in FFT mode set to the FFT window, and in XY mode set to the XY window.

Instruction

None.

Example

Set cursor waveform area to MIAN	:CURSor:AREA MAIN
Query cursor waveform area Return	:CURSor:AREA? :CURSOR:AREA MAIN

:CURSor:MODe

Command Format

:CURSor:AREA {TRACk|INDependent}

:CURSor:MODe?

Function Description

Set or query cursor movement mode.

Parameter

- TRACk: Cursor movement mode set to move together (determine the current selection, if selected as type X, then move one unit on the X- axis, and still move separately on the Y-axis).
- INDependent: Cursor movement mode set to move separately (determine the current selection, process the selected type only).

Instruction

None.

Example

Set cursor movement mode to TRACK	:CURSor:MODe TRACK
Query cursor movement mode Return	:CURSor:MODe? :CURSOR:MODE TRACK

:CURSor:SOUrce

Command Format

:CURSor:SOUrce {CH1|CH2|CH3|CH4|MATH|FFT|AUTO}

:CURSor:SOUrce?

Function Description

Set or query cursor source.

Parameter

- CH1-4: cursor source is selected as CH1-4.
- MATH: cursor source is selected as MATH.
- FFT: cursor source is selected as FFT (CURSOR:AREA set to FFT, SOURCE fixed as FFT).
- AUTO: cursor source selection follows the channel.

Instruction

None.

Example

Set cursor source to CH1	:CURSor:SOUrce CH1
Query cursor source Return	:CURSor:SOUrce? :CURSOR:SOURCE CH1

:CURSor:TIME:TYPE

Command Format

:CURSor:TIME:TYPE {MANual|AUTO}

:CURSor:TIME:TYPE?

Function Description

Set or query automatic cursor toggle.

Parameter

- MANual: set cursor mode to manual.
- AUTO: set cursor mode to automatic.

Instruction

None.

Example

Set cursor mode to automatic	:CURSor:TIME:TYPE AUTO
Query cursor mode Return	:CURSor:TIME:TYPE? :CURSOR:TIME:TYPE AUTO

:CURSor[:TIME]:AUTO:SOURCE<x>

Command Format

:CURSor:AUTO:SOURCE<x> {CH1|CH2|CH3|CH4|MATH|AUTO}

:CURSor:AUTO:SOURCE<x>?

Function Description

Query or set the source in cursor auto mode.

Parameter

None.

Instruction

Set the source in cursor auto mode, SOURCE1 set to X1, SOURCE2 set to X2.

Example

Set source in auto mode to AUTO	:CURSor:AUTO:SOURCE1 AUTO
Query source in auto mode Return	:CURSor:AUTO:SOURCE1? :CURSOR:AUTO:SOURCE1 AUTO

:CURSor:HBArs? (Query Only)

Command Format

:CURSor:HBArs?

Function Description

Query return the position of the cursor on the Y-axis (Y1,Y2).

Parameter

None.

Instruction

None.

Example

Query the position of the cursor on the Y-axis (Y1,Y2)	:CURSor:HBArs?
Return	:CURSOR:HBARS:DELTA 0.0000;POSITION1 320.0000;POSITION2 320.0000;UNITS BASE

:CURSor:HBArs:DELTa? (Query Only)

Command Format

:CURSor:HBArs:DELTa?

Function Description

Query returns the difference of the cursor on the Y-axis (Y2-Y1).

Parameter

None.

Instruction

None.

Example

Query the difference of the cursor on the Y-axis (Y2-Y1)	:CURSor:HBArs:DELTa?
Return	:CURSOR:HBARS:DELTA 40.0000E-3

:CURSor:HBArs:POSITION<x>

Command Format

:CURSor:HBArs:POSITION<x> <NR3>

:CURSor:HBArs:POSITION<x>?

Function Description

Query or set Y-axis position.

Parameter

<NR3>: At position Y1 or Y2.

Instruction

None.

Example

Set Y-axis position to 80mV	:CURSor:HBArs:POSITION1 80.0000E-3
Query Y-axis position Return	:CURSor:HBArs:POSITION1? :CURSOR:HBARS:POSITION1 80.0000E-3

:CURSor:HBArs:UNIts

Command Format

:CURSor:HBArs:UNIts {BASE|PERcent}

:CURSor:HBArs:UNIts?

Function Description

Query or set Y-axis unit.

Parameter

- BASE: follow channel.
- PERcent: percentage.

Instruction

None.

Example

Set Y-axis unit to BASE	:CURSor:HBArs:UNIts BASE
Query Y-axis unit Return	:CURSor:HBArs:UNIts? :CURSOR:HBARS:UNITS BASE

:CURSor:HBArs:DIVISION<x>

Command Format

:CURSor:HBArs:DIVISION<x> <NR3>

:CURSor:HBArs:DIVISION<x>?

Function Description

Query or set the position of the current Y-axis.

Parameter

<NR3>: Y1 or Y2 value, in div units.

Instruction

None.

Example

Set Y1-axis position to 1div	:CURSor:HBArs:DIVISION1 1
Query Y1-axis position Return	:CURSor:HBArs:DIVISION1? :CURSOR:HBARS:DIVISION1 1.0000

:CURSor:HBArs:USE CURrent (No Query Form)

Command Format

:CURSor:HBArs:USE CURrent

Function Description

Set cursor position as 100% (when unit selected PERcent is effective).

Parameter

None.

Instruction

None.

Example

Set cursor position as 100%	:CURSor:HBArs:USE CURrent

:CURSor:VBArs? (Query Only)

Command Format

:CURSor:VBArs?

Function Description

Query return information of cursor on X-axis.

Parameter

None.

Instruction

None.

Example

Query information of cursor on X-axis	:CURSOR:VBARS?
Return	CURSor:VBArs:DELTA 8.0000E-3;POSITION1 -4.0000E-3; POSITION2 4.0000E-3;UNITS SECONDS

:CURSor:VBArs:HPOS<x>? (Query Only)

Command Format

:CURSor:VBArs:HPOS<x>?

Function Description

Query when the cursor is in auto mode, the Y-axis value where the cursor line intersects the waveform. When not in auto mode, return 0.

Parameter

None.

Instruction

None.

Example

Query in auto mode, the Y-axis value where the cursor line intersects the waveform	:CURSor:VBArs:HPOS2?
Return	:CURSOR:VBARS:HPOS2 0.0000

:CURSor:VBArs:POSITION<x>

Command Format

:CURSor:VBArs:POSITION<x> <NR3>

:CURSor:VBArs:POSITION<x>?

Function Description

Set or query X-axis position.

Parameter

<NR3>: X1or X2 value.

Instruction

None.

Example

SetX2-axis position to -9ms	:CURSor:VBArs:POSITION2 9.00
Query X2-axis position	:CURSor:VBArs:POSITION2?
Return	:CURSOR:VBARS:POSITION2 -9.0000E-3

:CURSor:VBArs:UNIts

Command Format

:CURSor:VBArs:UNIts {SEConds|HERtz|DEGrees|PERcent}

:CURSor:VBArs:UNIts?

Function Description

Set or query X-axis unit.

Parameter

- SEConds: s.

- HERtz: Hz
- DEGrees: angle.
- PERcent: percentage.

Instruction

None.

Example

Set X-axis unit to SEConds	:CURSor:VBArs:UNIts SEConds
Query X-axis unit Return	:CURSor:VBArs:UNIts? :CURSOR:VBARS:UNITS SECONDS

:CURSor:VBArs:DIVISION<x>

Command Format

:CURSor:VBArs:DIVISION<x> <NR3>

:CURSor:VBArs:DIVISION<x>?

Function Description

Set or query X-axis position.

Parameter

<NR3>: X1 or X2 value, in div unit.

Instruction

None.

Example

Set X1-axis position to -3.12div	:CURSor:VBArs:DIVISION1 -3.12
Query X1-axis position Return	:CURSor:VBArs:DIVISION1? :CURSOR:VBARS:DIVISION1 -3.1200

:CURSor:VBArs:USE CURrent (No Query Form)

Command Format

:CURSor:VBArs:USE CURrent

Function Description

Set cursor position as 100% or 360° (when unit is selected as PERcent or DEGrees, it is effective).

Parameter

None.

Instruction

None.

Example

Set cursor position as 100%	:CURSor:VBArs:USE CURrent

:CURSor:VBArs:VDELTa? (Query Only)

Command Format

:CURSor:VBArs:VDELTa?

Function Description

Query returns the difference of the cursor on the X-axis (X2-X1).

Parameter

None.

Instruction

None.

Example

Query difference of cursor on X-axis (X2-X1)	:CURSor:VBArs:VDELTa?
Return	:CURSOR:VBARS:VDELTA 1.0640

:CURSor:XY:POLar:RADIUS:DELta? (Query Only)

Command Format

:CURSor:XY:POLar:RADIUS:DELta?

Function Description

Query returns the difference of r in the Polar module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the difference of r in the Polar module in XY mode	:CURSor:XY:POLar:RADIUS:DELta?
Return	:CURSOR:XY:POLAR:RADIUS:DELTA 2.8280

:CURSor:XY:POLar:RADIUS:POSITION<x>? (Query Only)

Command Format

:CURSor:XY:POLar:RADIUS:POSITION<x>?

Function Description

Query retrieves the value of r in the Polar module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the value of r in the Polar module in XY mode	:CURSor:XY:POLar:RADIUS:POSITION1?
Return	:CURSOR:XY:POLAR:RADIUS:POSITION1 1.1200

:CURSor:XY:POLar:RADIUS:UNIts? (Query Only)

Command Format

:CURSor:XY:POLar:RADIUS:UNIts?

Function Description

Query retrieves the unit of r in the Polar module in XY mode

Parameter

None.

Instruction

None.

Example

Query the unit of r in the Polar module in XY mode	:CURSor:XY:POLar:RADIUS:UNIts?
Return	:CURSOR:XY:POLAR:RADIUS:UNITS "V"

:CURSor:XY:POLar:THETA:DELta? (Query Only)

Command Format

:CURSor:XY:POLar:THETA:DELta?

Function Description

Query returns the difference of θ in the Polar module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the difference of θ in the Polar module in XY mode.	:CURSor:XY:POLar:THETA:DELta?

Return	:CURSOR:XY:POLAR:THETA:DELTA 11.3100

:CURSor:XY:POLar:THETA:POSITION<x>? (Query Only)

Command Format

:CURSor:XY:POLar:THETA:POSITION<x>?

Function Description

Query returns the value of θ in the Polar module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the value of θ in the Polar module in XY mode	:CURSor:XY:POLar:THETA:POSITION1?
Return	:CURSOR:XY:POLAR:THETA:POSITION1 180.0000

:CURSor:XY:POLar:THETA:UNIts? (Query Only)

Command Format

:CURSor:XY:POLar:THETA:UNIts?

Function Description

Query returns the unit of θ in the Polar module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the unit of θ in the Polar module in XY mode	:CURSor:XY:POLar:THETA:UNIts?
Return	:CURSOR:XY:POLAR:THETA:UNITS "degrees"

:CURSor:XY:PRODUCT:DELta? (Query Only)

Command Format

:CURSor:XY:PRODUCT:DELta?

Function Description

Query returns the difference of Product module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the difference of Product module in XY mode	:CURSor:XY:PRODUCT:DELta?
Return	:CURSOR:XY:PRODUCT:DELTA 4.0000

:CURSor:XY:PRODUCT:POSITION<x>? (Query Only)

Command Format

:CURSor:XY:PRODUCT:POSITION<x>?

Function Description

Query returns the value of Product module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the value of Product module in XY mode	:CURSor:XY:PRODUCT:POSITION1?
Return	:CURSOR:XY:PRODUCT:POSITION1 0.0000

:CURSor:XY:PRODUCT:UNIts? (Query Only)

Command Format

:CURSor:XY:PRODUCT:UNIts?

Function Description

Query returns the unit of Product module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the unit of Product module in XY mode	:CURSor:XY:PRODUCT:UNIts?
Return	:CURSOR:XY:PRODUCT:UNITS "VV"

:CURSor:XY:RATIO:DELta? (Query Only)

Command Format

:CURSor:XY:RATIO:DELta?

Function Description

Query returns the difference of Ratio module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the difference of Ratio module in XY mode	:CURSor:XY:RATIO:DELta?
Return	:CURSOR:XY:RATIO:DELTA 1.0000

:CURSor:XY:RATIO:POSITION<x>? (Query Only)

Command Format

:CURSor:XY:RATIO:POSITION<x>?

Function Description

Query returns the value of Ratio module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the value of Ratio module in XY mode	:CURSor:XY:RATIO:POSITION2?
Return	:CURSOR:XY:RATIO:POSITION2 1.5600

:CURSor:XY:RATIO:UNIts? (Query Only)

Command Format

:CURSor:XY:RATIO:UNIts?

Function Description

Query returns the unit of Ratio module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the unit of Ratio module in XY mode	:CURSor:XY:RATIO:UNIts?
Return	:CURSOR:XY:RATIO:UNITS "V/V"

:CURSor:XY:RECTangular:X:DELta? (Query Only)

Command Format

:CURSor:XY:RECTangular:X:DELta?

Function Description

Query returns the X difference of Rectangular module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the X difference of Rectangular module in XY mode	:CURSor:XY:RECTangular:X:DELta?
Return	:CURSOR:XY:RECTANGULAR:X:DELTA 2.0000

:CURSor:XY:RECTangular:X:POSITION<x>

Command Format

:CURSor:XY:RECTangular:X:POSITION<x> <NR3>

:CURSor:XY:RECTangular:X:POSITION<x>?

Function Description

Query or set the X value of the Rectangular module in XY mode.

Parameter

None.

Instruction

None.

Example

Set X value of XY mode to 1	:CURSor:XY:RECTangular:X:POSITION1 1
Query X value of XY mode Return	:CURSor:XY:RECTangular:X:POSITION1? :CURSOR:XY:RECTANGULAR:X:POSITION1 900.0000E-3

:CURSor:XY:RECTangular:X:UNIts? (Query Only)

Command Format

:CURSor:XY:RECTangular:X:UNIts?

Function Description

Query returns the X module unit of Rectangular module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the X module unit of Rectangular module in XY mode	:CURSor:XY:RECTangular:X:UNIts?
Return	:CURSOR:XY:RECTANGULAR:X:UNITS "V"

:CURSor:XY:RECTangular:Y:DELta? (Query Only)

Command Format

:CURSor:XY:RECTangular:Y:DELta?

Function Description

Query returns the Y difference of Rectangular module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the Y difference of Rectangular module in XY mode	:CURSor:XY:RECTangular:Y:DELta?
Return	:CURSOR:XY:RECTANGULAR:Y:DELTA 2.0000

:CURSor:XY:RECTangular:Y:POSITION<x>

Command Format

:CURSor:XY:RECTangular:Y:POSITION<x> <NR3>

:CURSor:XY:RECTangular:Y:POSITION<x>?

Function Description

Query or set the Y value of the Rectangular module in XY mode.

Parameter

None.

Instruction

None.

Example

Set Y value of XY mode to 1	:CURSor:XY:RECTangular:Y:POSITION1 1

Query Y value of XY mode	:CURSor:XY:RECTangular:Y:POSITION1?
Return	:CURSOR:XY:RECTANGULAR:Y:POSITION1 1.0000

:CURSor:XY:RECTangular:Y:UNIts? (Query Only)

Command Format

:CURSor:XY:RECTangular:Y:UNIts?

Function Description

Query returns the Y module unit of Rectangular module in XY mode.

Parameter

None.

Instruction

None.

Example

Query the Y module unit of Rectangular module in XY mode	:CURSor:XY:RECTangular:Y:UNIts?
Return	:CURSOR:XY:RECTANGULAR:Y:UNITS "V"

2.9 Display&XY Command Subsystem

Used to set the related parameters of display and XY mode.

These commands include:

- :DISplay?
- :DISplay:GRAticule
- :DISplay:TRANsparency:WINDow
- :DISplay:INTENSITy?
- :DISplay:INTENSITy:BACKLight
- :DISplay:INTENSITy:GRAticule
- :DISplay:INTENSITy:WAVEform
- :DISplay:PERSistence
- :DISplay:STYle:DOTsonly
- :DISplay:REFRate
- :DISplay:PALEtte
- :DISplay:XY?
- :DISplay:XY:STATE
- :DISplay:XY:WITHYT
- :DISplay:XY:XSOUrce
- :DISplay:XY:YSOUrce

:DISplay? (Query Only)

Command Format

:DISplay?

Function Description

Query current display settings.

Parameter

None.

Instruction

None.

Example

Query current display settings	:DISplay?
Return	:DISPLAY:GRATICULE FULL;TRANSPARENCY:WINDOW 64;:DISPLAY:INTENSITY:BACKLIGHT 100;GRATICULE 50;WAVEFORM 100;:DISPLAY:PERSISTENCE OFF;STYLE:DOTSONLY 0;:DISPLAY:REFRATE FAST;PALETTE NORMAL;XY:STATE OFF;WITHYT 0;XSOURCE CH4;YSOURCE CH4

:DISplay:GRAticule

Command Format

:DISplay:GRAticule {CROSSHair|FRAme|FULl|GRId}

:DISplay:GRAticule?

Function Description

Set or query the type of grid displayed on the oscilloscope.

Parameter

- CROSSHair specifies a frame and a crosshair.

- FRAme specifies only a frame.
- FULl specifies a frame, a grid, and a crosshair.
- GRId specifies only one frame and grid.

Instruction

None.

Example

Set grid type to GRId	:DISplay:GRAticule GRId
Query grid type Return	:DISplay:GRAticule? :DISPLAY:GRATICULE GRID

:DISplay:TRANsparency:WINDow

Command Format

:DISplay:TRANsparency:WINDow <NR1>

:DISplay:TRANsparency:WINDow?

Function Description

Set or query the transparency of the oscilloscope display window.

Parameter

- <NR1>: Integer value ranging from 0-100.

Instruction

None.

Example

Set the window transparency to 50%	:DISplay:TRANsparency:WINDow 50
Query the window transparency Return	:DISplay:TRANsparency:WINDow? :DISPLAY:TRANSPARENCY:WINDOW 50

:DISplay:INRENSITy? (Query Only)

Command Format

:DISplay:INTENSITy?

Function Description

Query the settings values.

Parameter

None.

Instruction

None.

Example

Query the settings values	:DISplay:INTENSITy?	
Return	:DISPLAY:INTENSITY:BACKLIGHT 100;WAVEFORM 100	100;GRATICULE

:DISplay:INTENSITy:BACKLight

Command Format

:DISplay:INTENSITy:BACKLight <NR1>

:DISplay:INTENSITy:BACKLight?

Function Description

Set or query waveform backlight.

Note: The set value is the system backlight brightness.

Parameter

- <NR1>: Integer value ranging from 0-100.

Instruction

None.

Example

Set system backlight to 80%	:DISplay:INTENSITy:BACKLight 80
Query system backlight Return	:DISplay:INTENSITy:BACKLight? :DISPLAY:INTENSITY:BACKLIGHT 80

:DISplay:INTENSITy:GRAticule

Command Format

:DISplay:INTENSITy:GRAticule <NR1>

:DISplay:INTENSITy:GRAticule?

Function Description

Set or query the intensity of the grid.

Parameter

- <NR1>: Integer value ranging from 0-100.

Instruction

None.

Example

Set the display grid intensity to 80%	:DISplay:INTENSITy:GRAticule 80
Query the display grid intensity Return	:DISplay:INTENSITy:GRAticule? :DISPLAY:INTENSITY:GRATICULE 80

:DISplay:INTENSITy:WAVEform

Command Format

:DISplay:INTENSITy:WAVEform <NR1>

:DISplay:INTENSITy:WAVEform?

Function Description

Set or query waveform intensity.

Parameter

- <NR1>: Integer value ranging from 10-100.

Instruction

None.

Example

Set waveform intensity to 80%	:DISplay:INTENSITy:WAVEform 80
Query waveform intensity Return	:DISplay:INTENSITy:WAVEform? :DISPLAY:INTENSITY:WAVEFORM 80

:DISplay:PRESistence

Command Format

:DISplay:PRESistence {1|2|5|CLEAR|INFInite|OFF}

:DISplay:PRESistence?

Function Description

Set or query the afterglow function.

Parameter

- 1|2|5: Set the duration in seconds.
- INFInite: Infinite.
- CLEAR: Clear the afterglow.
- OFF: Turn off the afterglow.

Instruction

None.

Example

Set the afterglow duration to 1 second	:DISplay:PERSistence 1
Query afterglow duration Return	:DISplay:PERSistence? :DISPLAY:PERSISTENCE 1

:DISplay:STYle:DOTsonly

Command Format

:DISplay:STYle:DOTsonly {ON|OFF|<NR1>}

:DISplay:STYle:DOTsonly?

Function Description

Set or query whether the waveform type is dot mode.

Parameter

- ON: indicates setting it to dot mode.
- OFF: indicates setting it to vector mode.
- <NR1> is 0 when set to vector mode, and is other values when set to dot mode.

Instruction

None.

Example

Set the display wave type to dot mode	:DISplay:STYle:DOTsonly ON
Query the display wave type Return	:DISplay:STYle:DOTsonly? :DISPLAY:STYLE:DOTSONLY 1

:DISplay:REFRate

Command Format

:DISplay:REFRate {LOW|FAST}

:DISplay:REFRate?

Function Description

Set or query low refresh rate.

Parameter

- LOW indicates enabling low refresh.
- FAST indicates disabling low refresh.

Instruction

None.

Example

Set enable low refresh	:DISPlay:REFRate LOW
Query low refresh status Return	:DISPlay:REFRate? :DISPLAY:REFRATE LOW

:DISplay:PALEtte

Command Format

:DISplay:PALEtte {NORMal|TEMPErature}

:DISplay:PALEtte?

Function Description

Set or query color temperature.

Parameter

- NORMal indicates disabling color temperature.
- TEMPErature indicates enabling color temperature.

Instruction

None.

Example

Set enable color temperature	:DISplay:PALEtte TEMPErature
Query color temperature status Return	:DISplay:PALEtte? :DISPLAY:PALETTE TEMPERATURE

:DISplay:XY? (Query Only)

Command Format

:DISplay:XY?

Function Description

Query XY related parameters.

Parameter

None.

Instruction

None.

Example

Query XY related parameters	:DISplay:XY?
Return	:DISPLAY:XY:STATE OFF;WITHYT 1;XSOURCE CH1; YSOURCE CH1

:DISplay:XY:STATE

Command Format

:DISplay:XY:STATE {OFF|TRIGgered}

:DISplay:XY:STATE?

Function Description

Query XY mode status.

Parameter

- OFF indicates disabling XY mode.
- TRIGgered indicates enabling XY mode.

Instruction

None.

Example

Set enable XY mode	:DISplay:XY:STATE TRIGgered
Query XY mode status Return	:DISplay:XY:STATE? :DISPLAY:XY:STATE TRIGGERED

:DISplay:XY:WITHYT

Command Format

:DISplay:XY:WITHYT {OFF|ON|<NR1>}

:DISplay:XY:WITHYT?

Function Description

Set or query XY full screen mode.

Parameter

- OFF indicates disabling XY full screen mode.
- ON indicates enabling XY full screen mode.
- <NR1> is 0 to disable XY full screen mode; other values to enable XY full screen mode.

Instruction

None.

Example

Set enable XY full screen mode	:DISplay:XY:WITHYT ON
Query XY full screen mode status Return	:DISplay:XY:WITHYT? :DISPLAY:XY:WITHYT 1

:DISplay:XY:XSOUrce

Command Format

:DISplay:XY:XSOUrce {CH1|CH2|CH3|CH4}

:DISplay:XY:XSOUrce?

Function Description

Set or query XY's X-axis source.

Parameter

- CH1-CH4 indicate Channel 1, Channel 2, Channel 3, and Channel 4.

Instruction

None.

Example

Set XY's X-axis source to Channel 1	:DISplay:XY:XSOUrce CH1
Query XY's X-axis source Return	:DISplay:XY:XSOUrce? :DISPLAY:XY:XSOURCE CH1

:DISplay:XY:YSOUrce

Command Format

:DISplay:XY:YSOUrce {CH1|CH2|CH3|CH4}

:DISplay:XY:YSOUrce?

Function Description

Set or query XY's Y-axis source.

Parameter

- CH1-CH4 indicate Channel 1, Channel 2, Channel 3, and Channel 4.

Instruction

None.

Example

Set XY's Y-axis source to Channel 2	:DISplay:XY:YSOUrce CH2
Query XY's Y-axis source Return	:DISplay:XY:YSOUrce? :DISPLAY:XY:YSOURCE CH2

:DISplay:DATA?

Command Format

:DISplay:DATA?

Function Description

Query the current screen capture data in PNG format binary data stream.

Parameter

None.

Instruction

The image data is the data obtained after removing the first 4 bytes and the last byte.

Example

Query current screen capture data	:DISplay:DATA?
Return	:DISPLAY:DATA\s\A2\D1\00\00\89PNG\r\n\1A\n\00\00\00\ rIHDR\00\00\04\00\00\00\02X\b\02\00\00\00sr\03t\00\00\00\

03sBIT\b\b\b\DB\E1O\E0\00\00.....

2.10 DVM Command Subsystem

Used to set the related parameters of DVM mode.

These commands include:

- :DVM
- :DVM:MEASUrement:VALue?
- :DVM:MODe
- :DVM:SOUrce
- :DVM:STATistics:STATE
- :DVM:STATistics RESet
- :DVM:STATistics:MAXimum?
- :DVM:STATistics:MINImum?
- :DVM:STATistics:{AVG|AVErage}?
- :DVM:ALARm:MODe
- :DVM:ALARm:HIGHLimit
- :DVM:ALARm:LOWLimit
- :DVM:ALARm:WHEN

:DVM {RESET} (No Query Form)

Command Format

:DVM {RESET}

Function Description

Set DVM to initialization state.

Parameter

None.

Instruction

None.

Example

Set DVM to initialization state	:DVM RESET

:DVM:MEASUrement:VALue? (Query Only)

Command Format

:DVM:MEASUrement:VALue?

Function Description

Query the current reading value of DVM function.

Parameter

None.

Instruction

None.

Example

Query the current reading value of DVM function	:DVM:MEASU:VAL?
Return	:DVM:MEASUREMENT:VALUE 59.1006E-3

:DVM:MODe

Command Format

:DVM:MODe {ACRMS|ACDCRMS|DC|OFF}

:DVM:MODe?

Function Description

Query or set mode of DVM function.

Parameter

- OFF: disable DVM function.
- Other Parameters: Turn on DVM function and set the corresponding mode.

Instruction

None.

Example

Set DVM mode to DC	:DVM:MODe DC
Query DVM mode Return	:DVM:MODe? :DVM:MODE DC

:DVM:SOUrce

Command Format

:DVM:SOUrce {CH1|CH2|CH3|CH4}

:DVM:SOUrce?

Function Description

Set or query DVM function source.

Parameter

- CH1-CH4: Channel 1 - Channel 4.

Instruction

None.

Example

Set DVM source to CH2	:DVM:SOUrce CH2
Query DVM source Return	:DVM:SOUrce? :DVM:SOURCE CH2

:DVM:STATistics:STATE

Command Format

:DVM:STATistics:STATE {ON|OFF|<NR1>}

:DVM:STATistics:STATE?

Function Description

Set or query DVM statistics function status.

Parameter

- ON: enable DVM statistics function.
- OFF: disable DVM statistics function.
- <NR1>: is 0 to disable DVM statistics function; other values to enable DVM statistics function.

Instruction

None.

Example

Set DVM statistics function status to ON	:DVM:STATistics:STATE ON
Query DVM statistics function status Return	:DVM:STATistics:STATE? :DVM:STATISTICS:STATE 1

:DVM:STATistics RESet (No Query Form)

Command Format

:DVM:STATistics RESet

Function Description

Reset DVM statistics function.

Parameter

None.

Instruction

None.

Example

Reset DVM statistics function	:DVM:STATistics RESet

:DVM:STATistics:MAXimum? (Query Only)

Command Format

:DVM:STATistics:MAXimum?

Function Description

Query statistics maximum.

Parameter

None.

Instruction

None.

Example

Query statistics maximum	:DVM:STATistics:MAXimum?
Return	:DVM:STATISTICS:MAXIMUM 243.0222E+9

:DVM:STATistics:MINImum? (Query Only)

Command Format

:DVM:STATistics:MINImum?

Function Description

Query statistics minimum.

Parameter

None.

Instruction

None.

Example

Query statistics minimum	:DVM:STATistics:MINImum?
Return	:DVM:STATISTICS:MINIMUM 204.5778E+9

:DVM:STATistics:{AVG|AVErage}? (Query Only)

Command Format

:DVM:STATistics:{AVG|AVErage}?

Function Description

Query statistics average.

Parameter

None.

Instruction

None.

Example

Query statistics average	:DVM:STATistics:AVErage?
Return	:DVM:STATISTICS:AVERAGE 234.1950E+9

:DVM:ALARm:MODe

Command Format

:DVM:ALARm:MODe {OFF|ON|BEEP}

DVM:ALARm:MODe?

Function Description

Query or set the alarm mode of DVM function.

Parameter

- OFF: disable alarm.
- ON: enable alarm.
- BEEP: Turn on the alarm and activate the buzzer.

Instruction

None.

Example

Set DVM alarm mode to ON	:DVM:ALARm:MODe ON
Query DVM alarm mode Return	:DVM:ALARm:MODe? :DVM:ALARM:MODE ON

:DVM:ALARm:HIGHLimit

Command Format

:DVM:ALARm:HIGHLimit <NR3>

:DVM:ALARm:HIGHLimit?

Function Description

Query or set the alarm upper limit value of DVM function.

Parameter

<NR3>: Default unit is V.

Instruction

None.

Example

Set alarm upper limit value to 1V	:DVM:ALARm:HIGHLimit 1
Query alarm upper limit value Return	:DVM:ALARm:HIGHLimit? :DVM:ALARM:HIGHLIMIT 1.0000

:DVM:ALARm:LOWLimit

Command Format

:DVM:ALARm:LOWLimit <NR3>

:DVM:ALARm:LOWLimit?

Function Description

Query or set the alarm lower limit value of DVM function.

Parameter

<NR3>: Default unit is V.

Instruction

None.

Example

Set alarm lower limit value to 1V	:DVM:ALARm:LOWLimit 1
Query alarm lower limit value Return	:DVM:ALARm:LOWLimit? :DVM:ALARM:LOWLIMIT 1.0000

:DVM:ALARm:WHEN

Command Format

:DVM:ALARm:WHEN {INSLimit|OUTLimit}

:DVM:ALARm:WHEN?

Function Description

Query or set alarm limit conditions of DVM function.

Parameter

- INSLimit: Inside Limit.
- OUTLimit: Outside Limit.

Instruction

None.

Example

Set alarm limit condition to outlimit	:DVM:ALARm:WHEN OUTLimit
Query alarm limit condition Return	:DVM:ALARm:WHEN? :DVM:ALARM:WHEN OUTLIMIT

2.11 LA Command Subsystem

Used to set the related parameters of LA mode.

These commands include:

- :D<x>
- :D<x>:LABel
- :D<x>:POSition
- :D<x>:THReshold
- :SELect:D<x>
- :DIGital:AUTOsort
- :DIGital:STATE
- :DIGital:PRObe:CALibrate

:D<x> (Query Only)

Command Format

:D<x>?

Function Description

Query parameters of the specified digital channel <x>, where x is the channel number.

Parameter

None.

Instruction

None.

Example

Query parameters of the specified digital channel 1	:D1?
Return	:D1:THRESHOLD 1.4000;POSITION -440.0000E-3;LABEL ""

:D<x>:LABel

Command Format

:D<x>:LABel <Qstring>

:D<x>:LABel?

Function Description

Query or set the waveform label of the specified digital channel <x>, where x is the channel number.

Parameter

<Qstring>: label name.

Instruction

None.

Example

Set the waveform label of digital channel 4 to ClkWfm4	:D4:LABel ClkWfm4
Query the waveform label of digital channel 4 Return	:D4:LABEL? :D4:LABEL "ClkWfm4"

:D<x>:POSition

Command Format

:D<x>:POSition <NR3>

:D<x>:POSition?

Function Description

Query or set the vertical position of the specified digital channel <x>, where x is the channel number. (Used when LA is open)

Parameter

- Waveform display mode for small and medium: 0 to 15.
- Waveform display mode for large: 0 to 7.

Instruction

The adjustable range depends on the number of slots enabled. The adjustable range is 0-15. After setting the position, it swaps places with the original slot from top to bottom.

Example

Set the display position of D1 to 3	:D1:POSition 3
Query display position of D1 Return	:D1:POSition? :D1:POSITION 3

:D<x>:THReshold

Command Format

:D<x>:THReshold {ECL|TTL|<NR3>}

:D<x>:THReshold?

Function Description

Query or set the logical threshold of the specified digital channel <x>, where x is the digital channel number D0-D15.

Parameter

- ECL sets the digital threshold of channel <x> to the preset ECL high level -1.3V.
- TTL sets the digital threshold of channel <x> to the preset TTL high level of 1.4V.
- <NR3> is a floating-point number that specifies the digital threshold of channel <x> in volts.

Instruction

None.

Example

Set the threshold of digital channel D5 to ECL	:D5:THReshold ECL
Query the threshold of digital channel D5 Return	:D5:THReshold? :D5:THRESHOLD 1.2500

:SELect:D<x>

Command Format

:SELect:D<x> {<NR1>|OFF|ON}

:SELect:D<x>?

Function Description

Open the display of the digital channel <x> and reset the acquisition position. <x > is the channel number, which can be 0-15. The query returns whether the channel is open or closed, but does not indicate whether it is the selected waveform.

Parameter

- ON: Open the display of the specified waveform. This waveform also becomes the selected waveform.
- OFF: Close the display of the specified waveform.
- <NR1>: 0 turns off the display of the specified waveform; any other value turns on the display of the specified waveform.

Instruction

None.

Example

Set the waveform display to open digital channel 2 and select digital channel 2	:SELECT:D2 ON
Query the waveform display of digital channel 2 status Return	:SELECT:D2? :SELECT:D2 1

:DISplay:DIGital:HEIght

Command Format

:DISplay:DIGital:HEIght {SMAll|MEDium|LARge}

:DISplay:DIGital:HEIght?

Function Description

Query or set the number of available digital waveform position slot quantities.

Parameter

- SMAll: Set height to small.
- MEDium: Set height to medium.
- LARge: Set height to large, available only when the number of channels is not more than 8.

Instruction

None.

Example

Set 4 digital waveforms to display per partition	:DISplay:DIGital:HEIght SMAll
Query each partition height Return	:DISplay:DIGital:HEIght? :DISPLAY:DIGITAL:HEIGHT SAMLL

:DIGital:AUTOsort

Command Format

:DIGital:AUTOsort {0|1}

:DIGital:AUTOsort?

Function Description

Query or set the automatic arrangement of open channel waveforms on the screen.

Parameter

- 0: The waveforms on the screen are arranged from top to bottom as D0 to D15.
- 1: The waveforms on the screen are arranged from top to bottom as D15 to D0.

Instruction

None.

Example

Set waveforms are arranged from top to bottom as D0 to D15	:DIGital:AUTOsort 0
Query waveform sorting method Return	:DIGital:AUTOsort? :DIGITAL:AUTOSORT 0

:DIGital:STATE

Command Format

:DIGital:STATE {OFF|ON|<NR1>}

:DIGital:STATE?

Function Description

Query or set the digital channel status.

Parameter

- OFF: Disable LA function.
- ON: Enable LA function.
- <NR1>: 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set LA function to ON	:DIGital:STATE ON
Query LA function status Return	:DIGital:STATE? :DIGITAL:STATE 1

:DIGital:PRObe:CALibrate (No Query Form)

Command Format

:DIGital:PRObe:CALibrate {STARt}

Function Description

Set digital channel probe calibration.

Parameter

STARt: Initiate digital channel probe calibration.

Instruction

None.

Example

Set start digital channel probe calibration	:DIGital:PRObe:CALibrate STARt

2.12 FRA Command Subsystem

Used to set the related parameters of FRA mode.

These commands include:

- :FRANalysis
- :FRANalysis:STATE
- :FRANalysis:DECade:POINts
- :FRANalysis:FREQuency:STARt
- :FRANalysis:FREQuency:STOP
- :FRANalysis:AMPLitude
- :FRANalysis[:RESult]:DATA?
- :FRANalysis[:RESult]:MARKer?
- :FRANalysis[:RESult]:MARKer:SELected
- :FRANalysis[:RESult]:MARKer:MAXimum?
- :FRANalysis[:RESult]:MARKer:VALue?
- :FRANalysis[:RESult]:GAIN:SCALe
- :FRANalysis[:RESult]:GAIN:OFFSet
- :FRANalysis[:RESult]:PHASe:SCALe
- :FRANalysis[:RESult]:PHASe:OFFSet
- :FRANalysis[:RESult]:AUTOScale
- :FRANalysis[:RESult]:SAVE

:FRANalysis

Command Format

:FRANalysis {STARt}

:FRANalysis?

Function Description

Set or query FRA function status.

Parameter

STARt: start to FRA function.

Instruction

None.

Example

Set start to FRA function	:FRANalysis START
Query FRA related Parameters Return	:FRANalysis? :FRANALYSIS:STATE 1;DECADE:POINTS 10; :FRANALYSIS:FREQUENCY: START 10.0000; STOP 25.0000E+6

:FRANalysis:STATE

Command Format

:FRANalysis:STATE {ON|OFF|<NR1>}

:FRANalysis:STATE?

Function Description

Set or query FRA function status.

Parameter

- ON: Enable FRA function.
- OFF: disable FRA function.
- <NR1> is 0 to turn off this function; other values to open this function.

Instruction

None.

Example

Set FRA function status to ON	:FRANalysis:STATE ON
Query FRA function status Return	:FRANalysis:STATE? :FRANALYSIS:STATE 1

:FRANalysis:DECade:POINts

Command Format

:FRANalysis:DECade:POINts <NR1>

:FRANalysis:DECade:POINts?

Function Description

Query or set the number of test points per 10x frequency.

Parameter

<NR1>: number of points , minimum 10, maximum 100.

Instruction

None.

Example

Set the number of points per decade to 20	:FRANalysis:DECade:POINts 20
Query the number of points per decade Return	:FRANalysis:DECade:POINts? :FRANALYSIS:DECADE:POINTS 20

:FRANalysis:FREQuency:STARt

Command Format

:FRANalysis:FREQuency:STARt <NR3>

:FRANalysis:FREQuency:STARt?

Function Description

Set or query FRA start frequency.

Parameter

<NR1>: FRA start frequency, unit is Hz, the range is: 10Hz~25MHz.

Instruction

None.

Example

Set FRA start frequency to 10Hz	:FRANalysis:FREQuency:STARt 10
Query FRA start frequency Return	:FRANalysis:FREQuency:STARt? :FRANALYSIS:FREQUENCY:START 10.0000

:FRANalysis:FREQuency:STOP

Command Format

:FRANalysis:FREQuency:STOP <NR3>

:FRANalysis:FREQuency:STOP?

Function Description

Set or query FRA stop frequency.

Parameter

<NR1>: FRA stop frequency, unit is Hz, the range is: 10Hz~25MHz.

Instruction

None.

Example

Set FRA stop frequency to 10MHz	:FRANalysis:FREQuency:STOP 10E6
Query FRA stop frequency Return	:FRANalysis:FREQuency:STOP? :FRANALYSIS:FREQUENCY:STOP 10.0000E+6

:FRANalysis:AMPLitude

Command Format

:FRANalysis:AMPLitude <NR3>

:FRANalysis:AMPLitude?

Function Description

Set or query FRA amplitude.

Parameter

<NR1>: FRA amplitude, unit is V, the range is: 2mV~6V.

Instruction

None.

Example

Set FRA amplitude to 1V	:FRANalysis:AMPLitude 1.0
Query FRA amplitude Return	:FRANalysis:AMPLitude? :FRANALYSIS:AMPLITUDE 1.0000

:FRANalysis[:RESult]:DATA? (Query Only)

Command Format

:FRANalysis[:RESult]:DATA?

Function Description

Query FRA result data.

Parameter

None.

Instruction

None.

Example

Query FRA result data	:FRANalysis:RESult:DATA?
Return	:FRANALYSIS:RESULT:DATA FRA Data StartFreq:,10 EndFreq:, 25000000 Freq(Hz),Gain(dB),Phase 10000.0,

-91.872,0.0 12589.254,-91.908,0.0 15848.931,-91.872, 0.0 19952.623,-91.48,0.0 25118.864,-91.565,0.0 31622.776,-91.805,0.0

:FRANalysis[:RESult]:MARKer? (Query Only)

Command Format

:FRANalysis[:RESult]:MARKer?

Function Description

Query the parameters related to the FRA MARKer.

Parameter

None.

Instruction

None.

Example

Query the parameters related to the FRA MARKer	:FRANalysis:RESult:MARKer?
Return	:FRANALYSIS:RESULT:MARKER:SELECT 0;MAXIMUM 64; VALUE 10.0000E+3,0.0000,0.0000

:FRANalysis[:RESult]:MARKer:SELected

Command Format

:FRANalysis[:RESult]:MARKer:SELected <NR1>

:FRANalysis[:RESult]:MARKer:SELected?

Function Description

Query or set the marker position for FRA function.

Note: Returns -1 when there is no analysis data.

Parameter

<NR1>: The current position of the marker, in sequence number; the value range is 0~MAXimum.

Instruction

None.

Example

Set current marker position to 0	:FRANalysis:RESult:MARKer:SELected 0
Query current marker position Return	:FRANalysis:RESult:MARKer:SELected? :FRANALYSIS:RESULT:MARKER:SELECTED 0

:FRANalysis[:RESult]:MARKer:MAXimum? (Query Only)

Command Format

:FRANalysis[:RESult]:MARKer:MAXimum?

Function Description

Query how many points does the current analysis result have, and to which position can the marker be moved to obtain its analysis result value.

Parameter

None.

Instruction

None.

Example

Query maximum moveable position	:FRANalysis:RESult:MARKer:MAXimum?
Return	:FRANALYSIS:RESULT:MARKER:MAXIMUM 64

:FRANalysis[:RESult]:MARKer:VALue? (Query Only)

Command Format

:FRANalysis[:RESult]:MARKer:VALue?

Function Description

Query the value of the analysis point corresponding to the flag, which includes frequency, gain,

and phase, with the three values separated by commas.

Parameter

None.

Instruction

When there is no analysis data, return "Null".

Example

Query the value of the analysis point corresponding to the flag	:FRANalysis:RESult:MARKer:VALue?
Return	:FRANALYSIS:RESULT:MARKER:VALUE 10.0000E+3,0.0000,0.0000

:FRANalysis[:RESult]:GAIN:SCALe

Command Format

:FRANalysis[:RESult]:GAIN:SCALe <NR3>

:FRANalysis[:RESult]:GAIN:SCALe?

Function Description

Query or set the gain level for displaying the FRA results on the interface.

Parameter

<NR3>: Gain change levels, valid range is 5~50, matches the nearest level based on the input value and sets it, unit is dB/div.

Instruction

None.

Example

Set the gain change level of the window to 10	:FRANalysis:RESult:GAIN:SCALe 10
Query the gain change level of the window Return	:FRANalysis:RESult:GAIN:SCALe? :FRANALYSIS:RESULT:GAIN:SCALE 10

:FRANalysis[:RESult]:GAIN:OFFSet

Command Format

:FRANalysis[:RESult]:GAIN:OFFSet <NR3>

:FRANalysis[:RESult]:GAIN:OFFSet?

Function Description

Query or set the gain change position offset when displaying the FRA results on the interface.

Parameter

<NR3>: Position offset of gain change, valid value is -250~250, matches the nearest Offset option based on the input value, then sets it, unit is dB.

Instruction

None.

Example

Set the gain change offset of window to 10dB	:FRANalysis:RESult:GAIN:OFFSet 10
Query the gain change offset of window Return	:FRANalysis:RESult:GAIN:OFFSet? :FRANALYSIS:RESULT:GAIN:OFFSET 10

:FRANalysis[:RESult]:PHASe:SCALe

Command Format

:FRANalysis[:RESult]:PHASe:SCALe <NR3>

:FRANalysis[:RESult]:PHASe:SCALe?

Function Description

Query or set the phase change level displayed on the interface when showing FRA results.

Parameter

<NR3>: Phase change level, valid range is 5~50. Based on the input value, it matches the nearest level and then sets it, with the unit being dB/div.

Instruction

None.

Example

Set the phase change level of the window to 10dB/div	:FRANalysis:RESult:PHASe:SCALe 10
Query the phase change level of the window Return	:FRANalysis:RESult:PHASe:SCALe? :FRANALYSIS:RESULT:PHASE:SCALE 10

:FRANalysis[:RESult]:PHASe:OFFSet

Command Format

:FRANalysis[:RESult]:PHASe:OFFSet <NR3>

:FRANalysis[:RESult]:PHASe:OFFSet?

Function Description

Query or set the phase shift position offset when displaying the FRA results on the interface.

Parameter

<NR3>: Phase shift position offset, valid range is -250~250. Based on the input value, it matches the nearest Offset option and then sets it, unit is dB.

Instruction

None.

Example

Set the phase shift offset of the window to 10dB	:FRANalysis:RESult:PHASe:OFFSet 10
Query the phase shift offset of the window Return	:FRANalysis:RESult:PHASe:OFFSet? :FRANALYSIS:RESULT:PHASE:OFFSET 10

:FRANalysis[:RESult]:AUTOScale

Command Format

:FRANalysis[:RESult]:AUTOScale {EXECute}

Function Description

Set the appropriate level and position for displaying the FRA results on the interface.

Parameter

None.

Instruction

None.

Example

Set the appropriate level and position for displaying the FRA results on the interface	:FRANalysis:RESult:AUTOScale EXECute

:FRANalysis[:RESult]:SAVE (No Query Form)

Command Format

:FRANalysis[:RESult]:SAVE {CSV}

Function Description

Set the FRA results to be saved in CSV format to the internal file system.

Parameter

CSV: CSV format.

Instruction

None.

Example

Set the FRA results to be saved in CSV format to the internal file system	:FRANalysis:RESult:SAVE CSV

2.13 DIR Command Subsystem

Used to set the related parameters of DIR mode.

These commands include:

- :FILTer?
- :FILTer:STATE
- :FILTer:SOURce
- :FILTer:TYPE
- :FILTer:WINdow
- :FILTer:FREQuency:CUTOff
- :FILTer:FREQuency:UPPerthreshold
- :FILTer:FREQuency:LOWerthreshold
- :FILTer:VERTical:POSition

:FILTer? (Query Only)

Command Format

:FILTer?

Function Description

Query the related parameters for filter configurations.

Parameter

None.

Instruction

None.

Example

Query the related parameters for filter configurations	:FILTer?
Return	:FILTER:STATE 0;SOURCE CH1;TYPE LPASS;WINDOW RECTANGULAR;:FILTER:FREQUENCY:CUTOFF 500.0000; UPPERTHRESHOLD 1.0000E+3; LOWERTHRESHOLD 500.0000;:FILTER:VERTICAL:POSITION 0.00

:FILTer:STATE

Command Format

:FILTer:STATE {ON|OFF|<NR1>}

:FILTer:STATE?

Function Description

Set or query filter function status.

Parameter

- ON: enable filter function.
- OFF: disable filter function.

- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set filter function status to ON	:FILTer:STATE 1
Query filter function status Return	:FILTer:STATE? :FILTER:STATE 1

:FILTer:SOURce

Command Format

:FILTer:SOURce {CH1|CH2|CH3|CH4}

:FILTer:SOURce?

Function Description

Set or query filter function source.

Parameter

CH1-CH4: Channel 1-4.

Instruction

None.

Example

Set filter channel to CH1	:FILTer:SOURce CH1
Query filter channel Return	:FILTer:SOURce? :FILTER:SOURCE CH1

:FILTer:TYPE

Command Format

:FILTer:TYPE {LPASs|HPASs|BPASs|BSTop}

:FILTer:TYPE?

Function Description

Set or query filter function type.

Parameter

- LPASs: Low-pass, only allows signals with frequencies below the current cutoff frequency to pass.
- HPASs: High-pass, only allows signals with frequencies above the current cutoff frequency to pass.
- BPASs: Band-pass, only allows signals with frequencies above the current cutoff frequency 1 and below the current cutoff frequency 2 to pass.
- BSTop: Band-stop, only allows signals with frequencies below the current cutoff frequency 1 or above the current cutoff frequency 2 to pass.

Instruction

None.

Example

Set filter type to low-pass	:FILTer:TYPE LPASs
Query filter type Return	:FILTer:TYPE? :FILTER:TYPE LPASS

:FILTer:WINdow

Command Format

:FILTer:WINdow {RECTangular|HAMming|HANning|BLAckmanharris|TAPered|TRIAngular}

:FILTer:WINdow?

Function Description

Query or set the window for filter function.

Parameter

None.

Instruction

None.

Example

Set filter window type to RECTangular	:FILTer:WINdow RECTangular
Query filter window type Return	:FILTer:WINdow? :FILTER:WINDOW RECTANGULAR

:FILTer:FREQuency:CUTOff

Command Format

:FILTer:FREQuency:CUTOff <NR3>

:FILTer:FREQuency:CUTOff?

Function Description

Query or set the cutoff frequency of the low-pass/high-pass filter for the filtering function.

Parameter

<NR3>: The default unit is Hz, and the return value will be taken the closest value.

Instruction

None.

Example

Set the cutoff frequency of low-pass or high-pass to 10KHz	:FILTer:FREQuency:CUTOff 1E4
Query the cutoff frequency of low-pass or high-pass Return	:FILTer:FREQuency:CUTOff? :FILTER:FREQUENCY:CUTOFF 10.0000E+3

:FILTer:FREQuency:UPPerthreshold

Command Format

:FILTer:FREQuency:UPPerthreshold <NR3>

:FILTer:FREQuency:UPPerthreshold?

Function Description

Query or set the upper frequency limit of the band-pass/band-stop filter for the filter function.

Parameter

<NR3>: The default unit is Hz, and the return value will be based on the nearest value.

Instruction

None.

Example

Set the upper frequency to 10KHz	:FILTer:FREQuency:UPPerthreshold 1E4
Query the upper frequency Return	:FILTer:FREQuency:UPPerthreshold? :FILTER:FREQUENCY:UPPERTHRESHOLD 10.0000E+3

:FILTer:FREQuency:LOWerthreshold

Command Format

:FILTer:FREQuency:LOWerthreshold <NR3>

:FILTer:FREQuency:LOWerthreshold?

Function Description

Query or set the lower frequency limit of the band-pass/band-stop filter for the filter function.

Parameter

<NR3>: The default unit is Hz, and the return value will be based on the nearest value.

Instruction

None.

Example

Set the upper frequency to 1KHz	:FILTer:FREQuency:LOWerthreshold 1E3
Query the lower frequency Return	:FILTer:FREQuency:LOWerthreshold? :FILTER:FREQUENCY:LOWERTHRESHOLD 1.0000E+3

:FILTer:VERTical:POSition

Command Format

:FILTer:VERTical:POSition <NR3>

:FILTer:VERTical:POSition?

Function Description

Query or set the vertical position of the filter function.

Parameter

<NR3>: Is a float number that specifies the desired position from the center grid division. The range is ±5 divisions, with a resolution of 0.01 divisions.

Instruction

None.

Example

Set the vertical position of the filter to 1div	:FILTer:VERTical:POSition 1
Query the vertical position of the filter Return	:FILTer:VERTical:POSition? :FILTER:VERTICAL:POSITION 1.00

2.14 FFT Command Subsystem

Used to set the related parameters of FFT mode.

These commands include:

- :FFT?
- :FFT:SRCWFM
- :FFT:SOURce
- :FFT:WINdow
- :FFT:VType
- :FFT:HORizontal:SCAle
- :FFT:VERTical:SCAle
- :FFT:LABel
- :FFT:FREQuency:CENTer
- :FFT:REF:LEVel
- :FFT:AUTOSet
- :FFT:PEAKSTable:ENABle
- :FFT:PEAKSTable:NUM
- :FFT:PEAKSTable:THReshold
- :FFT:PEAKSTable:ORDer
- :FFT:PEAKSTable:SAVe
- :FFT:PEAKSTable:SAVe:PATH

:FFT? (Query Only)

Command Format

:FFT?

Function Description

Query FFT configuration.

Parameter

None.

Instruction

None.

Example

Query FFT configuration	:FFT?
Return	:FFT:SRCWFM 0;SOURCE CH1;WINDOW HANNING;VTYPE DB;HORIZONTAL:SCALE 6.2500E+6;:FFT:VERTICAL:SCALE 20.0;:FFT:LABEL "ACK";FREQUENCY:CENTER 125.0000E+3; :FFT:REF:LEVEL 0.0;:FFT:PEAKSTABLE:ENABLE 0;NUM 1; THRESHOLD 0.0000;ORDER AMPORDER;SAVE: PATH EXTERNAL

:FFT:SRCWFM

Command Format

:FFT:SRCWFM {ON|OFF|<NR1>}

:FFT:SRCWFM?

Function Description

Set or query FFT function status.

Parameter

- ON: enable FFT.

- OFF: disable FFT.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set FFT function to ON	:FFT:SRCWFM ON
Query FFT function status Return	:FFT:SRCWFM? :FFT:SRCWFM 1

:FFT:SOURce

Command Format

:FFT:SOURce {CH1|CH2|CH3|CH4}

:FFT:SOURce?

Function Description

Set or query FFT function source.

Parameter

- CH1-4: Channel 1~4.

Instruction

None.

Example

Set FFT source to CH1	:FFT:SOURce CH1
Query FFT source Return	:FFT:SOURce? :FFT:SOURCE CH1

:FFT:WINdow

Command Format

:FFT:WINdow {RECTangular|HAMming|HANning|BLAckmanharris|BARtlett|KAISer}

:FFT:WINdow?

Function Description

Set or query FFT function window type.

Parameter

None.

Instruction

None.

Example

Set FFT window type to HAMming	:FFT:WINdow HAMming
Query FFT window type Return	:FFT:WINdow? :FFT:WINDOW HAMMING

:FFT:VType

Command Format

:FFT:VType {VRMS|DB|RADians|DEGrees}

:FFT:VType?

Function Description

Query or set FFT function's vertical type.

Parameter

None.

Instruction

None.

Example

Set FFT function's vertical type to VRMS	:FFT:VType VRMS
Query FFT function's vertical type Return	:FFT:VType? :FFT:VTYPE VRMS

:FFT:HORizontal:SCAle

Command Format

:FFT:HORizontal:SCAle <NR3>

:FFT:HORizontal:SCAle?

Function Description

Query or set FFT function's horizontal scale.

Parameter

<NR3>: unit is Hz, scientific notation.

Instruction

None.

Example

Set FFT function's horizontal scale to 3.1250E+6	:FFT:HORizontal:SCAle 3.1250E+6
Query FFT function's horizontal scale Return	:FFT:HORizontal:SCAle? :FFT:HORIZONTAL:SCALE 3.1250E+6

:FFT:VERTical:SCAle

Command Format

:FFT:VERTical:SCAle <NR3>

:FFT:VERTical:SCAle?

Function Description

Query or set FFT function's vertical scale.

Parameter

<NR3>: unit is Hz, scientific notation.

Instruction

None.

Example

Set FFT function's vertical scale to 1	:FFT:VERTical:SCAle 1
Query FFT function's vertical scale Return	:FFT:VERTical:SCAle? :FFT:VERTICAL:SCALE 1.0

:FFT:LABel

Command Format

:FFT:LABel <QString>

:FFT:LABel?

Function Description

Set or query FFT function’s label.

Parameter

<NR3>: unit is Hz, scientific notation.

Instruction

None.

Example

Set FFT label name to abc	:FFT:LABel "abc"
Query FFT label name Return	:FFT:LABel? :FFT:LABEL "abc"

:FFT:FREQuency:CENTer

Command Format

:FFT:FREQuency:CENTer <NR3>

:FFT:FREQuency:CENTer?

Function Description

Set or query FFT function’s center frequency.

Parameter

<NR3>: Range is 0-31.25E+6, unit is Hz.

Instruction

None.

Example

Set FFT center frequency to 125000	:FFT:FREQuency:CENTer 125000
Query FFT center frequency Return	:FFT:FREQuency:CENTer? :FFT:FREQUENCY:CENTER 125.0000E+3

:FFT:REF:LEVel

Command Format

:FFT:REF:LEVel <NR3>

:FFT:REF:LEVel?

Function Description

Set or query FFT function reference level.

Parameter

<NR3>: -10div-10div, resolution is 0.01div.

Instruction

None.

Example

Set FFT reference level to 1	:FFT:REF:LEVel 1
Query FFT reference level Return	:FFT:REF:LEVel? :FFT:REF:LEVEL 1.0

:FFT:AUTOSet (No Query Form)

Command Format

:FFT:AUTOSet EXECute

Function Description

FFT auto set once.

Parameter

None.

Instruction

None.

Return Format

None.

Example

FFT auto set once	:FFT:AUTOSet EXECute

:FFT:PEAKSTable:ENABle

Command Format

:FFT:PEAKSTable:ENABle {ON|OFF|<NR1>}

:FFT:PEAKSTable:ENABle?

Function Description

Query or set the peak display of FFT function.

Parameter

- OFF: disable peak display function.
- ON: enable peak display function.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set FFT peak display to ON	:FFT:PEAKSTable:ENABle ON
Query FFT peak display status Return	:FFT:PEAKSTable:ENABle? :FFT:PEAKSTABLE:ENABLE 1

:FFT:PEAKSTable:NUM

Command Format

:FFT:PEAKSTable:NUM <NR1>

:FFT:PEAKSTable:NUM?

Function Description

Set or query the number of peak display for FFT function.

Parameter

<NR1>: Range is 1-15.

Instruction

None.

Example

Set FFT peak display count to 5	:FFT:PEAKSTable:NUM 15
Query FFT peak display count Return	:FFT:PEAKSTable:NUM? :FFT:PEAKSTABLE:NUM 15

:FFT:PEAKSTable:THReshold

Command Format

:FFT:PEAKSTable:THReshold <NR3>

:FFT:PEAKSTable:THReshold?

Function Description

Set or query FFT function peak threshold.

Parameter

<NR3>: unit: V，db，rad，°; maximum value is the current vertical position*5.

Instruction

None.

Example

Set FFT peak threshold to 1	:FFT:PEAKSTable:THReshold 1
Query FFT peak threshold Return	:FFT:PEAKSTable:THReshold? :FFT:PEAKSTABLE:THRESHOLD 1.0000

:FFT:PEAKSTable:ORDer

Command Format

:FFT:PEAKSTable:ORDer {AMPorder|FREQorder}

:FFT:PEAKSTable:ORDer?

Function Description

Set or query FFT function peak sort method.

Parameter

- AMPorder: sort by peak size.
- FREQorder: sort by frequency size.

Instruction

None.

Example

Set FFT peak sort method to AMPorder	:FFT:PEAKSTable:ORDer AMPorder
Query FFT peak sort method Return	:FFT:PEAKSTable:ORDer? :FFT:PEAKSTABLE:ORDER AMPORDER

:FFT:PEAKSTable:SAVe (No Query Form)

Command Format

:FFT:PEAKSTable:SAVe <name>

Function Description

Set peak save.

Parameter

<name>: file name and perform the save operation.

Instruction

None.

Example

Set peak save name to aaa	:FFT:PEAKSTable:SAVe aaa

:FFT:PEAKSTable:SAVe:PATH

Command Format

:FFT:PEAKSTable:SAVe:PATH {INTERNal|EXTERNal}

:FFT:PEAKSTable:SAVe:PATH?

Function Description

Set or query the peak save path of FFT function.

Parameter

- INTERNal: save path is internal.
- EXTERNal: save path is external.

Instruction

None.

Example

Set FFT peak save path to internal	:FFT:PEAKSTable:SAVe:PATH INTERNal
Query FFT peak save path Return	:FFT:PEAKSTable:SAVe:PATH? :FFT:PEAKSTABLE:SAVE INTERNAL

2.15 HORizontal Command Subsystem

Used to set the related parameters of the horizontal function.

These commands include:

- :HORizontal?
- :HORizontal:DELay:TIMe
- :HORizontal:RECOrdlength
- :HORizontal:SAMPLERate?
- :HORizontal:SCAle
- :HORizontal:HREFerence:MODE

:HORizontal? (Query Only)

Command Format

:HORizontal?

Function Description

The query returns the following horizontal parameters:

- Horizontal delay mode status
- Horizontal delay time
- Horizontal time base level
- Current real-time sampling rate
- Storage depth

Parameter

None.

Instruction

None.

Example

Query current horizontal parameters	:HORizontal?
Return	:HORIZONTAL:DELAY:MODE 1;TIME 0.0000; :HORIZONTAL:SCALE 20.0000E-9;SAMPLERATE 5.0000E+9;RECORDLENGTH 1000000

:HORizontal:DELay:TIMe

Command Format

:HORizontal:DELay:TIMe <NR3>

:HORizontal:DELay:TIMe?

Function Description

Query or set the horizontal delay time (the ADS horizontal trigger position).

Parameter

None.

Instruction

Set the horizontal trigger position offset time in seconds.

Example

Set horizontal trigger position offset time to 300ms	:HORizontal:DELay:TIME 0.3
Query current horizontal trigger position offset time	:HORizontal:DELay:TIME?
Return	:HORIZONTAL:DELAY:TIME 20.0000E-9

:HORizontal:RECordlength

Command Format

:HORizontal:RECordlength <NR1>

:HORizontal:RECordlength?

Function Description

Set or query the record length of the waveform (Storage depth).

Parameter

Name	Type	Range	Default value
<NR1>	Integer	1000, 10000, 100000, 1000000, 10000000, 100000000 etc	10000

Instruction

Different configured models support different storage depths, up to a maximum of G.

Example

Set the record length to 10k	:HORizontal:RECOrdlength 10000
Query current record length	:HORizontal:RECOrdlength?
Return	:HORIZONTAL:RECORDLENGTH 10000

:HORizontal:SAMPLERate? (Query Only)

Command Format

:HORizontal:SAMPLERate?

Function Description

Query and returns the sample rate of the analog channel in samples per second.

Parameter

None.

Instruction

This command gets the current real-time sampling rate, the ACQ:ACQuire:MAXSamplerate command gets the maximum sampling rate.

Example

Query current real-time sample rate	:HORIZontal:SAMPLERate?
Return	:HORIZONTAL:SAMPLERATE 5.0000E+5

:HORizontal:SCAle

Command Format

:HORizontal:SCAle <NR3>

:HORizontal:SCAle?

Function Description

Set or query the horizontal time base scale.

Parameter

Name	Type	Range	Default value
<NR3>	Float	See Instruction	---

Instruction

The value range may vary from 500ps to 1000s or 1ns to 1000s depending on the model,

specific support varies by model. After issuing the command, it will select the scale closest to the parameter for setting.

Example

Set the main time base scale to 2us/div	:HORizontal:SCAle 2E-6
Query the main time base scale Return	:HORizontal:SCAle? :HORIZONTAL:SCALE 2.0000E-6

:HORizontal:HREFerence:MODE

Command Format

:HORizontal:HREFerence:MODE {CENTer|TRIG}

:HORizontal:HREFerence:MODE?

Function Description

Set or query horizontal reference mode.

Parameter

None.

Instruction

- CENTer: Horizontal reference mode is centered, where, when changing the horizontal timebase, the oscilloscope will horizontally expand or compress the waveform around the center of the screen;
- TRIG: The horizontal reference mode is the trigger point, When changing the horizontal time base, the oscilloscope will horizontally expand or compress the waveform around the trigger position.

Example

Set the horizontal reference mode to trigger position	:HORizontal:HREFerence:MODE TRIG
Query current horizontal reference mode Return	:HORizontal:HREFerence:MODE? :HORIZONTAL:HREFERENCE:MODE TRIG

2.16 Mask Command Subsystem

Used to set the related parameters of Mask mode.

These commands include:

- :MASK?
- :MASK:STATE
- :MASK:SOURce
- :MASK:MESsage:DISplay
- :MASK:TEST:STATE
- :MASK:TEST:VIOLation:MODe
- :MASK:TEST:VIOLation:STOP
- :MASK:TEST:VIOLation:BEEP
- :MASK:TEST:FAILed?
- :MASK:TEST:PASSed?
- :MASK:TEST:TOTal?
- :MASK:TEMPLate CREATE
- :MASK:TEMPLate:HORizontal
- :MASK:TEMPLate:VERTical
- :MASK:TEMPLate:RULe<x>:SAVe
- :RECAll:MASK
- :MASK:OUTPut:ENABle

:MASK? (Query Only)

Command Format

:MASK?

Function Description

Query the related parameters of pass/fail function.

Parameter

None.

Instruction

None.

Example

Query the related parameters of pass/fail function	:MASK?
Return	:MASK:STATE 0;:SOURce CH1;:MESsage:DISplay 0;:MASK:TEST:STATE STOP;:VIOLation:MODe PASS;:STOP 0;:BEEP 0;:MASK:TEST:FAILed 0;:PASSed 0;:TOTal 0;:MASK:TEMPLate:HORizontal 0.2;:VERTical 0.2;:MASK:OUTPut:ENABle 0

:MASK:STATE

Command Format

:MASK:STATE {ON|OFF|<NR1>}

:MASK:STATE?

Function Description

Set or query pass/fail function status.

Parameter

- ON : enable pass/fail function.
- OFF: disable pass/fail function.

- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Query pass/fail function status to ON	:MASK:STATE ON
Query pass/fail function status Return	:MASK:STATE? :MASK:STATE 1

:MASK:SOURce

Command Format

:MASK:SOURce {CH1|CH2|CH3|CH4}

:MASK:SOURce?

Function Description

Set or query pass/fail function source.

Parameter

- CH1-CH4: Channel 1 - Channel 4.

Instruction

None.

Example

Set pass/fail function source to CH1	:MASK:SOURce CH1
Query pass/fail function source Return	:MASK:SOURce? :MASK:SOURCE CH1

:MASK:MESsage:DISplay

Command Format

:MASK:MESsage:DISplay {ON|OFF|<NR1>}

:MASK:MESsage:DISplay?

Function Description

Set or query pass/fail display function status.

Note: :MASK:STATE function not enabled cannot be enabled this state.

Parameter

- ON: enable pass/fail display function.
- OFF: disable pass/fail display function.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set pass/fail display function status to ON	:MASK:MESsage:DISplay ON
Query pass/fail display function status Return	:MASK:MESsage:DISplay? :MASK:MESSAGE:DISPLAY 1

:MASK:TEST:STATE

Command Format

:MASK:TEST:STATE {RUN|STOP}

:MASK:TEST:STATE?

Function Description

Start or stop Pass/Fail test function.

Note: :MASK:STATE function not enabled cannot be enabled this state.

Parameter

- RUN: Start Pass/Fail test function.
- STOP: Stop Pass/Fail test function.

Instruction

None.

Example

Set pass/fail test function status to start	:MASK:TEST:STATE RUN
Query pass/fail test function status Return	:MASK:TEST:STATE? :MASK:TEST:STATE RUN

:MASK:TEST:VIOLation:MODe

Command Format

:MASK:TEST:VIOLation:MODe {PASS|FAIL}

:MASK:TEST:VIOLation:MODe?

Function Description

Set or query pas/fail function type.

Parameter

- PASS
- FAIL

Instruction

None.

Example

Set pass/fail type to PASS	:MASK:TEST:VIOLation:MODe PASS
Query pass/fail type Return	:MASK:TEST:VIOLation:MODe? :MASK:TEST:VIOLATION:MODE PASS

:MASK:TEST:VIOLation:STOP

Command Format

:MASK:TEST:VIOLation:STOP {ON|OFF|<NR1>}

:MASK:TEST:VIOLation:STOP?

Function Description

Set or query the pass/fail output stop function status.

Parameter

- ON: enable output stop function.

- OFF: disable output stop function.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set pass/fail output stop function status to ON	:MASK:TEST:VIOLation:STOP ON
Query pass/fail output stop function status Return	:MASK:TEST:VIOLation:STOP? :MASK:TEST:VIOLATION:STOP 1

:MASK:TEST:VIOLation:BEEP

Command Format

:MASK:TEST:VIOLation:BEEP {ON|OFF|<NR1>}

:MASK:TEST:VIOLation:BEEP?

Function Description

Set or query the pass/fail beep function status.

Parameter

- ON: enable beep function.
- OFF: disable beep function.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set pass/fail beep function status to ON	:MASK:TEST:VIOLation:BEEP ON
Query pass/fail beep function status Return	:MASK:TEST:VIOLation:BEEP? :MASK:TEST:VIOLATION:BEEP 1

:MASK:TEST:FAILed? (Query Only)

Command Format

:MASK:TEST:FAILed?

Function Description

Query number of frames failed during pass/fail test function.

Parameter

None.

Instruction

None.

Example

Query number of frames failed during pass/fail test function	:MASK:TEST:FAILed?
Return	:MASK:TEST:FAILED 0

:MASK:TEST:PASSed? (Query Only)

Command Format

:MASK:TEST:PASSed?

Function Description

Query number of frames passed during pass/fail test function.

Parameter

None.

Instruction

None.

Example

Query number of frames passed during pass/fail test function	:MASK:TEST:PASSed?
Return	:MASK:TEST:PASSED 473

:MASK:TEST:TOTal? (Query Only)

Command Format

:MASK:TEST:TOTal?

Function Description

Query total frames number of during pass/fail test function.

Parameter

None.

Instruction

None.

Example

Query total frames number of during pass/fail test function	:MASK:TEST:TOTal?
Return	:MASK:TEST:TOTAL 764

:MASK:TEMPLate CREATE (No Query Form)

Command Format

:MASK:TEMPLate CREATE

Function Description

Create pass/fail rules.

Note: :MASK:STATE functionality not enabled cannot create.

Parameter

None.

Instruction

None.

Example

Create pass/fail rules	:MASK:TEMPLate CREATE

:MASK:TEMPLate:HORizontal

Command Format

:MASK:TEMPLate:HORizontal <NR3>

:MASK:TEMPLate:HORizontal?

Function Description

Query or set the horizontal adjustment parameters in the pass/fail test rules.

Parameter

<NR3>: unit is div.

Instruction

None.

Example

Set the horizontal adjustment parameters in the pass/fail test rules to 1div	:MASK:TEMPLate:HORizontal 1
Query the horizontal adjustment parameters in the pass/fail test rules Return	:MASK:TEMPLate:HORizontal? :MASK:TEMPLATE:HORIZONTAL 1.0

:MASK:TEMPLate:VERTical

Command Format

:MASK:TEMPLate:VERTical <NR3>

:MASK:TEMPLate:VERTical?

Function Description

Query or set the vertical adjustment parameters in the pass/fail test rules.

Parameter

<NR3>: unit is div.

Instruction

None.

Example

Set the vertical adjustment parameters in the pass/fail test rules to 1div	:MASK:TEMPLate:VERTical 1
Query the vertical adjustment parameters in the pass/fail test rules Return	:MASK:TEMPLate:VERTical? :MASK:TEMPLATE:VERTICAL 1.0

:MASK:TEMPLate:RULe<x>:SAVe (No Query Form)

Command Format

:MASK:TEMPLate:RULe<x>:SAVe <name>

Function Description

Save rules.

Note: Saving is invalid if the creation rule is not executed. When saving with existing data, it will directly overwrite the original data.

Parameter

<name>: File name and perform the save operation.

Instruction

None.

Example

Save rules	:MASK:TEMPLate:RULe0:SAVe abc

:RECAll:MASK (No Query Form)

Command Format

:RECAll:MASK <QString>

Function Description

Read the corresponding pass/fail test rules.

Parameter

<QString>: Read the corresponding pass/fail test rules, 0-8.

Instruction

None.

Example

Read pass/fail test rules	:RECAll:MASK 0

:MASK:OUTPut:ENABle

Command Format

:MASK:OUTPut:ENABle {ON|OFF|<NR1>}

:MASK:OUTPut:ENABle?

Function Description

Set or query the output status of the AUX OUT interface on the device rear panel.

Note: Corresponds to the synchronous output setting in Config.

Parameter

- ON: The synchronous output selection in the configuration is triggered by failure.
- OFF: The synchronous output selection in the configuration triggers output.
- <NR1> triggers output when it is 0; other values cause the synchronous output selection to fail.

Instruction

None.

Example

Set configure the synchronization output to pass/fail	:MASK:OUTPut:ENABle 1
Query sync output in configuration Return	:MASK:OUTPut:ENABle? :MASK:OUTPUT:ENABLE 1

2.17 Magnify Command Subsystem

Used to set the related parameters of Magnify mode.

These commands include:

- :MAGNify?
- :MAGNify:STATE
- :MAGNify:RATIO
- :MAGNify:SCALe:CH<x>?
- :MAGNify:[WINDow]:POSition:VERTical
- :MAGNify[:WINDow]:POSition:HORizontal

:MAGNify? (Query Only)

Command Format

:MAGNify?

Function Description

Query the related parameters of magnify function.

Parameter

None.

Instruction

None.

Example

Query the related parameters of magnify function	:MAGNify?
Return	:MAGNIFY:STATE 1;RATIO 8;SCALE:CH1 125.0000;CH2 125.0000;CH3 125.0000;CH4 125.0000;:MAGNIFY:WINDOW:POSITION:VERTICAL 1.50; HORIZONTAL 0.00

:MAGNify:STATE

Command Format

:MAGNify:STATE {ON|OFF|<NR1>}

:MAGNify:STATE?

Function Description

Set or query the magnify function status.

Parameter

- OFF: disable magnify function.
- ON: enable magnify function.
- <NR1> is 0 to disable magnify function; other values to enable magnify function.

Instruction

None.

Example

Set magnify function status to ON	:MAGNify:STATE 1
Query magnify function status Return	:MAGNify:STATE? :MAGNIFY:STATE 1

:MAGNify:RATIO

Command Format

:MAGNify:RATIO <NR1>

:MAGNify:RATIO?

Function Description

Query or set the magnify factor of the magnify function.

Parameter

<NR1>: vertical factor, return value will return the nearest value to the one taken.

Instruction

None.

Example

Set magnify vertical factor to 4	:MAGNify:RATIO 4
Query magnify vertical factor Return	:MAGNify:RATIO? :MAGNIFY:RATIO 4

:MAGNify:SCALe:CH<x>? (Query Only)

Command Format

:MAGNify:SCALe:CH<x>?

Function Description

Query vertical position of the channel after magnify.

Parameter

None.

Instruction

None.

Example

Query vertical position of channel 1 after magnify	:MAGNify:SCALe:CH1?
Return	:MAGNIFY:SCALE:CH1 500.0000E-3

:MAGNify:[WINDow]:POSition:VERTical

Command Format

:MAGNify:[WINDow]:POSition:VERTical <NR3>

:MAGNify:[WINDow]:POSition:VERTical?

Function Description

Query or set magnify vertical window position.

Parameter

<NR3>: Set the vertical window position in units of div, with the range of values changing according to the vertical factor.

Instruction

None.

Example

Set move vertical position center to 1div	:MAGNify:WINDow:POSition:VERTical 1.0
Query move vertical position center	:MAGNify:WINDow:POSition:VERTical?
Return	:MAGNIFY:WINDOW:POSITION:VERTICAL 1.0000

:MAGNify[:WINDow]:POSition:HORizontal

Command Format

:MAGNify[:WINDow]:POSition:HORizontal <NR3>

:MAGNify[:WINDow]:POSition:HORizontal?

Function Description

Query or set magnify horizontal window position.

Parameter

<NR3>: Set the horizontal window position in units of div, with the range of values changing according to the horizontal factor.

Instruction

None.

Example

Set move horizontal position center to 2div	:MAGNify:WINDow:POSition:HORizontal 2.0
Query move horizontal position center Return	:MAGNify:WINDow:POSition:HORizontal? :MAGNIFY:WINDOW:POSITION:HORIZONTAL 2.0000

2.18 Math Command Subsystem

Used to set the related parameters of Math mode.

These commands include:

- :MATH?
- :MATH:STATE
- :MATH:DEFine
- :MATH:TYPe
- :MATH:VERTical:POSition
- :MATH:VERTical:SCAle
- :MATH:VERTical:UNIts
- :MATH:SOURce1
- :MATH:SOURce2
- :MATH:OPERator

:MATH? (Query Only)

Command Format

:MATH?

Function Description

Query Math current configuration.

Parameter

None.

Instruction

None.

Example

Query Math current configuration	:MATH?
Return	:MATH:STATE 0;DEFINE CH1 + CH1;TYPE DUAL; VERTICAL:POSITION 1.0;SCALE 1.0000E+9;UNITS V; :MATH:SOURCE1 CH1;SOURCE2 CH1;OPERATOR ADD

:MATH:STATE

Command Format

:MATH:STATE {ON|OFF|<NR1>}

:MATH:STATE?

Function Description

Set or query Math function status.

Parameter

- ON: enable MATH.
- OFF: disable MATH.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set MATH function to ON	:MATH:STATE ON
Query MATH function status Return	:MATH:STATE? :MATH:STATE 1

:MATH:DEFine

Command Format

:MATH:DEFine <QString>

:MATH:DEFine?

Function Description

Query or set the expression for math function.

Parameter

<QString>: Only the following parameters can be passed, and they should be separated by spaces: CH1, CH2, CH3, CH4, +, -, *, /, &&, ||, ^, (,), Intg(, Diff(, Sqrt(, Lg(, Ln(, Exp(, Abs(, Sine(, CoSine(, Tan(, !, note the case sensitivity.

Instruction

None.

Example

Set expression to CH1+CH2	:MATH:DEFine CH1 + CH2
Query MATH current expression Return	:MATH:DEFine? :MATH:DEFINE CH1 + CH2

:MATH:TYPe

Command Format

:MATH:TYPe {DUAL|ADVanced}

:MATH:TYPe?

Function Description

Query or set the type of math function.

Parameter

- DUAL: basic.
- ADVanced: advanced.

Instruction

None.

Example

Set math type to dual	:MATH:TYPe DUAL
Query math type Return	:MATH:TYPe? :MATH:TYPE DUAL

:MATH:VERTical:POSition

Command Format

:MATH:VERTical:POSition <NR3>

:MATH:VERTical:POSition?

Function Description

Set or query vertical position of math function.

Parameter

<NR3>: a float number that specifies the desired position in the center grid division. The range is ±5 grids, resolution 0.01 grids.

Instruction

None.

Example

Set vertical position of math function to 1	:MATH:VERTical:POSition 1
Query vertical position of math function Return	:MATH:VERTical:POSition? :MATH:VERTICAL:POSITION 1.0

:MATH:VERTical:SCAle

Command Format

:MATH:VERTical:SCAle <NR3>

:MATH:VERTical:SCAle?

Function Description

Set or query vertical scale of math function.

Parameter

<NR3>: a float number that specifies the ratio of the current math vertical unit. Its range is from 1.0E-12 to 1.0E+9.

Instruction

None.

Example

Set vertical scale of math function to 100mV	:MATH:VERTICAL:SCALE 500E-03
Query vertical scale of math function Return	:MATH:VERTICAL:SCALE? :MATH:VERTICAL:SCALE 500.0000E-3

:MATH:VERTical:UNIts (Query Only)

Command Format

:MATH:VERTical:UNIts?

Function Description

Query Math unit.

Parameter

None.

Instruction

None.

Example

Query Math unit	:MATH:VERTical:UNIts?
Return	:MATH:VERTICAL:UNITS V

:MATH:SOURce1

Command Format

:MATH:SOURce1 {CH1|CH2|CH3|CH4}

:MATH:SOURce1?

Function Description

Query or set the channel of the first value in the basic operation expression (invalid unless MATH:TYPe is DUAL).

Parameter

CH1-4: Channel 1~4.

Instruction

None.

Example

Set channel of the first value to CH1	:MATH:SOURce1 CH1
Query channel of the first value	:MATH:SOURce1?
Return	:MATH:SOURCE1 CH1

:MATH:SOURce2

Command Format

:MATH:SOURce2 {CH1|CH2|CH3|CH4}

:MATH:SOURce2?

Function Description

Query or set the channel of the second value in the basic operation expression (invalid unless MATH:TYPe is DUAL).

Parameter

CH1-4: Channel 1~4.

Instruction

None.

Example

Set channel of the second value to CH2	:MATH:SOURce2 CH2
Query channel of the second value Return	:MATH:SOURce2? :MATH:SOURCE2 CH2

:MATH:OPERator

Command Format

:MATH:OPERator {ADD|SUBTract|MULTiply|DIVision}

:MATH:OPERator?

Function Description

Query or set the operator of basic arithmetic expressions (MATH:TYPe must be DUAL, otherwise invalid).

Parameter

CH1-4: Channel 1~4.

Instruction

None.

Example

Set the operator to addition	:MATH:OPERator ADD
Query the operator Return	:MATH:OPERator? :MATH:OPERATOR ADD

2.19 Measurement Command Subsystem

Used to set the related parameters of Measurement mode.

These commands include:

- :MEASUrement?
- :MEASUrement:STATE
- :MEASUrement:CLEARSNapshot
- :MEASUrement:GATing
- :MEASUrement:IMMed
- :MEASUrement:IMMed:DELay
- :MEASUrement:IMMed:DELay:DIRection
- :MEASUrement:IMMed:DELay:EDGE<x>
- :MEASUrement:IMMed:SOURCE<x>
- :MEASUrement:IMMed:TYPe
- :MEASUrement:IMMed:UNIts?
- :MEASUrement:IMMed:VALue?
- :MEASUrement:MEAS<x>?
- :MEASUrement:MEAS<x>:COUNt?
- :MEASUrement:MEAS<x>:DELay?
- :MEASUrement:MEAS<x>:DELay:DIRection
- :MEASUrement:MEAS<x>:DELay:EDGE<x>
- :MEASUrement:MEAS<x>:MAXimum?
- :MEASUrement:MEAS<x>:MEAN?
- :MEASUrement:MEAS<x>:MINImum?
- :MEASUrement:MEAS<x>:SOURCE<x>
- :MEASUrement:MEAS<x>:STATE
- :MEASUrement:MEAS<x>:STDdev?
- :MEASUrement:MEAS<x>:TYPe
- :MEASUrement:MEAS<x>:UNIts?
- :MEASUrement:MEAS<x>:VALue?
- :MEASUrement:METHod
- :MEASUrement:REFLevel?
- :MEASUrement:REFLevel:PERCent:HIGH
- :MEASUrement:REFLevel:PERCent:LOW

- :MEASUrement:REFLevel:PERCent:MID
- :MEASUrement:STATIstics
- :MEASUrement:STATIstics:MODe
- :MEASUrement:STATIstics:WEIghting
- :MEASUrement:INDICators?
- :MEASUrement:INDICators:HORZ<x>?
- :MEASUrement:INDICators:NUMHORZ?
- :MEASUrement:INDICators:NUMVERT?
- :MEASUrement:INDICators:STATE
- :MEASUrement:INDICators:VERT<x>?

:MEASUrement? (Query Only)

Command Format

:MEASUrement?

Function Description

Query returns measured parameters.

Parameter

None.

Instruction

Instantaneous measurement parameters; 1-8 measurement type parameters; measurement setup parameters; measurement indicators.

Example

Query current measured parameters	:MEASUrement?
Return	:MEASUREMENT:IMMED:DELAY:DIRECTION FORWARDS;EDGE1 RISE;EDGE2 RISE;:MEASUREMENT:IMMED:TYPE PERIOD;UNITS "s";SOURCE1 CH1;SOURCE2CH2;:MEASUREMENT :MEAS1:DELAY:DIRECTION FORWARDS;EDGE1 RISE;EDGE2 RISE; :MEASUREMENT:MEAS1:STATE 1;TYPE FREQUENCY;UNITS "Hz"; SOURCE1 CH1;SOURCE2 CH2;COUNT 0;MAXIMUM 0.0000; MEAN 0.0000;MINIMUM 0.0 000;STDDEV 0.0000;:MEASUREMENT: MEAS2:DELAY:DIRECTION FORWARDS;EDGE1 RISE;EDGE2 RISE; :MEASUREMENT:MEAS2:STATE 1;TYPE PERIOD;UNITS "s";SOURCE1 CH1;SOURCE2 CH2;COUNT 0;MAXIMUM 0.0000;MEAN 0.0000;MINIMUM 0.0000;STDDEV 0.0000;:MEASUREMENT:MEAS3: DELAY:DIRECTION FORWARDS;EDGE1 RISE;EDGE2 RISE;: MEASUREMENT:MEAS3:STATE 1;TYPE PK2PK;UNITS "V";SOURCE1

CH1;SOURCE2 CH2;COUNT 0;MAXIMUM 0.0000;MEAN 0.0000;
MINIMUM 0.0000;STDDEV 0.0000;:MEASUREMENT:MEAS4:DELAY:
DIRECTION FORWARDS;EDGE1 RISE;EDGE2 RISE;:MEASUREMENT
:MEAS4:STATE 0;TYPE PERIOD;UNITS "s";SOURCE1 CH1;SOURCE2
CH2;COUNT 0;MAXIMUM 0.0000;MEAN 0.0000;MINIMUM 0.0000;
STDDEV 0.0000;:MEASUREMENT:METHOD AUTO;REFLEVEL:
METHODPERCENT;ABSOLUTE:HIGH 0.0000;LOW 0.0000;MID1
0.0000;MID2 0.0000;:MEASUREMENT:REFLEVEL:PERCENT:HIGH
90.0000;LOW 10.0000;MID1 50.0000;MID2 50.0000;:MEASUREMENT:
INDICATORS:STATE OFF;NUMHORZ 0;NUMVERT 0;HORZ1 99.0000E
+36;HORZ2 99.0000E+36;HORZ3 99.0000E+36;HORZ4 99.0000E+36;
VERT1 99.0000E+36;VERT2 99.0000E+36;VERT3 99.0000E+36;VERT4
99.0000E+36;:MEASUREMENT:STATISTICS:MODE OFF;
WEIGHTING 32;:MEASUREMENT:GATING SCREEN.

:MEASUrement:STATE

Command Format

:MEASUrement:STATE {OFF|ON|<NR1>}

:MEASUrement:STATE?

Function Description

Query or set the measurement mode status.

Parameter

- ON: enable measurement function.
- OFF: disable measurement function.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set measurement to ON	:MEASUrement:STATE ON
Query the measurement function status Return	:MEASUrement:STATE? :MEASUREMENT:STATE 1

:MEASUrement:CLEARSNapshot (No Query Form)

Command Format

:MEASUrement:CLEARSNapshot

Function Description

Set close snapshot window.

Parameter

None.

Instruction

None.

Example

Set close snapshot window	:MEASUrement:CLEARSNapshot

:MEASUrement:GATing

Command Format

:MEASUrement:GATing {SCREen|CURSor}

:MEASUrement:GATing?

Function Description

Query or set the horizontal range of the measurement.

Parameter

- SCREen: Set the horizontal measurement range to the screen.
- CURSor: Set the horizontal measurement range to the cursor.

Instruction

None.

Example

Set the horizontal measurement range to the cursor	:MEASUrement:GATing CURSor
Query the horizontal measurement range Return	:MEASUrement:GATing? :MEASUREMENT:GATING CURSOR

:MEASUrement:IMMed (Query Only)

Command Format

:MEASUrement:IMMed?

Function Description

Query parameters of immediate measurement.

Parameter

None.

Instruction

None.

Example

Query parameters of immediate measurement	:MEASUrement:IMMed?
Return	:MEASUREMENT:IMMED:DELAY:DIRECTION FORWARDS;EDGE1 RISE;EDGE2 RISE; :MEASUREMENT:IMMED:TYPE MAXIMUM;UNITS "V";SOURCE1 CH1;SOURCE2 CH2

:MEASUrement:IMMed:DELay (Query Only)

Command Format

:MEASUrement:IMMed:DELay?

Function Description

Query the delay parameters of immediate measurements.

Parameter

None.

Instruction

None.

Example

Query the delay parameters of immediate measurements	:MEASUrement:IMMed:DELay?
Return	:MEASUREMENT:IMMED:DELAY:DIRECTION FORWARDS;EDGE1 RISE;EDGE2 RISE

:MEASUrement:IMMed:DELay:DIRection

Command Format

:MEASUrement:IMMed:DELay:DIRection {BACKWards|FORWards}

:MEASUrement:IMMed:DELay:DIRection?

Function Description

Query or set direction of immediate measurement.

Parameter

- BACKWards: This means searching from the end of the waveform and looking for the last rising or falling edge in the waveform. Use the measurement command: MEAS<x>:DELAY:EDGE<x> to specify.
- FORWards: This means searching from the start of the waveform, looking for the first rising or falling edge in the waveform. Use the measurement command: MEAS<x>:DELAY:EDGE<x> to specify.

Instruction

None.

Example

Set immediate measurement direction to	:MEASUrement:IMMed:DELay:DIRection FORWards

FORWards	
Query immediate measurement direction Return	:MEASUrement:IMMed:DELay:DIRection? :MEASUREMENT:IMMED:DELAY:DIRECTION FORWARDS

:MEASUrement:IMMed:DELay:EDGE<x>

Command Format

:MEASUrement:IMMed:DELay:EDGE<x> {FALL|RISe}

:MEASUrement:IMMed:DELay:EDGE<x>?

Function Description

Query or set the edge type for delay measurement.

Parameter

- FALL
- RISe
- x: Range of 1-2. 1 indicates from waveform; 2 indicates to waveform.

Instruction

None.

Example

Set delay measurement edge type to RISe	:MEASUrement:IMMed:DELay:EDGE1 RISe
Query delay measurement edge type Return	:MEASUrement:IMMed:DELay:DIRection? :MEASUREMENT:IMMED:DELAY:EDGE1 RISE

:MEASUrement:IMMed:SOURCE<x>

Command Format

:MEASUrement:IMMed:SOURCE<x>

{CH1|CH2|CH3|CH4|D0|D1|D2|D3|D4|D5|D6|D7|D8|D9|D10|D11|D12|D13|D14|D15}

:MEASUrement:IMMed:SOURCE<x>?

Function Description

Query or set measurement source.

Parameter

- When measurement type TYPe is {PERIod|FREQuency|NWIdth|PWIdth|NDUty|PDUty|DELay|PHAse}, the range of SOURCE is {CH1|CH2|CH3|CH4|D0|D1|D2|D3|D4|D5|D6|D7|D8|D9|D10|D11|D12|D13|D14|D15} Otherwise, the value range of SOURCE is {CH1|CH2|CH3|CH4}.

Instruction

For SOURce1: This command specifies the source for all single-channel measurements. For delay or phase measurements, this command specifies the waveform to measure "from". This is equivalent to setting "From:" Waveform in the "Measure Delay" side menu or the "Measure Phase" side menu. SOURCE is equivalent to SOURce1. For SOURce2: This command specifies the waveform to measure "to" when performing delay or phase measurements. This is equivalent to setting "To:" Waveform in the "Measure Delay" side menu or the "Measure Phase" side menu.

Note: If a numeric suffix is not specified, the source is assumed to be SOURce1.

Example

Set measurement source to CH1	:MEASUrement:IMMed:SOURCE1 CH1
Query measurement source Return	:MEASUrement:IMMed:SOURCE1? :MEASUREMENT:IMMED:SOURCE1 CH1

:MEASUrement:IMMed:TYPe

Command Format

:MEASUrement:IMMed:TYPe
{AMPlitude|AREa|CARea|CRMs|DELay|FALL|FREQuency
|HIGH|LOW|MAXimum|MEAN|MINImum|NDUty|NEDGECount
|NOVershoot|NPULSECount|NWIdth|PEDGECount|PDUty
|PERIod|PHAse|PK2Pk|POVershoot|PPULSECount|PWIdth|RISe|RMS
|STDdev|TOVershoot|SDUty}
:MEASUrement:IMMed:TYPe?

Function Description

Query or set type of immediate measurement.

Parameter

- When SOURCE is {D0|D1|D2|D3|D4|D5|D6|D7|D8|D9|D10|D11|D12|D13|D14|D15}, the type range is {PERIod|FREQuency|NWIdth|PWIdth|NDUty|PDUty|DELay|PHAse} otherwise the type range is {AMPlitude|AREa|BURst|CAREa|CMEan|CRMs|DELay|FALL|FREQuency |HIGH|HITS|LOW|MAXimum|MEAN|MEDian|MINImum|NDUty|NEDGECount |NOVershoot|NPULSECount|NWIdth|PEAKHits|PEDGECount|PDUty |PERIod|PHAse|PK2Pk|POVershoot|PPULSECount|PWIdth|RISe|RMS |SIGMA1|SIGMA2|SIGMA3|STDdev|TOVershoot|WAVEFORMS|SDUty}.

Instruction

AMPlitude	Amplitude	AREa	Area	CAREa	Periodic area
CRMs	Root mean square per week	DELay	Delay	FALL	Fall time
FREQuency	Frequency	HIGH	Top value	LOW	Low-end value
MAXimum	Maximum value	MEAN	Average	MINImum	Minimum value
NDUty	Negative duty	NEDGECount	Fall edge counts	NOVershoot	Preshoot
NPULSECount	Positive pulse counts	NWIdth	Negative width	PEDGECount	Rise edge counts
PDUty	Positive duty	PERIod	Period	PHAse	Phase
PK2Pk	Peak-to-peak value	POVershoot	Overshoot	PPULSECount	Negative pulse counts
PWIdth	Positive width	RISe	Rise time	RMS	Root mean square

					value
STDdev	Standard deviation	SDUty	Screen pulse width ratio		

Example

Set measurement type to MAXimum	:MEASUrement:IMMed:TYPe MAXimum
Query measurement type Return	:MEASUrement:IMMed:TYPe? :MEASUREMENT:IMMED:TYPE MAXIMUM

:MEASUrement:IMMed:UNIts? (Query Only)

Command Format

:MEASUrement:IMMed:UNIts?

Function Description

Query immediate measurement unit.

Parameter

None.

Instruction

None.

Example

Query immediate measurement unit	:MEASUrement:IMMed:UNIts?
Return	:MEASUREMENT:IMMED:UNITS "V"

:MEASUrement:IMMed:VALue? (Query Only)

Command Format

:MEASUrement:IMMed:VALue?

Function Description

Query immediate measurement value.

Note: If there are no prerequisites, the default setting value is invalid, it returns ?.

Parameter

None.

Instruction

None.

Example

Query immediate measurement value	:MEASUrement:IMMed:VALue?
Return	:MEASUREMENT:IMMED:VALUE 160.0000E-3

:MEASUrement:MEAS<x>? (Query Only)

Command Format

:MEASUrement:MEAS<x>?

Function Description

Query the measurement parameter with the specified index.

Parameter

x range1-8.

Instruction

None.

Example

Query measurement parameter of specified index 1	:MEASUrement:MEAS1?
Return	:MEASUREMENT:MEAS1:DELAY:DIRECTION FORWARDS;EDGE1 RISE;EDGE2 RISE;:MEASUREMENT:MEAS1:TYPE PERIOD;UNITS "s";SOURCE1 CH1;SOURCE2 CH2;STATE 1

:MEASUrement:MEAS<x>:COUNt? (Query Only)

Command Format

:MEASUrement:MEAS<x>:COUNt?

Function Description

Query the count statistics of the specified index.

Parameter

x range1-8.

Instruction

None.

Example

Query count statistics for the specified index 1	:MEASUrement:MEAS1:COUNt?
Return	:MEASUREMENT:MEAS1:COUNT 5

:MEASUrement:MEAS<x>:DELay? (Query Only)

Command Format

:MEASUrement:MEAS<x>:DELay?

Function Description

Query measurement parameters for the specified index delay measurement..

Parameter

x range1-8.

Instruction

None.

Example

Query measurement parameters for the specified index 1 delay measurement	:MEASUrement:MEAS1:DELay?

Return	:MEASUREMENT:MEAS1:DELAY:DIRECTION FORWARDS;EDGE1 RISE;EDGE2 RISE

:MEASUrement:MEAS<x>:DELay:DIRection

Command Format

:MEASUrement:MEAS<x>:DELay:DIRection {BACKWards|FORWards}

:MEASUrement:MEAS<x>:DELay:DIRection?

Function Description

Query or set the direction of the delay measurement for the specified index.

Parameter

- BACKWards means searching from the end of the waveform and looking for the last rising or falling edge within the waveform. Use the :MEAS<x>:DELAY:EDGE<x> command to specify.
- FORWards means searching from the beginning of the waveform, looking for the first rising or falling edge within the waveform. Use the :MEAS<x>:DELAY:EDGE<x> command to specify.

Instruction

None.

Example

Set the direction setting of delay measurement for the specified number 1 to FORWards	:MEASUrement:MEAS1:DELay:DIRection FORWards
Query the direction setting of delay measurement for the specified number 1 Return	:MEASUrement:MEAS1:DELay:DIRection? :MEASUREMENT:MEAS1:DELAY:DIRECTION FORWARDS

:MEASUrement:MEAS<x>:DELay:EDGE<x>

Command Format

:MEASUrement:MEAS<x>:DELay:EDGE<x> {FALL|RISe}

:MEASUrement:MEAS<x>:DELay:EDGE<x>?

Function Description

Query or set the edge type for the specified sequence number delay measurement.

Parameter

- FALL
- RISe
- x: Range of 1-2. 1 indicates from waveform; 2 indicates to waveform.

Instruction

None.

Example

Set the edge type of the delay measurement for the specified number 1 to RISe	:MEASUrement:MEAS1:DELay:EDGE1 RISe
Query the edge type of the delay measurement for the specified number 1 Return	:MEASUrement:MEAS1:DELay:EDGE1? :MEASUREMENT:MEAS1:DELAY:EDGE1 RISE

:MEASUrement:MEAS<x>:MAXimum? (Query Only)

Command Format

:MEASUrement:MEAS<x>:MAXimum?

Function Description

Query maximum value of measurement statistics for specified sequence number.

Parameter

x range1-8.

Instruction

None.

Example

Query maximum value of measurement statistics for specified sequence number 1	:MEASUrement:MEAS1:MAXimum?
Return	:MEASUREMENT:MEAS1:MAXIMUM 4.1800E-9

:MEASUrement:MEAS<x>:MEAN? (Query Only)

Command Format

:MEASUrement:MEAS<x>:MEAN?

Function Description

Query average value of measurement statistics for specified sequence number.

Parameter

x range1-8.

Instruction

None.

Example

Query average value of measurement statistics for specified sequence number 1	:MEASUrement:MEAS1:MEAN?
Return	:MEASUREMENT:MEAS1:MEAN 4.1800E-9

:MEASUrement:MEAS<x>:MINImum? (Query Only)

Command Format

:MEASUrement:MEAS<x>:MINImum?

Function Description

Query minimum value of measurement statistics for specified sequence number.

Parameter

x range1-8.

Instruction

None.

Example

Query minimum value of measurement statistics for specified sequence number 1	:MEASUrement:MEAS1:MINImum?
Return	:MEASUREMENT:MEAS1:MINIMUM 4.1800E-9

:MEASUrement:MEAS<x>:SOURCE<x>

Command Format

:MEASUrement:MEAS<x>:SOURCE<x>
{CH1|CH2|CH3|CH4|D0|D1|D2|D3|D4|D5|D6|D7|D8|D9|D10|D11|D12|D13|D14|D15}
:MEASUrement:MEAS<x>:SOURCE<x>?

Function Description

Query source of measurement for specified sequence number.

Parameter

- When measurement TYPe is {PERIod|FREQuency|NWIdth|PWIdth|NDUty|PDUty|DELay|PHAse}, SOURCE vale range is {CH1|CH2|CH3|CH4|D0|D1|D2|D3|D4|D5|D6|D7|D8|D9|D10|D11|D12|D13|D14|D15} otherwise SOURCE value range is {CH1|CH2|CH3|CH4}.

Instruction

For SOURce1: This command specifies the source for all single-channel measurements. For delay or phase measurements, this command specifies the waveform to measure "from". This is equivalent to setting "From:" Waveform in the "Measure Delay" side menu or the "Measure

Phase" side menu. SOURCE is equivalent to SOURce1. For SOURce2: This command specifies the waveform to measure "to" when performing delay or phase measurements. This is equivalent to setting "To:" Waveform in the "Measure Delay" side menu or the "Measure Phase" side menu.
Note: If a numeric suffix is not specified, the source is assumed to be SOURce1.

Example

Set source of measurement for specified sequence number 1 to CH1	:MEASUrementMEAS1:SOURCE1 CH1
Query source of measurement for specified sequence number 1 Return	:MEASUrementMEAS1:SOURCE1? :MEASUREMENT:MEAS1:SOURCE1 CH1

:MEASUrement:MEAS<x>:STATE

Command Format

:MEASUrement:MEAS<x>:STATE {OFF|ON|<NR1>}

:MEASUrement:MEAS<x>:STATE?

Function Description

This command specifies whether to calculate and display the specified measurement slot. Measurement slots are specified by <x> and range from 1 to 8. To display measurement values, you must select the source waveform and define the measurement values to be acquired and displayed. You can use the MEAS<x> SOURCE<x> command to select the measurement. You can use the MEAS<x> TYPe command to define the measurement type.

Parameter

- OFF will disable the calculation and display of the specified measurement slot.
- ON allows the calculation and display of the specified measurement slot.
- <NR1> = 0 disables the calculation and display of the specified measurement slot; any other value allows the calculation and display of the specified measurement slot.

Instruction

None.

Example

Set calculation and display the	:MEASUrement:MEAS1:STATE ON

specified measurement slot	
Query display the specified measurement slot status	:MEASUrement:MEAS1:STATE?
Return	:MEASUREMENT:MEAS1:STATE 1

:MEASUrement:MEAS<x>:STDdev? (Query Only)

Command Format

:MEASUrement:MEAS<x>:STDdev?

Function Description

Query standard difference value of measurement statistics for specified sequence number.

Parameter

x range1-8.

Instruction

None.

Example

Query standard difference value of measurement statistics for specified sequence number 1	:MEASUrement:MEAS1:STDdev?
Return	:MEASUREMENT:MEAS1:STDDEV 4.1800E-9

:MEASUrement:MEAS<x>:TYPe

Command Format

:MEASUrement:IMMed:TYPe
{AMPlitude|AREa|CARea|CRMs|DELay|FALL|FREQuency
|HIGH|LOW|MAXimum|MEAN|MINImum|NDUty|NEDGECount
|NOVershoot|NPULSECount|NWIdth|PEDGECount|PDUty
|PERIod|PHAse|PK2Pk|POVershoot|PPULSECount|PWIdth|RISe|RMS
|STDdev|SDUty}
:MEASUrement:IMMed:TYPe?

Function Description

Query or set the measurement type defined by the specified measurement slot..

Parameter

- When SOURCE is {D0|D1|D2|D3|D4|D5|D6|D7|D8|D9|D10|D11|D12|D13|D14|D15}, TYPe range is {PERIod|FREQuency|NWIdth|PWIdth|NDUty|PDUty|DELay|PHAse} otherwise TYPe range is {AMPlitude|AREa|BURst|CAREa|CMEan|CRMs|DELay|FALL|FREQuency |HIGH|HITS|LOW|MAXimum|MEAN|MEDian|MINImum|NDUty|NEDGECount |NOVershoot|NPULSECount|NWIdth|PEAKHits|PEDGECount|PDUty |PERIod|PHAse|PK2Pk|POVershoot|PPULSECount|PWIdth|RISe|RMS |SIGMA1|SIGMA2|SIGMA3|STDdev|TOVershoot|WAVEFORMS|SDUty}.

Instruction

AMPlitude	Amplitude	AREa	Area	CAREa	Periodic area
CRMs	Root mean square per week	DELay	Delay	FALL	Fall time
FREQuency	Frequency	HIGH	Top value	LOW	Low-end value
MAXimum	Maximum value	MEAN	Average	MINImum	Minimum value
NDUty	Negative duty	NEDGECount	Fall edge counts	NOVershoot	Preshoot
NPULSECount	Positive pulse counts	NWIdth	Negative width	PEDGECount	Rise edge counts
PDUty	Positive duty	PERIod	Period	PHAse	Phase
PK2Pk	Peak-to-peak value	POVershoot	Overshoot	PPULSECount	Negative pulse counts
PWIdth	Positive width	RISe	Rise time	RMS	Root mean square

					value
STDdev	Standard deviation	SDUty	Screen pulse width ratio		

Example

Set the measurement type defined by the specified measurement slot 1 to DELay	:MEASUrement:MEAS1:TYPe DELay
Query the measurement type defined by the specified measurement slot 1 Return	:MEASUrement:MEAS1:TYPe? :MEASUREMENT:MEAS1:TYPE DELAY

:MEASUrement:MEAS<x>:UNIts? (Query Only)

Command Format

:MEASUrement:MEAS<x>:UNIts?

Function Description

Query unit of measurement for specified sequence number.

Parameter

x range1-8.

Instruction

None.

Example

Query unit of measurement for specified sequence number 1 Return	:MEASUrement:MEAS1:UNIts? :MEASUREMENT:MEAS1:UNITS "s"

:MEASUrement:MEAS<x>:VALue? (Query Only)

Command Format

:MEASUrement:MEAS<x>:VALue?

Function Description

Query the calculated value of the measurement value specified by <x>, return ? if invalid.

Parameter

x range1-8.

Instruction

None.

Example

Query the calculated value of the measurement for the specified index 1	:MEASUrement:MEAS1:VALue?
Return	:MEASUREMENT:MEAS1:VALUE ?

:MEASUrement:METHod

Command Format

:MEASUrement:METHod {Auto|HIStogram|MINMax}

:MEASUrement:METHod?

Function Description

Query or set the top/low mode for measurement settings.

Parameter

- AUTO: Select the best method for each dataset.
- HIStogram: Use the histogram algorithm to statistically set the high- waveform and low-waveform levels.
- MINMax: Uses the highest and lowest values from the waveform record. This selection is most suitable for checking waveforms with large, flat sections that do not share a common value, such as sine waves and triangular waves.

Instruction

None.

Example

Set measurement top/low mode to auto	:MEASUrement:METHod Auto
Query measurement top/low mode Return	:MEASUrement:METHod? :MEASUREMENT:METHOD AUTO

:MEASUrement:REFLevel? (Query Only)

Command Format

:MEASUrement:REFLevel?

Function Description

Query threshold setting parameters.

Parameter

None.

Instruction

None.

Example

Query threshold setting parameters	:MEASUrement:REFLevel?
Return	:MEASUREMENT:REFLEVEL:PERCENT:HIGH 90.0;LOW 10.0;MID 50.0

:MEASUrement:REFLevel:PERCent:HIGH

Command Format

:MEASUrement:REFLevel:PERCent:HIGH <NR3>

:MEASUrement:REFLevel:PERCent:HIGH?

Function Description

Set or query the upper limit of threshold.

Parameter

<NR3>: a float number that specifies the high reference level, ranging from 0 to 100%. The default high reference level is 90%.

Instruction

None.

Example

Set the upper limit of threshold to 95%	:MEASUrement:REFLevel:PERCent:HIGH 95
Query the upper limit of threshold Return	:MEASUrement:REFLevel:PERCent:HIGH? :MEASUREMENT:REFLEVEL:PERCENT:HIGH 95.0

:MEASUrement:REFLevel:PERCent:LOW

Command Format

:MEASUrement:REFLevel:PERCent:LOW <NR3>

:MEASUrement:REFLevel:PERCent:LOW?

Function Description

Set or query the lower limit of threshold.

Parameter

<NR3>: a float number that specifies the low reference level, ranging from 0 to 100%. The default low reference level is 10%.

Instruction

None.

Example

Set the lower limit of threshold to 15%	:MEASUrement:REFLevel:PERCent:LOW 15
Query the lower limit of threshold Return	:MEASUrement:REFLevel:PERCent:LOW? :MEASUREMENT:REFLEVEL:PERCENT:LOW 15.0

:MEASUrement:REFLevel:PERCent:MID

Command Format

:MEASUrement:REFLevel:PERCent:MID <NR3>

:MEASUrement:REFLevel:PERCent:MID?

Function Description

Query or set the medium limit of threshold.

Parameter

<NR3>: a float number that specifies the intermediate reference level, ranging from 0 to 100%. The default intermediate reference level is 50%.

Instruction

None.

Example

Set the medium limit of threshold to 60%	:MEASUrement:REFLevel:PERCent:MID 60
Query the medium limit of threshold Return	:MEASUrement:REFLevel:PERCent:MID? :MEASUREMENT:REFLEVEL:PERCENT:MID 60.0

:MEASUrement:STATIstics (No Query Form)

Command Format

:MEASUrement:STATIstics RESET

Function Description

Reset statistics.

Parameter

None.

Instruction

None.

Example

Reset statistics	:MEASUrement:STATIstics RESET

:MEASUrement:STATIstics:MODe

Command Format

:MEASUrement:STATIstics:MODe {OFF|ALL}

:MEASUrement:STATIstics:MODe?

Function Description

Query or set operations and display of statistics information.

Parameter

- OFF: disable statistics.
- ALL: enable statistics.

Instruction

None.

Example

Set statistics to ON	:MEASUrement:STATIstics:MODe ALL
Query statistics status Return	:MEASUrement:STATIstics:MODe? :MEASUREMENT:STATISTICS:MODE ALL

:MEASUrement:STATIstics:WEIghting

Command Format

:MEASUrement:STATIstics:WEIghting <NR1>

:MEASUrement:STATIstics:WEIghting?

Function Description

Set or query statistics acquire count.

Parameter

<NR1>: This is the sample count used for accumulating mean and standard deviation statistics.

An integer value in the range of 2-1000.

Instruction

None.

Example

Set statistics acquire count to 20	:MEASUrement:STATIstics:WEIghting 20
Query statistics acquire count Return	:MEASUrement:STATIstics:WEIghting? :MEASUREMENT:STATISTICS:WEIGHTING 20

:MEASUrement:INDICators? (Query Only)

Command Format

:MEASUrement:INDICators?

Function Description

Query the current indicator position.

Parameter

None.

Instruction

Default four vertical and four horizontal.

Example

Query the current indicator position	:MEASUrement:INDICators?
Return	MEASUREMENT:INDICATORS:STATE MEAS1;NUMHORZ 0; NUMVERT 4;HORZ1 7.5;HORZ2 -3.400000095367;HORZ3 0.0E0; HORZ4 0.0000;VERT1 -6.351123E-6;VERT2 -3.179753E-6; VERT3 -6.40943E-6;VERT4 -6.4030E-6

:MEASUrement:INDICators:HORZ<x>? (Query Only)

Command Format

:MEASUrement:INDICators:HORZ<x>?

Function Description

Query the position of the specified horizontal measurement indicator<x>.

Parameter

<x>: is 1, 2, 3 or 4.

Instruction

None.

Example

Query the position of horizontal measurement indicator 1	:MEASUrement:INDICators:HORZ1?
Return	:MEASUREMENT:INDICATORS:HORZ1 0.0000

:MEASUrement:INDICators:NUMHORZ? (Query Only)

Command Format

:MEASUrement:INDICators:NUMHORZ?

Function Description

Query the number of horizontal measurement indicators currently being displayed.

Parameter

None.

Instruction

Default maximum value 4, also returns 4 for exceeding values.

Example

Query the number of horizontal measurement indicators	:MEASUrement:INDICators:NUMHORZ?
Return	:MEASUREMENT:INDICATORS:NUMHORZ 1

:MEASUrement:INDICators:NUMVERT? (Query Only)

Command Format

:MEASUrement:INDICators:NUMVERT?

Function Description

Query the number of vertical measurement indicators currently being displayed.

Parameter

None.

Instruction

Default maximum value 4, also returns 4 for exceeding values.

Example

Query the number of vertical measurement indicators	:MEASUrement:INDICators:NUMVERT?
Return	:MEASUREMENT:INDICATORS:NUMVERT 1

:MEASUrement:INDICators:STATE

Command Format

:MEASUrement:INDICators:STATE {OFF|MEAS<x>}

:MEASUrement:INDICators:STATE?

Function Description

Query or set the status of visible measurement indicators.

Note: There must be an active measurement before the indicator for the specified measurement can be activated.

Parameter

- OFF: Turn off the visible measurement indicator light.
- MEAS<x>: Display the visible measurement indicator for measurement <x>, where <x> can be 1 to 8.

Instruction

None.

Example

Set the visible measurement	:MEASUrement:INDICators:STATE MEAS2

indicator to MEAS2	
Query the visible measurement indicator Return	:MEASUrement:INDICators:STATE? :MEASUREMENT:INDICATORS:STATE MEAS2

:MEASUrement:INDICators:VERT<x>? (Query Only)

Command Format

:MEASUrement:INDICators:VERT<x>?

Function Description

Query the value of the specified vertical measurement indicator returned from the trigger point<x>.

Parameter

None.

Instruction

<x>: can be 1 to 4. Negative values indicate that the position of the indicator in the waveform record is earlier than the trigger point.

Example

Query the value of vertical measurement indicator 1	:MEASUrement:INDICators:VERT1?
Return	:MEASUREMENT:INDICATORS:VERT1 -3.724507E-6

2.20 Navigate Command Subsystem

Used to set the related parameters of navigate mode.

These commands include:

- :NAVigate?
- :NAVigate:STATE
- :NAVigate:TIME:SPEed
- :NAVigate:TIME:PLAY
- :NAVigate:TIME:POSITION

:NAVigate? (Query Only)

Command Format

:NAVigate?

Function Description

Query the navigate mode parameters.

Parameter

None.

Instruction

None.

Example

Query the navigate mode parameters	:NAVigate?
Return	:NAVIGATE:STATE 1;TIME:SPEED HIGH;PLAY 1

:NAVigate:STATE

Command Format

:NAVigate:STATE {ON|OFF|<NR1>}

:NAVigate:STATE?

Function Description

Set or query navigate function status.

Parameter

- ON: enable navigate function.
- OFF: disable navigate function.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set navigate function to ON	:NAVigate:STATE ON
Query navigate function status Return	:NAVigate:STATE? :NAVIGATE:STATE 1

:NAVigate:TIME:SPEed

Command Format

:NAVigate:TIME:SPEed {HIGH|NORMal|LOW}

:NAVigate:TIME:SPEed?

Function Description

Query or set navigate mode waveform playback speed.

Parameter

- HIGH: high speed playback.
- NORMal: normal speed playback.
- LOW: low speed playback.

Instruction

None.

Example

Set navigate mode waveform playback speed to high	:NAVigate:TIME:SPEed HIGH
Query navigate mode waveform playback speed Return	:NAVigate:TIME:SPEed? :NAVIGATE:TIME:SPEED HIGH

:NAVigate:TIME:PLAY

Command Format

:NAVigate:TIME:PLAY {ON|OFF|<NR1>}

:NAVigate:TIME:PLAY?

Function Description

Query or set whether the navigation mode starts playing the waveform.

Parameter

- ON: Start playing.
- OFF: Stop playing.
- <NR1> is off when set to 0, and on for other values.

Instruction

This function must be used in the stopped state, NAVigate:STATE needs to be started to use it.

Example

Set navigate mode to start playing waveform	:NAVigate:TIME:PLAY ON
Query whether the navigate mode has started playing waveform Return	:NAVigate:TIME:PLAY? :NAVIGATE:TIME:PLAY 1

:NAVigate:TIME:POSITION (No Query Form)

Command Format

:NAVigate:TIME:POSITION {END|STARt|NEXT|BACK}

Function Description

Set navigate mode waveform playback position.

Parameter

- END: Set the time navigate mode waveform to play to the far right (end).
- STARt: Set the time navigate mode waveform to play to the far left (start).
- NEXT: Set the time navigate mode waveform to shift right.
- BACK: Set the time navigate mode waveform to shift left.

Instruction

This feature must be used in the stopped state, NAVigate:STATE needs to be started to use it.

Example

Set time navigate mode wave play to the far right (end)	:NAVigate:TIME:POSITION END

2.21 Reference Command Subsystem

Used to set the related parameters of reference mode.

These commands include:

- :REF:STATE
- :REF[:SAVe]:SOUrce
- :REF<x>?
- :REF<x> SAVE
- :REF<x>:STATE?
- :REF<x>:STATE RESet
- :REF<x>:DISplay
- :REF<x>:DATE?
- :REF<x>:TIMe?
- :REF<x>:LABel
- :REF<x>:VERTical:POSition
- :REF<x>:VERTical:SCAle

:REF:STATE

Command Format

:REF:STATE {ON|OFF|<NR1>}

:REF:STATE?

Function Description

Set or query reference waveform status.

Parameter

- ON: enable reference waveform function.
- OFF: disable reference waveform function.
- <NR1> is 0 to disable reference waveform function; other values to enable reference waveform function.

Instruction

None.

Example

Set reference waveform to enable	:REF:STATE ON
Query reference waveform status Return	:REF:STATE? :REF:STATE 1

:REF[:SAVe]:SOUrce

Command Format

:REF[:SAVe]:SOUrce {CH1|CH2|CH3|CH4|MATH|FFT}

:REF[:SAVe]:SOUrce?

Function Description

Set or query reference waveform channels to save.

Parameter

- CH1-CH4: analog channel 1-4.
- MATH: math calculate channel.

- FFT: FFT channel.

Instruction

None.

Example

Set reference waveform save channel to CH1	:REF:SAVe:SOUrce CH1 or :REF:SOUrce CH1
Query reference waveform save channel Return	:REF:SAVe:SOUrce? or :REF:SOUrce? :REF:SAVE:SOURCE CH1 or :REF:SOURCE CH1

:REF<x>? (Query Only)

Command Format

:REF<x>?

Function Description

Query returns the parameters of the reference waveform specified by<x>.

Parameter

None.

Instruction

None.

Example

Query current reference waveform parameters	:REF<x>?
Return	:REF0 "123456789";2.0000;2.0000;2024/10/06;15:57:57; :REF1:LABEL "";VERTICAL:POSITION 0.0000;SCALE 5.0000;:REF1:DATE "08-08-24";TIME "15:47:48"

:REF<x> SAVE (No Query Form)

Command Format

:REF<x> SAVE

Function Description

Set save waveform data to **Ref<x>**, data source configured by **REF<x> [:SAVe]:SOUrce**.

Parameter

None.

Instruction

None.

Example

Set save waveform date to Ref 0	:REF0 SAVE

:REF<x>:STATE? (Query Only)

Command Format

:REF<x>:STATE?

Function Description

Query Ref<x> whether there is stored data.

Parameter

None.

Instruction

None.

Example

Query Ref<x> whether there is stored data	:REF0:STATE?
Return	:REF0:STATE 0

:REF<x>:STATE RESet (No Query Form)

Command Format

:REF<x>:STATE RESet

Function Description

Set reference waveform to save the state.

Parameter

None.

Instruction

None.

Example

Set save state of reference waveform 0	:REF0:STATE RESet

:REF<x>:DISplay

Command Format

:REF<x>:DISplay {ON|OFF|<NR1>}

:REF<x>:DISplay?

Function Description

Query or set the display status of the specified reference waveform.

Note: If the selected reference waveform type is FFT, the function must be enabled.

Parameter

- ON: Turn on the display of the specified reference waveform.
- OFF: Turn off the display of the specified reference waveform.
- <NR1>: When set to 0, it turns off the display of the specified reference waveform; other values turn on the display of the specified reference waveform.

Instruction

None.

Example

Set reference waveform 0 status to ON	:REF0:DISplay 0
Query reference waveform 0 status Return	:REF0:DISplay? :REF0:DISPLAY 0

:REF<x>:DATE? (Query Only)

Command Format

:REF<x>:DATE?

Function Description

Query the date when the reference waveform data of reference waveform <x> was copied to the internal reference memory.

Parameter

None.

Instruction

None.

Example

Query Ref 0 date	:REF0:DATE?
Return	:REF0:DATE 2025/05/14

:REF<x>:TIMe? (Query Only)

Command Format

:REF<x>:TIMe?

Function Description

Query copy the reference waveform data of the reference waveform<x> to the internal reference memory time.

Parameter

None.

Instruction

None.

Example

Query Ref 0 time	:REF0:TIMe?
Return	:REF0:TIME 18:15:59

:REF<x>:LABel

Command Format

:REF<x>:LABel <Qstring>

:REF<x>:LABel?

Function Description

Query or set the label of the reference waveform specified by <x>.

Parameter

<Qstring>: is an alphanumeric text string enclosed in quotes, containing the label text of the reference channel <x> waveform. The text string is limited to 13 characters and includes two quotation marks " " at the beginning and end.

Instruction

Labels are divided into common and custom. After the command is issued, they automatically switch to custom and input the command parameters as the Label. When reading, if it is currently common, it returns the common options; if it is custom, it returns the custom content.

Example

Set the label for reference waveform 0 to aaa	:REF0:LABel "aaa"
Query specified reference waveform 0 label	:REF0:LABel?
Return	:REF0:LABEL "aaa"

:REF<x>:VERTical:POSition

Command Format

:REF<x>:VERTical:POSition <NR3>

:REF<x>:VERTical:POSition?

Function Description

Query or set the vertical position of the reference waveform specified by <x>.

Parameter

<NR3>: Is a float number that specifies the desired position, from the center horizontal grid division. Range reference app.

Instruction

Increasing the position value of the waveform causes it to move upward, while decreasing the position value causes it to move downward. The position only adjusts the display position of the waveform. The position value determines the vertical grid coordinate for displaying the signal value. For example, if the position of reference waveform 3 is set to 2.0, the signal represented by this reference waveform will be displayed at 2.0 divisions above the center on the screen.

Example

Set the vertical position of reference waveform 0 to 3	:REF0:VERTical:POSition 3
Query the vertical position of the specified reference waveform 0 Return	:REF0:VERTical:POSition? :REF0:VERTICAL:POSITION 3.0000

:REF<x>:VERTical:SCAle

Command Format

:EF<x>:VERTical:SCAle <NR3>

:REF<x>:VERTical:SCAle?

Function Description

Query or set the vertical scale of the reference waveform specified by <x>.

Parameter

<NR3>: is a float number that specifies the gain of the user unit, and the return value will be rounded to the nearest value. The value will be the closest one.

Instruction

This setting can only control the display. For a signal with constant amplitude, increasing the scale will make the waveform appear smaller. Decreasing the scale will make the waveform appear larger.

Example

Set the vertical scale of reference waveform 0 to 3	:REF0:VERTical:SCAle 3
Query the vertical scale of reference waveform 0 Return	:REF0:VERTical:SCAle? :REF0:VERTICAL:SCALE 2.0000

2.22 Save Command Subsystem

Used to set the related parameters of Save mode.

These commands include:

- :SAVe:ASSIgn:TYPe
- :SAVe:PATH
- :SAVe:IMAGe
- :SAVe:IMAGe:FILEFormat
- :SAVe:IMAGe:INKSaver
- :SAVe:IMAGe:TIMe[:MARK]
- :SAVe:SETUp
- *RCL
- :SAVe:WAVEform
- :SAVe:WAVEform:SOUrce
- :SAVe:WAVEform:FILEFormat

:SAVe:ASSIgn:TYPe

Command Format

:SAVe:ASSIgn:TYPe {IMAGe|WAVEform|SETUp}

:SAVe:ASSIgn:TYPe?

Function Description

Query or set the currently selected save type, when the Copy shortcut button is pressed, save the corresponding content.

Parameter

- IMAGe: Save screen image.
- WAVEform: Save waveform.
- SETUp: Save configuration.

Instruction

None.

Example

Set save type to WAVEform	:SAVe:ASSIgn:TYPe WAVEform
Query save type Return	:SAVe:ASSIgn:TYPe? :SAVE:ASSIGN:TYPE WAVEFORM

:SAVe:PATH

Command Format

:SAVe:PATH {INTERNal|EXTERNal}

:SAVe:PATH?

Function Description

Query or set current selected path.

Parameter

- INTERNal: internal.
- EXTERNal: external.

Instruction

None.

Example

Set save path to INTERNal	:SAVe:PATH INTERNal
Query save path Return	:SAVe:PATH? :SAVE:PATH INTERNAL

:SAVe:IMAGe (No Query Form)

Command Format

:SAVe:IMAGe <name>

Function Description

Set save the screen capture to the specified file.

Parameter

<name>: Specifies the filename, the storage path is fixed.

Instruction

None.

Example

Set to save the screen capture to aaa	:SAVe:IMAGe aaa

:SAVe:IMAGe:FILEFormat

Command Format

:SAVe:IMAGe:FILEFormat {PNG|JPG|BMP|TIFf}

:SAVe:IMAGe:FILEFormat?

Function Description

Query or set the file format used to save the screen capture.

Parameter

None.

Instruction

None.

Example

Set image format to BMP	:SAVe:IMAGe:FILEFormat BMP
Query image format	:SAVe:IMAGe:FILEFormat?
Return	:SAVE:IMAGE:FILEFORMAT BMP

:SAVe:IMAGe:INKSaver

Command Format

:SAVe:IMAGe:INKSaver {OFF|ON|<NR1>}

:SAVe:IMAGe:INKSaver?

Function Description

Query or set whether to enable the ink protection program when saving images.

Parameter

- OFF: disable inverted.
- ON: enable inverted.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set image inverted status to ON	:SAVe:IMAGe:INKSaver 0
Query image inverted status	:SAVe:IMAGe:INKSaver?
Return	:SAVE:IMAGE:INKSAVER 0

:SAVe:IMAGe:TIMe[:MARK]

Command Format

:SAVe:IMAGe:TIMe[:MARK] {OFF|ON|<NR1>}

:SAVe:IMAGe:TIMe[:MARK]?

Function Description

Query or set save image with timestamp enabled.

Parameter

- OFF: disable timestamp.
- ON: enable timestamp.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set timestamp status to ON	:SAVe:IMAGe:TIMe 1
Query timestamp status Return	:SAVe:IMAGe:TIMe? :SAVE:IMAGE:TIME 1

:SAVe:SETUp (No Query Form)

Command Format

:SAVe:SETUp {<NR1>}

Function Description

Save current settings. The oscilloscope can be restored to this saved state using the *RCL command.

Parameter

<NR1>: Range is: 0-9.

Instruction

None.

Example

Set save to 0	:SAVe:SETUp 0

*RCL (No Query Form)

Command Format

*RCL <NR1>

Function Description

Restore saved settings state.

Parameter

<NR1>: Range is: 0-9.

Instruction

None.

Example

Restore to 0 state	*RCL 0

:SAVe:WAVEform (No Query Form)

Command Format

:SAVe:WAVEform <name>

Function Description

Set to save the waveform to the specified file.

Parameter

<name>: Specify the file name, the storage path is fixed.

Instruction

None.

Example

Set save the waveform to aaa	:SAVe:WAVEform aaa

:SAVe:WAVEform:SOUrce

Command Format

:SAVe:WAVEform:SOUrce:CH<x> {ON|OFF|<NR1>}

:SAVe:WAVEform:SOUrce ALL

:SAVe:WAVEform:SOUrce?

:SAVe:WAVEform:SOUrce:CH<x>?

Function Description

Query or set the source channel for saving the waveform.

Parameter

- ALL: select all sources.
- OFF: turn off this channel.
- ON: turn on this channel.
- <NR1> is 0 to turn off this channel; other values to open this channel.

Instruction

None.

Example

Set save waveform source channel to CH1	:SAVe:WAVEform:SOUrce:CH1 0
Query save waveform source channel Return	:SAVe:WAVEform:SOUrce:CH1? :SAVE:WAVEFORM:SOURCE:CH1 1

Set save waveform source channel to ALL	:SAVe:WAVEform:SOUrce ALL
Query save waveform source channel Return	:SAVe:WAVEform:SOUrce:CH1? :SAVE:WAVEFORM:SOURCE CH1 1;CH2 1;CH3 1;CH4 1

:SAVe:WAVEform:FILEFormat

Command Format

:SAVe:WAVEform:FILEFormat {CSV|ZIP|MATlab}

:SAVe:WAVEform:FILEFormat?

Function Description

.Query or set the file format used to save the waveform.

Parameter

None.

Instruction

None.

Example

Set the file format for saving the waveform to CSV	:SAVe:WAVEform:FILEFormat CSV
Query the file format for saving the waveform Return	:SAVe:WAVEform:FILEFormat? :SAVE:WAVEFORM:FILEFORMAT CSV

2.23 Trigger Command Subsystem

This chapter mainly introduces the settings of the trigger system, including the following Command Subsystem:

- Trigger Base&Edge Command Subsystem
- Trigger Logic Command Subsystem
- Trigger Pulse Command Subsystem
- Trigger Transition Command Subsystem
- Trigger Runt Command Subsystem
- Trigger Windows Command Subsystem
- Trigger Timeout Command Subsystem
- Trigger Nedge Command Subsystem
- Trigger Video Command Subsystem
- Trigger RS232C Command Subsystem
- Trigger I2C Command Subsystem
- Trigger SPI Command Subsystem
- Trigger CAN Command Subsystem
- Trigger LIN Command Subsystem

Trigger Base&Edge Command Subsystem

Used to set the related parameters of trigger.

These commands include:

- :TRIGer?
- :TRIGer FORCe
- :TRIGer:STATE?
- :TRIGer:A?
- :TRIGer:A SETLevel
- :TRIGer:A:TYPe
- :TRIGer:A:MODe
- :TRIGer:A:LEVel:CH<x>
- :TRIGer:A:LEVel:EXT
- :TRIGer:A:UPPerthreshold:CH<x>
- :TRIGer:A:LOWerthreshold:CH<x>
- :TRIGer:A:HOLDoff?
- :TRIGer:A:HOLDoff:TIMe
- :TRIGer:A:SENSitivity
- :TRIGer:A:EDGE?
- :TRIGer:A:SOUrce
- :TRIGer:A:EDGE:SLOpe
- :TRIGer:A:EDGE:COUPling
- :TRIGer:A:PULse:CLAss
- :TRIGer:A:BUS:CLAss

:TRIGger? (Query Only)

Command Format

:TRIGger?

Function Description

Query current trigger settings.

Parameter

None.

Instruction

None.

Example

Query current trigger settings	:TRIGger?
Return	:TRIGGER:STATE AUTO;A:TYPE EDGE;MODE AUTO;HOLDOFF:TIME 1.0000E-7; :TRIGGER:A:SENSITIVITY 0.3; EDGE:SOURCE CH1;SLOPE FALL;COUPLING DC

:TRIGger FORCe (No Query Form)

Command Format

:TRIGger FORCe

Function Description

Set force trigger.

Parameter

None.

Instruction

If the current trigger status is "pre-trigger", you can use this command to force generate a trigger event.

Example

Set force trigger once	:TRIGger FORCe

:TRIGger:STATE? (Query Only)

Command Format

:TRIGger?

Function Description

Query current trigger status.

Parameter

None.

Instruction

None.

Example

Query current trigger status	:TRIGger:STATE?
Return	:TRIGGER:STATE AUTO

:TRIGger:A? (Query Only)

Command Format

:TRIGger:A?

Function Description

Query related parameters of trigger A.

Parameter

None.

Instruction

None.

Example

Query related parameters of trigger A	:TRIGger:A?
Return	:TRIGGER:STATE AUTO;A:TYP EDGE;MODE AUTO;HOLDOFF:TIME 1.0000E-7;:TRIGGER:A:SENSITIVITY 0.3;EDGE:SOURCE CH1;SLOPE FALL;COUPLING DC

:TRIGger:A SETLevel (No Query Form)

Command Format

:TRIGger:A SETLevel

Function Description

Set trigger level to 50%.

Parameter

None.

Instruction

None.

Example

Set trigger level to 50%	:TRIGger:A SETLevel

:TRIGger:A:TYPe

Command Format

:TRIGger:A:TYPe {EDGe|LOGIc|PULSe|BUS|VIDeo}

:TRIGger:A:TYPe?

Function Description

Set or query trigger type.

Parameter

- EDGe: edge trigger.
- LOGIc: logic trigger.
- PULSe: pulse trigger, including pulse width trigger, runt trigger, windows trigger, timeout trigger, slope trigger etc.
- BUS: bus trigger.
- VIDeo: video trigger.

Instruction

None.

Example

Set trigger type to edge trigger	:TRIGger:A:TYPe EDGe
Query trigger type Return	:TRIGger:A:TYPe? :TRIGGER:A:TYPE EDGE

:TRIGger:A:MODe

Command Format

:TRIGger:A:MODe {QUTO|NORMal|SINGle}

:TRIGger:A:MODe?

Function Description

Set or query trigger acquire mode.

Parameter

- AUTO: automatic.
- NORMal: normal.
- SINGle: single.

Instruction

None.

Example

Set trigger acquire mode to single	:TRIGger:A:MODe SINGle
Query the trigger acquire mode Return	:TRIGger:A:MODe? :TRIGGER:A:MODE SINGLE

:TRIGger:A:LEVel:CH<x>

Command Format

:TRIGger:A:LEVel:CH<x> <NR3>

:TRIGger:A:LEVel:CH<x>?

Function Description

Set or Query trigger position, in several trigger modes such as pulse width, timeout, and the Nth edge, it corresponds to the threshold. Each analog channel can be set to different values.

Parameter

- <NR3>: Set trigger level value, in V units, return value will be according to the value take the nearest value.

Instruction

None.

Example

Set channel 3 trigger level position to -100mV	:TRIGger:A:LEVel:CH3 -1E-1
Query channel 3 trigger level position Return	:TRIGger:A:LEVel:CH3? :TRIGGER:A:LEVEL:CH3 -1.0000E-1

:TRIGger:A:LEVel:EXT

Command Format

:TRIGger:A:LEVel:EXT <NR3>

:TRIGger:A:LEVel:EXT?

Function Description

Set or query edge trigger, trigger position when source is external.

Note: EXT and EXT/5 share this command because they use the same memory for values, though their display and value ranges differ.

Parameter

- <NR3>: Set trigger position value, in V, return value will take the closest nearest value.

Instruction

None.

Example

Set external trigger position to -100mV	:TRIGger:A:LEVel:EXT -1E-1
Query external trigger position Return	:TRIGger:A:LEVel:EXT? :TRIGGER:A:LEVEL:EXT -104.0000E-3

:TRIGger:A:UPPerthreshold:CH<x>

Command Format

:TRIGger:A:UPPerthreshold:CH<x> <NR3>

:TRIGger:A:UPPerthreshold:CH<x>?

Function Description

Set or Query channel trigger threshold upper limit.

Note: Only available under slope trigger, runt trigger, and windows trigger.

Parameter

- <NR3>: Set trigger threshold upper limit, in V, return value will be rounded to the nearest value.

Instruction

None.

Example

Set the upper threshold of channel 3 to 100mV	:TRIGger:A:UPPerthreshold:CH3 1E-1
Query the upper threshold of channel 3 Return	:TRIGger:A:UPPerthreshold:CH3? :TRIGGER:A:UPPERTHRESHOLD:CH3 1.0000E-1

:TRIGger:A:LOWerthreshold:CH<x>

Command Format

:TRIGger:A:LOWerthreshold:CH<x> <NR3>

:TRIGger:A:LOWerthreshold:CH<x>?

Function Description

Set or Query channel trigger threshold lower limit.

Note: Only available under slope trigger, runt trigger, and windows trigger.

Parameter

- <NR3>: Set trigger threshold lower limit, in V, return value will be rounded to the nearest value.

Instruction

None.

Example

Set the lower threshold of channel 3 to -100mV	:TRIGger:A:LOWerthreshold:CH3 -1E-1
Query the lower threshold of channel 3 Return	:TRIGger:A:LOWerthreshold:CH3? :TRIGGER:A:LOWERTHRESHOLD:CH3 -1.0000E-1

:TRIGger:A:HOLDoff? (Query Only)

Command Format

:TRIGger:A:HOLDoff?

Function Description

Query the trigger hold-off period information, the returned information is consistent with **:TRIGger:A:HOLDoff:TIMe?** .

Parameter

None.

Instruction

None.

Example

Query current trigger holdoff	:TRIGger:A:HOLDoff?
Return	:TRIGGER:A:HOLDOFF 1.0000E-7

:TRIGger:A:HOLDoff:TIMe

Command Format

:TRIGger:A:HOLDoff:TIMe <NR3>

:TRIGger:A:HOLDoff:TIMe?

Function Description

Set or query the trigger holdoff time of the channel.

Parameter

- <NR3>: Set the trigger holdoff time in seconds.

Instruction

None.

Example

Set trigger holdoff time to 200ns	:TRIGger:A:HOLDoff:TIMe 2E-7
Query trigger holdoff time	:TRIGger:A:HOLDoff:TIMe?
Return	:TRIGGER:A:HOLDOFF 2.0000E-7

:TRIGger:A:SENSitivity

Command Format

:TRIGger:A:SENSitivity <NR3>

:TRIGger:A:SENSitivity?

Function Description

Set or query channel trigger sensitivity.

Parameter

- <NR3>: Set the sensitivity in div units, with a minimum of 0.3div and a maximum of 10div.

Instruction

None.

Example

Set trigger sensitivity to 1.5div	:TRIGger:A:SENSitivity 1.5
Query trigger sensitivity Return	:TRIGger:A:SENSitivity? :TRIGGER:A:SENSITIVITY 1.5

:TRIGger:A:EDGE? (Query Only)

Command Format

:TRIGger:A:EDGE?

Function Description

Query edge trigger parameters.

Parameter

None.

Instruction

None.

Example

Query edge trigger parameters	:TRIGger:A:EDGE?
Return	:TRIGGER:A:EDGE:SOURCE CH1;COUPLING DC;SLOPE RISE

:TRIGger:A:EDGE:SOUrce

Command Format

:TRIGger:A:EDGE:SOUrce {CH1|CH2|CH3|CH4|EXT|EXT/5|LINE|D<x>}

:TRIGger:A:EDGE:SOUrce?

Function Description

Set or query edge trigger source.

Parameter

- CH1~CH4 indicate Channel 1, Channel 2, Channel 3, or Channel 4.
- EXT, EXT/5: indicates external trigger.
- LINE: indicates AC Line.
- D<x>: indicates digital channel D0-15.

Instruction

None.

Example

Set edge trigger source to CH1	:TRIGger:A:EDGE:SOUrce CH1
Query edge trigger source Return	:TRIGger:A:EDGE:SOUrce? :TRIGGER:A:EDGE:SOURCE CH1

:TRIGger:A:EDGE:SLOPe

Command Format

:TRIGger:A:EDGE:SLOPe {RISe|FALL}

:TRIGger:A:EDGE:SLOPe?

Function Description

Set or query edge trigger slope.

Parameter

- RISe: indicates rise slope.
- FALL: indicates fall slope.

Instruction

None.

Example

Set edge trigger slope to rise	:TRIGger:A:EDGE:SLOpe RISe
Query edge trigger slope Return	:TRIGger:A:EDGE:SLOpe? :TRIGGER:A:EDGE:SLOPE RISE

:TRIGger:A:EDGE:COUPling

Command Format

:TRIGger:A:EDGE:COUPling {AC|DC|HFRej}

:TRIGger:A:EDGE:COUPling?

Function Description

Set or query edge trigger couple mode.

Parameter

- AC: alternating couple mode.
- DC: direct couple mode.
- HFRej: high frequency rejection couple mode.

Instruction

None.

Example

Set edge trigger couple mode to DC	:TRIGger:A:EDGE:COUPling DC
Query edge trigger couple mode Return	:TRIGger:A:EDGE:COUPling? :TRIGGER:A:EDGE:COUPLING DC

:TRIGger:A:PULse:CLAss

Command Format

:TRIGger:A:PULse:CLAss {RUNt|WINdows|WIDth|TRANsition|TIMEOut|NEDGe}

:TRIGger:A:PULse:CLAss?

Function Description

Query or set the type of pulse trigger, which includes: pulse width, slope, runt, windows, timeout, and the Nth edge.

Parameter

- RUNt: runt trigger.
- WINdows: windows trigger.
- WIDth: pulse width trigger.
- TRANsition: slope trigger.
- TIMEOut: timeout trigger.
- NEDGe: the Nth edge trigger.

Instruction

None.

Example

Set pulse trigger type to pulse width	:TRIGger:A:PULse:CLAss WIDth
Query pulse trigger type Return	:TRIGger:A:PULse:CLAss? :TRIGGER:A:PULSE:CLASS WIDTH

:TRIGger:A:BUS:CLAss

Command Format

:TRIGger:A:BUS:CLAss {I2C|SPI|RS232C|LIN|CAN}

:TRIGger:A:BUS:CLAss?

Function Description

Set or query bus trigger type.

Parameter

None.

Instruction

None.

Example

Set bus trigger type to I2C	:TRIGger:A:BUS:CLAss I2C
Query bus trigger type Return	:TRIGger:A:BUS:CLAss? :TRIGGER:A:BUS:CLASS 2C

Trigger CAN Command Subsystem

Used to set the related parameters of CAN trigger.

These commands include:

- :TRIGger:A:CAN:SOUrce
- :TRIGger:A:CAN:PRObe
- :TRIGger:A:CAN:SAMPLEpoint
- :TRIGger:A:CAN:BITRate
- :TRIGger:A:CAN:CONDition
- :TRIGger:A:CAN:FRAMEtype
- :TRIGger:A:CAN{:IDentifier|:ADDRess}:MODe
- :TRIGger:A:CAN{:IDentifier|:ADDRess}:VALue
- :TRIGger:A:CAN:DATa:SIZe
- :TRIGger:A:CAN:DATa:VALue

:TRIGger:A:CAN:SOUrce

Command Format

:TRIGger:A:CAN:SOUrce {CH1|CH2|CH3|CH4|D<x>}

:TRIGger:A:CAN:SOUrce?

Function Description

Set or query CAN trigger source.

Parameter

- CH1-CH4: analog channel 1-4.
- D<x>: digital channel 0-15.

Instruction

None.

Example

Set CAN trigger source to CH1	:TRIGger:A:CAN:SOUrce CH1
Query CAN trigger source Return	:TRIGGER:A:CAN:SOUrce? :TRIGGER:A:CAN:SOURCE CH1

:TRIGger:A:CAN:PRObe

Command Format

:TRIGger:A:CAN:PRObe {CANH|CANL|TX|RX}

:TRIGger:A:CAN:PRObe?

Function Description

Set or query CAN trigger type.

Parameter

None.

Instruction

None.

Example

Set CAN trigger type to TX	:TRIGger:A:CAN:PRObe TX
Query CAN trigger type Return	:TRIGGER:A:CAN:PRObe? :TRIGGER:A:CAN:PROBE TX

:TRIGger:A:CAN:SAMPLEpoint

Command Format

:TRIGger:A:CAN:SAMPLEpoint <NR3>

:TRIGger:A:CAN:SAMPLEpoint?

Function Description

Set or query CAN trigger sample points.

Parameter

<NR3>: Range is: 0.5~95.

Instruction

None.

Example

Set CAN trigger sample points to 4	:TRIGger:A:CAN:SAMPLEpoint 4
Query CAN trigger sample points Return	:TRIGger:A:CAN:SAMPLEpoint? :TRIGGER:A:CAN:SAMPLEPOINT 4.0

:TRIGger:A:CAN:BITRate

Command Format

:TRIGger:A:CAN:BITRate <NR1>

:TRIGger:A:CAN:BITRate?

Function Description

Set or query CAN trigger baud rate.

Parameter

<NR1>: Range is: 10kbps-1Mbps, unit is bps.

Instruction

None.

Example

Set CAN trigger baud rate to 1000	:TRIGger:A:CAN:BITRate 10000
Query CAN trigger baud rate Return	:TRIGger:A:CAN:BITRate? :TRIGGER:A:CAN:BITRATE 10000

:TRIGger:A:CAN:CONDition

Command Format

:TRIGger:A:CAN:CONDition

{SOF|FRAMEtype|IDentifier|DATA|IDANDDATA|EOF|ACKMISS|ERROR}

:TRIGger:A:CAN:CONDition?

Function Description

Set or query CAN trigger condition.

Parameter

- SOF: Allows triggering at the start of a frame.
- FRAMEtype: Allows triggering based on the type of frame.
- IDentifier: Enables triggering on matching identifiers.
- DATA: Supports triggering on matching data.
- IDANDDATA: Allows triggering on matching identifiers and matching data.
- EOF: Allows triggering at the end of a frame.
- ACKMISS: Allows triggering a missing acknowledgment.
- ERROR: Enables triggering the fill error bit.

Instruction

None.

Example

Set CAN trigger condition to SOF	:TRIGger:A:CAN:CONDition SOF
Query CAN trigger condition Return	:TRIGger:A:CAN:CONDition? :TRIGGER:A:CAN:CONDITION SOF

:TRIGger:A:CAN:FRAMEtype

Command Format

:TRIGger:A:CAN:FRAMEtype {DATA|REMote|ERRor|OVERLoad}

:TRIGger:A:CAN:FRAMEtype?

Function Description

Query or setthe frame type used when CAN is triggered (data, remote, error, or overload). The trigger condition must be set to FRAMEtype.

Parameter

- DATA: data frame.
- REMote: remote frame.
- ERRor: error frame.
- OVERLoad: overload frame.

Instruction

None.

Example

Set frame type used when CAN trigger to DATA	:TRIGger:A:CAN:FRAMEtype DATA
Query frame type used when CAN trigger Return	:TRIGger:A:CAN:FRAMEtype? :TRIGGER:A:CAN:FRAMETYPE DATA

:TRIGger:A:CAN{:IDentifier|:ADDRess}:MODe

Command Format

:TRIGger:A:CAN{:IDentifier|:ADDRess}:MODe {STandard|EXTended}

:TRIGger:A:CAN{:IDentifier|:ADDRess}:MODe?

Function Description

Query or set the ID/data (in standard or extended format) used when CAN is triggered. The trigger condition must be set to IDentifier or IDANDDATA.

Parameter

- STandard: standard.
- EXTended: extended.

Instruction

None.

Example

Set use standard format for ID/data when CAN trigger is used	:TRIGger:A:CAN:IDentifier:MODe STandard or :TRIGger:A:CAN:ADDRess:MODe STandard
Query ID/data used when CAN trigger Return	:TRIGger:A:CAN:IDentifier:MODe? :TRIGger:A:CAN:ADDRess:MODe? :TRIGGER:A:CAN:IDENTIFIER:MODE STANDARD or :TRIGGER:A:CAN:ADDRESS:MODE STANDARD

:TRIGger:A:CAN{:IDentifier|:ADDRess}:VALue

Command Format

:TRIGger:A:CAN{:IDentifier|:ADDRess}:VALue <QString>

:TRIGger:A:CAN{:IDentifier|:ADDRess}:VALue?

Function Description

Query or set the hexadecimal address value used when CAN trigger.

Note: Input data needs to be limited based on length.

Parameter

<QString>: Input data is in hexadecimal format. The limit is related to the data bit width. If the input data exceeds the data bit width length, it will be truncated. If the input data does not reach the byte length, it will be padded with X (X indicates irrelevant). If the data bit width is 5, the

first digit can only be 0-1 x. If the data bit width is 6, the first digit can only be 0-4 x. If the data bit width is 7, the first digit can only be 0-7 x.

Instruction

None.

Example

Set the hexadecimal address value used when CAN trigger to 1	:TRIGger:A:CAN:IDentifier:VALue 1 or :TRIGger:A:CAN:ADDRess:VALue 1
Query the hexadecimal address value when CAN trigger Return	:TRIGger:A:CAN:IDentifier:VALue? :TRIGger:A:CAN:ADDRess:VALue? :TRIGGER:A:CAN:IDENTIFIER:VALUE 1 XX or :TRIGGER:A:CAN:ADDRESS:VALUE 1 XX

:TRIGger:A:CAN:DATa:SIZe

Command Format

:TRIGger:A:CAN:DATa:SIZe <NR1>

:TRIGger:A:CAN:DATa:SIZe?

Function Description

Query or set CAN trigger condition to be the byte length of the data.

Parameter

<NR1>: Range is: 1-8.

Instruction

None.

Example

Set CAN trigger data byte length to 5	:TRIGger:A:CAN:DATa:SIZe 5
Query CAN trigger data byte length Return	:TRIGger:A:CAN:DATa:SIZe? :TRIGGER:A:CAN:DATA:SIZE 5

:TRIGger:A:CAN:DATa:VALue

Command Format

:TRIGger:A:CAN:DATa:VALue <QString>

:TRIGger:A:CAN:DATa:VALue?

Function Description

Query or set CAN trigger used hexadecimal data value.

Note: Input data needs to be limited based on length.

Parameter

<QString>: Input data is hexadecimal data, which is related to the byte length. If the input data exceeds the byte length, it will be truncated. If the input data does not reach the byte length, it will be padded with X (X indicates irrelevant).

Instruction

None.

Example

Set CAN trigger data value to 8	:TRIGger:A:CAN:DATa:VALue 8
Query CAN trigger data value Return	:TRIGger:A:CAN:DATa:VALue? :TRIGGER:A:CAN:DATA:VALUE 8X XX XX XX XX

Trigger I2C Command Subsystem

Used to set the related parameters of I2C trigger.

These commands include:

- :TRIGger:A:I2C{:CLOCk|:SCLk}:SOUrce
- :TRIGger:A:I2C{:CLOCk|:SCLk}:THReshold
- :TRIGger:A:I2C{:DATa|:SDAta}:SOUrce
- :TRIGger:A:I2C{:DATa|:SDAta}:THReshold
- :TRIGger:A:I2C:CONDition
- :TRIGger:A:I2C:ADDRess:MODe
- :TRIGger:A:I2C:ADDRess:VALue
- :TRIGger:A:I2C:DATa:DIRection
- :TRIGger:A:I2C:DATa:SIZe
- :TRIGger:A:I2C:DATa:VALue

:TRIGger:A:I2C{:CLOCk|:SCLk}:SOUrce

Command Format

:TRIGger:A:I2C{:CLOCk|:SCLk}:SOUrce {CH1|CH2|CH3|CH4|D<x>}

:TRIGger:A:I2C{:CLOCk|:SCLk}:SOUrce?

Function Description

Set or query I2C trigger's SCL source.

Parameter

- CH1-CH4: analog channel 1-4.
- D<x>: digital channel 0-15.

Instruction

None.

Example

Set I2C trigger's SCL source to CH1	:TRIGger:A:I2C:CLOCk:SOUrce CH1 or :TRIGger:A:I2C:SCLk:SOUrce CH1
Query I2C trigger's SCL source Return	:TRIGGER:A:I2C:CLOCk:SOUrce? or :TRIGger:A:I2C:SCLk:SOUrce? :TRIGGER:A:I2C:CLOCK:SOURCE CH1 or :TRIGGER:A:I2C:SCLK:SOURCE CH1

:TRIGger:A:I2C{:CLOCk|:SCLk}:THReshold

Command Format

:TRIGger:A:I2C{:CLOCk|:SCLk}:THReshold <NR3>

:TRIGger:A:I2C{:CLOCk|:SCLk}:THReshold?

Function Description

Query or set I2C trigger current SCL selected source threshold.

Parameter

<NR3>: Logical trigger thresholds for each channel in volts (V), supporting scientific notation

input.

Instruction

None.

Example

Set I2C threshold for the current SCL selected source to 1V	:TRIGger:A:I2C:CLOCk:THReshold 1.0000 or :TRIGger:A:I2C:SCLk:THReshold 1.0000
Query I2C threshold for the current SCL selected source Return	:TRIGGER:A:I2C:CLOCk:THReshold? or :TRIGger:A:I2C:SCLk:THReshold? :TRIGGER:A:I2C:CLOCK:THRESHOLD 1.0000 or :TRIGGER:A:I2C:SCLK:THRESHOLD 1.0000

:TRIGger:A:I2C{:DATa|:SDAta}:SOUrce

Command Format

:TRIGger:A:I2C{:DATa|:SDAta}:SOUrce {CH1|CH2|CH3|CH4|D<x>}

:TRIGger:A:I2C{:DATa|:SDAta}:SOUrce?

Function Description

Set or query I2C trigger’s SDA source.

Parameter

- CH1-CH4: analog channel 1-4.
- D<x>: digital channel 0-15.

Instruction

None.

Example

Set I2C trigger's SDA source to CH1	:TRIGger:A:I2C:DATa:SOUrce CH1 or :TRIGger:A:I2C:SDAta:SOUrce CH1
Query I2C trigger's SDA source Return	:TRIGGER:A:I2C:DATa:SOUrce? or :TRIGger:A:I2C:SDAta:SOUrce? :TRIGGER:A:I2C:DATA:SOURCE CH1 or :TRIGGER:A:I2C:SDATA:SOURCE CH1

:TRIGger:A:I2C{:DATa|:SDAta}:THReshold

Command Format

:TRIGger:A:I2C{:DATa|:SDAta}:THReshold <NR3>

:TRIGger:A:I2C{:DATa|:SDAta}:THReshold?

Function Description

Query or set I2C trigger current SDA selected source threshold.

Parameter

<NR3>: Logical trigger thresholds for each channel in volts (V), supporting scientific notation input.

Instruction

None.

Example

Set I2C threshold for the current SDA selected source to 1V	:TRIGger:A:I2C:DATa:THReshold 1.0000 or :TRIGger:A:I2C:SDAta:THReshold 1.0000
Query I2C threshold for the current SDA selected source Return	:TRIGGER:A:I2C:DATa:THReshold? or :TRIGger:A:I2C:SDAta:THReshold? :TRIGGER:A:I2C:DATA:THRESHOLD 1.0000 or :TRIGGER:A:I2C:SDATA:THRESHOLD 1.0000

:TRIGger:A:I2C:CONDition

Command Format

:TRIGger:A:I2C:CONDition

{STARt|STOP|REPEATstart|ACKMISS|ADDRess|DATA|ADDRANDDATA}

:TRIGger:A:I2C:CONDition?

Function Description

Set or query I2C trigger condition.

Parameter

- STARt: start frame.
- STOP: stop.
- REPEATstart: restart.
- ACKMISS: missing ACK.
- ADDRess: address.
- ADDRANDDATA: address / data.

Instruction

None.

Example

Set I2C trigger condition to STARt	:TRIGger:A:I2C:CONDition STARt
Query I2C trigger condition Return	:TRIGger:A:I2C:CONDition? :TRIGGER:A:I2C:CONDITION START

:TRIGger:A:I2C:ADDRess:MODe

Command Format

:TRIGger:A:I2C:ADDRess:MODe {ADDR7|ADDR8|ADDR10}

:TRIGger:A:I2C:ADDRess:MODe?

Function Description

Set or query I2C trigger address width mode.

Parameter

- ADDR7: Address width is 7.
- ADDR8: Address width is 8.

- ADDR10: Address width is 10.

Instruction

None.

Example

Set I2C trigger address width to 7	:TRIGger:A:I2C:ADDRess:MODe ADDR7
Query I2C trigger address width Return	:TRIGger:A:I2C:ADDRess:MODe? :TRIGGER:A:I2C:ADDRESS:MODE ADDR7

:TRIGger:A:I2C:ADDRess:VALue

Command Format

:TRIGger:A:I2C:ADDRess:VALue <QString>

:TRIGger:A:I2C:ADDRess:VALue?

Function Description

Query or set I2C trigger condition for address data value.

Parameter

<QString>: Input data is hexadecimal data, limited and related to the data bit width, such as input data exceeding the data bit width will be truncated, and if the input data does not reach the byte length, 0 will be padded at the end.

Instruction

None.

Example

Set I2C trigger address data value to 11	:TRIGger:A:I2C:ADDRess:VALue 11
Query I2C trigger address data value Return	:TRIGger:A:I2C:ADDRess:VALue? :TRIGGER:A:I2C:ADDRESS:VALUE 11

:TRIGger:A:I2C:DATa:DIRection

Command Format

:TRIGger:A:I2C:DATa:DIRection {READ|WRITE}

:TRIGger:A:I2C:DATa:DIRection?

Function Description

Query or set I2C trigger conditions are specified as "Read" or "Write". Reading or writing is represented by the R/W bit in the I2C protocol.

Parameter

- READ
- WRITE

Instruction

When the address bit width is 8, query and set operations cannot be performed.

Example

Query I2C trigger condition to read	:TRIGger:A:I2C:DATa:DIRection READ
Query I2C trigger condition Return	:TRIGger:A:I2C:DATa:DIRection? :TRIGGER:A:I2C:DATA:DIRECTION READ

:TRIGger:A:I2C:DATa:SIZe

Command Format

:TRIGger:A:I2C:DATa:SIZe {1|2|3|4|5}

:TRIGger:A:I2C:DATa:SIZe?

Function Description

Query or set I2C trigger condition for byte length of data string.

Parameter

- 1: The data byte length is 1.
- 2: The data byte length is 2.
- 3: The data byte length is 3.
- 4: The data byte length is 4.
- 5: The data byte length is 5.

Instruction

None.

Example

Set the data byte length triggered by I2C is set to 5	:TRIGger:A:I2C:DATa:SIZe 5
Query the data byte length trigger by I2C Return	:TRIGger:A:I2C:DATa:SIZe? :TRIGGER:A:I2C:DATA:SIZE 5

:TRIGger:A:I2C:DATa:VALue

Command Format

:TRIGger:A:I2C:DATa:VALue <QString>

:TRIGger:A:I2C:DATa:VALue?

Function Description

Query or set I2C trigger condition to be the data value.

Note: Input data needs to be limited based on length.

Parameter

<QString>: Input data is hexadecimal data, which is related to the byte length. If the input data exceeds the byte length, it will be truncated. If the input data does not reach the byte length, it will be padded with X (X indicates irrelevant).

Instruction

None.

Example

Set I2C trigger data value to 11	:TRIGger:A:I2C:DATa:VALue 11
Query I2C trigger data value Return	:TRIGger:A:I2C:DATa:VALue? :TRIGGER:A:I2C:DATA:VALUE 11 XX XX

Trigger LIN Command Subsystem

Used to set the related parameters of LIN trigger.

These commands include:

- :TRIGger:A:LIN:SOUrce
- :TRIGger:A:LIN:BITRate
- :TRIGger:A:LIN:CONDition
- :TRIGger:A:LIN{:IDentifier|:ADDRess}:VALue
- :TRIGger:A:LIN:DATa:SIZe
- :TRIGger:A:LIN:DATa:VALue

:TRIGger:A:LIN:SOUrce

Command Format

:TRIGger:A:LIN:SOUrce {CH1|CH2|CH3|CH4|D<x>}

:TRIGger:A:LIN:SOUrce?

Function Description

Set or query LIN trigger source.

Parameter

- CH1-CH4: analog channel 1-4.
- D<x>: digital channel 0-15.

Instruction

None.

Example

Set LIN trigger source to CH1	:TRIGger:A:LIN:SOUrce CH1
Query LIN trigger source Return	:TRIGGER:A:LIN:SOUrce? :TRIGGER:A:LIN:SOURCE CH1

:TRIGger:A:LIN:BITRate

Command Format

:TRIGger:A:LIN:BITRate <NR1>

:TRIGger:A:LIN:BITRate?

Function Description

Set or query LIN trigger baud rate.

Parameter

<NR1>: Range is: 1kbps-20kbps, unit is bps.

Instruction

None.

Example

Set LIN trigger baud rate to 600	:TRIGger:A:LIN:BITRate 600
Query LIN trigger baud rate Return	:TRIGger:A:LIN:BITRate? :TRIGGER:A:LIN:BITRATE 600

:TRIGger:A:LIN:CONDition

Command Format

:TRIGger:A:LIN:CONDition {SYNCField|IDentifier|IDANDDATA|ERROR}

:TRIGger:A:LIN:CONDition?

Function Description

Set or query LIN trigger condition.

Parameter

- SYNCField: Allows triggering at the start of a frame.
- IDentifier: Enable trigger for matching identifiers.
- IDANDDATA: Allow trigger on matching identifiers and matching data.
- ERROR: Enable trigger bit fill error.

Instruction

None.

Example

Set LIN trigger condition to SYNCField	:TRIGger:A:LIN:CONDition SYNCField
Query LIN trigger condition Return	:TRIGger:A:LIN:CONDition? :TRIGGER:A:LIN:CONDITION SYNCFIELD

:TRIGger:A:LIN{:IDentifier|:ADDRess}:VALue

Command Format

:TRIGger:A:LIN{:IDentifier|:ADDRess}:VALue <QString>

:TRIGger:A:LIN{:IDentifier|:ADDRess}:VALue?

Function Description

Query or set the hexadecimal address value used when LIN is triggered.

Note: Input data needs to be limited based on length.

Parameter

<QString>: Input data is hexadecimal data.

Instruction

None.

Example

Set the hexadecimal address value used when LIN is triggered to 1	:TRIGger:A:LIN:IDentifier:VALue 1 or :TRIGger:A:LIN:ADDRess:VALue 1
Query frame type used when LIN trigger occurs Return	:TRIGger:A:LIN:IDentifier:VALue? :TRIGger:A:LIN:ADDRess:VALue? :TRIGGER:A:LIN:IDENTIFIER:VALUE 01 or :TRIGGER:A:LIN:ADDRESS:VALUE 01

:TRIGger:A:LIN:DATa:SIZe

Command Format

:TRIGger:A:LIN:DATa:SIZe <NR1>

:TRIGger:A:LIN:DATa:SIZe?

Function Description

Query or set LIN trigger condition to be the byte length of the data.

Parameter

<NR1>: Range is 1-8.

Instruction

None.

Example

Set LIN trigger's data byte length to 5	:TRIGger:A:LIN:DATa:SIZe 5
Query LIN trigger's data byte length Return	:TRIGger:A:LIN:DATa:SIZe? :TRIGGER:A:LIN:DATA:SIZE 5

:TRIGger:A:LIN:DATa:VALue

Command Format

:TRIGger:A:LIN:DATa:VALue <QString>

:TRIGger:A:LIN:DATa:VALue?

Function Description

Query or set LIN trigger used hexadecimal data value.

Note: Input data needs to be limited based on length.

Parameter

<QString>: Input data is hexadecimal, limited and byte length is related. If input data exceeds byte length, it will be truncated. If input data does not reach byte length, it will be padded with X (X indicates irrelevant).

Instruction

None.

Example

Set LIN trigger data value to 8	:TRIGger:A:LIN:DATa:VALue 8
Query LIN trigger data value Return	:TRIGger:A:LIN:DATa:VALue? :TRIGGER:A:LIN:DATA:VALUE 8X

Trigger Logic Command Subsystem

Used to set the related parameters of logic trigger.

These commands include:

- :TRIGger:A:LOGIc?
- :TRIGger:A:LOGIc:FUNCtion
- :TRIGger:A:LOGIc:INPut:CH<x>
- :TRIGger:A:LOGIc:INPut:D<x>
- :TRIGger:A:LOGIc:PATtem:WHEn
- :TRIGger:A:LOGIc:PATtem:DELTatime
- :TRIGger:A:LOGIc:THReshold:CH<x>
- :TRIGger:A:LOGIc:THReshold:D<x>
- :TRIGger:A:LOGIc:TYPE

:TRIGger:A:LOGIc? (Query Only)

Command Format

:TRIGger:A:LOGIc?

Function Description

Query current logic trigger settings.

Parameter

None.

Instruction

None.

Example

Query current logic trigger settings	:TRIGger:A:LOGIc?
Return	:TRIGGER:A:LOGIC:FUNCTION AND;PATTERN: WHEN MORETHAN;DELTATIME 200.0000E-9

:TRIGger:A:LOGIc:FUNCtion

Command Format

:TRIGger:A:LOGIc:FUNCtion {AND|XNOR|XOR|OR}

:TRIGger:A:LOGIc:FUNCtion?

Function Description

Set or query the conditions for logic trigger.

Parameter

- AND
- XNOR
- XOR
- OR

Instruction

None.

Example

Set condition for logic trigger to OR	:TRIGger:A:LOGIc:FUNCtion OR
Query condition for logic trigger Return	:TRIGger:A:LOGIc:FUNCtion? :TRIGGER:A:LOGIC:FUNCTION OR

:TRIGger:A:LOGIc:INPut:CH<x>

Command Format

:TRIGger:A:LOGIc:INPut:CH<x> {HIGH|LOW|X|RISe|FALL}

:TRIGger:A:LOGIc:INPut:CH<x>?

Function Description

Set or query the logical inputs of the analog channels for logic trigger.

Note: RISe and FALL can only have one channel set. When a channel is set to RISe or FALL, PATtern is invalid within the instrument.

Parameter

- HIGH: high level.
- LOW: low level.
- X: high / low level.
- RISe: rise edge.
- FALL: fall edge.

Instruction

None.

Example

Set analog Channel 1 logic trigger input to LOW	:TRIGger:A:LOGIc:INPut:CH1 LOW
Query analog Channel 1 logic trigger input Return	:TRIGger:A:LOGIc:INPut:CH1? :TRIGGER:A:LOGIC:INPUT:CH1 LOW

:TRIGger:A:LOGIc:INPut:D<x>

Command Format

:TRIGger:A:LOGIc:INPut:D<x> {HIGH|LOW|X|RISe|FALL}

:TRIGger:A:LOGIc:INPut:D<x>?

Function Description

Set or query the logical inputs of the digital channels for logic trigger.

Note: RISe and FALL can only have one channel set. When a channel is set to RISe or FALL, PATtern is invalid within the instrument.

Parameter

- HIGH: high level.
- LOW: low level.
- X: high / low level.
- RISe: rise edge.
- FALL: fall edge.

Instruction

None.

Example

Set digital Channel 1 logic trigger input to LOW	:TRIGger:A:LOGIc:INPut:D1 LOW
Query digital Channel 1 logic trigger input Return	:TRIGger:A:LOGIc:INPut:D1? :TRIGGER:A:LOGIC:INPUT:D1 LOW

:TRIGger:A:LOGIc:PATtern:WHEn

Command Format

:TRIGger:A:LOGIc:PATtern:WHEn {TRUe|FALSe|LESSthan|MOREthan|EQual}

:TRIGger:A:LOGIc:PATtern:WHEn?

Function Description

Set or query trigger condition of logic trigger.

Parameter

- TRUe: goes true.
- FALSe: goes false.
- LESSthan: less than the set time.
- MOREthan: more than the set time.
- EQual: equal to the set time.

Instruction

None.

Example

Set trigger condition of logic trigger to FALSe	:TRIGger:A:LOGIc:PATtern:WHEn FALSe
Query trigger condition of logic trigger Return	:TRIGger:A:LOGIc:PATtern:WHEn? :TRIGGER:A:LOGIC:PATTERN:WHEN FALSE

:TRIGger:A:LOGIc:PATtern:DELTatime

Command Format

:TRIGger:A:LOGIc:PATtern:DELTatime <NR3>

:TRIGger:A:LOGIc:PATtern:DELTatime?

Function Description

Set or query the set time for the logic trigger condition.

Parameter

<NR3>: The set time for the logic trigger condition, in seconds.

Instruction

None.

Example

Set the setting time for logical trigger condition to 2us	:TRIGger:A:LOGIc:PATtern:DELTatime 2E-6
Query the setting time for logical trigger condition Return	:TRIGger:A:LOGIc:PATtern:DELTatime? :TRIGGER:A:LOGIC:PATTERN:DELTATIME 2.0000E-6

:TRIGger:A:LOGIc:THReshold:CH<x>

Command Format

:TRIGger:A:LOGIc:THReshold:CH<x> <NR3>

:TRIGger:A:LOGIc:THReshold:CH<x>?

Function Description

Set or query the threshold for each analog channel's logic trigger.

Parameter

<NR3>: Set the threshold for each analog channel's logic trigger, in V, the return value will be according to the value to take the nearest value.

Instruction

None.

Example

Set the logic trigger threshold for analog channel to 160mV	:TRIGger:A:LOGIc:THReshold:CH1 60E-3
Set the logic trigger threshold for analog channel 1 Return	:TRIGger:A:LOGIc:THReshold:CH1? :TRIGGER:A:LOGIC:THRESHOLD:CH1 60.0000E-3

:TRIGger:A:LOGIc:THReshold:D<x>

Command Format

:TRIGger:A:LOGIc:THReshold:D<x> <NR3>

:TRIGger:A:LOGIc:THReshold:D<x>?

Function Description

Set or query the threshold for each digital channel's logic trigger.

Parameter

<NR3> : Set the threshold for each digital channel's logic trigger, in V, the return value will be according to the value to take the nearest value.

Instruction

None.

Example

Set the logic trigger threshold for digital channel to 160mV	:TRIGger:A:LOGIc:THReshold:D1 60E-3
Set the logic trigger threshold for digital channel 1 Return	:TRIGger:A:LOGIc:THReshold:D1? :TRIGGER:A:LOGIC:THRESHOLD:CH1 60.0000E-3

:TRIGger:A:LOGIc:TYPE

Command Format

:TRIGger:A:LOGIc:TYPE {DIGital|ANALOG}

:TRIGger:A:LOGIc:TYPE?

Function Description

Set or query logic trigger type.

Parameter

- DIGital: digital channel.
- ANALOG: analog channel.

Instruction

None.

Example

Set logic trigger type to digital channel	:TRIGger:A:LOGIc:TYPE ANALOG
Query logic trigger type Return	:TRIGger:A:LOGIc:TYPE? :TRIGGER:A:LOGIC:TYPE ANALOG

Trigger Nedge Command Subsystem

Used to set the related parameters of Nedge trigger.

These commands include:

- :TRIGger:A:NEDGe?
- :TRIGger:A:NEDGe:SOUrce
- :TRIGger:A:NEDGe:POLarity
- :TRIGger:A:NEDGe:TIMe
- :TRIGger:A:NEDGe:EDGE

:TRIGger:A:NEDGe? (Query Only)

Command Format

:TRIGger:A:NEDGe?

Function Description

Query returns parameters related to the Nth edge trigger.

Parameter

None.

Instruction

None.

Example

Query the Nth edge trigger parameters	:TRIGger:A:NEDGe?
Return	:TRIGGER:A:NEDGE:SOURCE CH1;POLARITY POSITIVE;TIME 100.0000E-9;EDGE 1

:TRIGger:A:NEDGe:SOUrce

Command Format

:TRIGger:A:NEDGe:SOUrce {CH1|CH2|CH3|CH4|D<x>}

:TRIGger:A:NEDGe:SOUrce?

Function Description

Set or query the Nth edge trigger source.

Parameter

- CH1-CH4: analog channel 1-4.
- D<x>: digital channel 0-15.

Instruction

None.

Example

Set the Nth edge trigger source to CH1	:TRIGger:A:NEDGe:SOUrce CH1
Query the Nth edge trigger source Return	:TRIGGER:A:NEDGe:SOUrce? :TRIGGER:A:NEDGE:SOURCE CH1

:TRIGger:A:NEDGe:POLarity

Command Format

:TRIGger:A:NEDGe:POLarity {NEGative|POSitive}

:TRIGger:A:NEDGe:POLarity?

Function Description

Set or query the Nth edge trigger edge type (slope).

Parameter

- NEGative: fall edge.
- POSitive: rise edge.

Instruction

None.

Example

Set the Nth edge trigger edge type to positive	:TRIGger:A:NEDGe:POLarity POSitive
Query the Nth edge trigger edge type Return	:TRIGger:A:NEDGe:POLarity? :TRIGGER:A:NEDGE:POLARITY POSITIVE

:TRIGger:A:NEDGe:TIMe

Command Format

:TRIGger:A:NEDGe:TIMe <NR3>

:TRIGger:A:NEDGe:TIMe?

Function Description

Set or query the Nth edge trigger idle time.

Parameter

<NR3>: Set the Nth edge trigger time, unit in seconds.

Instruction

None.

Example

Set the Nth edge trigger idle time to 2us	:TRIGger:A:NEDGe:TIMe 2E-6
Query the Nth edge trigger idle time Return	:TRIGger:A:NEDGe:TIMe? :TRIGGER:A:NEDGE:TIME 2.0000E-6

:TRIGger:A:NEDGe:EDGE

Command Format

:TRIGger:A:NEDGe:EDGE <NR1>

:TRIGger:A:NEDGe:EDGE?

Function Description

Set or query the Nth edge trigger edge counts.

Parameter

<NR1>: Set edge counts, range is: 1~128.

Instruction

None.

Example

Set the Nth edge trigger edge counts to 10	:TRIGger:A:NEDGe:EDGE 10
Query the Nth edge trigger edge counts Return	:TRIGger:A:NEDGe:EDGE? :TRIGGER:A:NEDGE:EDGE 10

Trigger Pulse Command Subsystem

Used to set the related parameters of pluse trigger.

These commands include:

- :TRIGger:A:PULSEWidth
- :TRIGger:A:PULSEWidth:POLarity
- :TRIGger:A:PULSEWidth:SOUrce
- :TRIGger:A:PULSEWidth:WHEn
- :TRIGger:A:PULSEWidth:WIDth

:TRIGger:A:PULSEWidth? (Query Only)

Command Format

:TRIGger:A:PULSEWidth?

Function Description

Query current pulse trigger parameters.

Parameter

None.

Instruction

None.

Example

Query current pulse trigger parameters	:TRIGger:A:PULSEWidth?
Return	:TRIGGER:A:PULSEWIDTH:POLARITY POSITIVE;SOURCE CH1; WHEN MORETHAN;WIDTH 100.0000E-9

:TRIGger:A:PULSEWidth:POLarity

Command Format

:TRIGger:A:PULSEWidth:POLarity {NEGative|POSitive}

:TRIGger:A:PULSEWidth:POLarity?

Function Description

Set or query pulse width trigger polarity.

Parameter

- NEGative: negative polarity.
- POSitive: positive polarity.

Instruction

None.

Example

Set pulse width polarity to positive	:TRIGger:A:PULSEWidth:POLarity POSitive
Query pulse width polarity Return	:TRIGger:A:PULSEWidth:POLarity? :TRIGGER:A:PULSEWIDTH:POLARITY POSITIVE

:TRIGger:A:PULSEWidth:SOUrce

Command Format

:TRIGger:A:PULSEWidth:SOUrce {CH1|CH2|CH3|CH4||D<x>}

:TRIGger:A:PULSEWidth:SOUrce?

Function Description

Set or query pulse width trigger source.

Parameter

- CH1-CH4: analog channel 1-4.
- D<x>: digital channel 0-15.

Instruction

None.

Example

Set pulse width trigger source to CH1	:TRIGger:A:PULSEWidth:SOUrce CH1
Query pulse width trigger source Return	:TRIGger:A:PULSEWidth:SOUrce? :TRIGGER:A:PULSEWIDTH:SOURCE CH1

:TRIGger:A:PULSEWidth:WHEn

Command Format

:TRIGger:A:PULSEWidth:WHEn {LESSthan|MOREthan|EQual}

:TRIGger:A:PULSEWidth:WHEn?

Function Description

Query or set the condition for pulse trigger.

Note: Use in combination with **:TRIGGER:A:PULSEWIDTH:WIDTH** to represent greater than, less than, or equal to this value.

Parameter

- LESSthan: less than the setting value.
- MOREthan: more than the setting value.
- EQual: equal to the setting value.

Instruction

None.

Example

Set pulse width trigger condition to LESSthan	:TRIGger:A:PULSEWidth:WHEn LESSthan
Query pulse width trigger condition Return	:TRIGger:A:PULSEWidth:WHEn? :TRIGGER:A:PULSEWIDTH:WHEN LESSTHAN

:TRIGger:A:PULSEWidth:WIDth

Command Format

:TRIGger:A:PULSEWidth:WIDth <NR3>

:TRIGger:A:PULSEWidth:WIDth?

Function Description

Query or set the pulse width time for pulse width trigger, corresponding to the "Time" setting interface.

Parameter

<NR3>: Set the time for pulse width trigger, in seconds.

Instruction

None.

Example

Set the pulse width time for pulse width trigger to 100ns	:TRIGger:A:PULSEWidth:WIDth 100E-9
Query the pulse width time for pulse width trigger Return	:TRIGger:A:PULSEWidth:WIDth? :TRIGGER:A:PULSEWIDTH:WIDTH 100.0000E-9

Trigger Runt Command Subsystem

Used to set the related parameters of runt trigger.

These commands include:

- :TRIGger:A:RUNT?
- :TRIGger:A:RUNT:SOUrce
- :TRIGger:A:RUNT:POLarity
- :TRIGger:A:RUNT:WHEn
- :TRIGger:A:RUNT:WIDth

:TRIGger:A:RUNT? (Query Only)

Command Format

:TRIGger:A:RUNT?

Function Description

Query returns parameters related to runt trigger: source, polarity, trigger condition, time.

Parameter

None.

Instruction

None.

Example

Query runt trigger parameters	:TRIGger:A:RUNT?
Return	:TRIGGER:A:RUNT:SOURCE CH4;POLARITY POSITIVE; WHEN MORETHAN;WIDTH 100.0000E-9

:TRIGger:A:RUNT:SOUrce

Command Format

:TRIGger:A:RUNT:SOUrce {CH1|CH2|CH3|CH4}

:TRIGger:A:RUNT:SOUrce?

Function Description

Set or query runt trigger source.

Parameter

- CH1-CH4: analog channel 1-4.

Instruction

None.

Example

Set runt trigger source to CH1	:TRIGger:A:RUNT:SOUrce CH1
Query runt trigger source Return	:TRIGger:A:RUNT:SOUrce? :TRIGGER:A:RUNT:SOURCE CH1

:TRIGger:A:RUNT:POLarity

Command Format

:TRIGger:A:RUNT:POLarity {NEGative|POSitive}

:TRIGger:A:RUNT:POLarity?

Function Description

Set or query runt trigger polarity.

Parameter

- NEGative: negative polarity.
- POSitive: positive polarity.

Instruction

None.

Example

Set runt trigger polarity to positive	:TRIGger:A:RUNT:POLarity POSitive
Query runt trigger polarity Return	:TRIGger:A:RUNT:POLarity? :TRIGGER:A:RUNT:POLARITY POSITIVE

:TRIGger:A:RUNT:WHEn

Command Format

:TRIGger:A:RUNT:WHEn {LESSthan|MOREthan|EQual}

:TRIGger:A:RUNT:WHEn?

Function Description

Query or set runt trigger condition, width is greater than, less than, or equal to the set value.

Parameter

- LESSthan: less than the set value.
- MOREthan: more than the set value.
- EQual: equal to the set value.

Instruction

None.

Example

Set runt trigger condition to lessthan	:TRIGger:A:RUNT:WHEn LESSthan
Query runt trigger condition Return	:TRIGger:A:RUNT:WHEn? :TRIGGER:A:RUNT:WHEN LESSTHAN

:TRIGger:A:RUNT:WIDth

Command Format

:TRIGger:A:RUNT:WIDth <NR3>

:TRIGger:A:RUNT:WIDth?

Function Description

Query or set the width of the runt trigger (also equal to time).

Parameter

<NR3>: Set the trigger pulse width time in seconds.

Instruction

None.

Example

Set runt trigger pulse width time to 15ns	:TRIGger:A:RUNT:WIDth 15E-6
Query runt trigger pulse width time Return	:TRIGger:A:RUNT:WIDth? :TRIGGER:A:RUNT:WIDTH 15.0000E-6

Trigger RS232C Command Subsystem

Used to set the related parameters of RS232C trigger.

These commands include:

- :TRIGger:A:RS232C:SOUrce
- :TRIGger:A:RS232C:POLarity
- :TRIGger:A:RS232C:BITRate
- :TRIGger:A:RS232C:CONDition
- :TRIGger:A:RS232C[:ERRor]:PARity
- :TRIGger:A:RS232C[:ERRor]:STOPBits
- :TRIGger:A:RS232C:CERRor:PARity
- :TRIGger:A:RS232C:DATa:SIZe
- :TRIGger:A:RS232C:DATa:VALue

:TRIGger:A:RS232C:SOUrce

Command Format

:TRIGger:A:RS232C:SOUrce {CH1|CH2|CH3|CH4|D<x>}

:TRIGger:A:RS232C:SOUrce?

Function Description

Set or query RS232C trigger source.

Parameter

- CH1-CH4: analog channel 1-4.
- D<x>: digital channel 0-15.

Instruction

None.

Example

Set RS232C trigger source to CH1	:TRIGger:A:RS232C:SOUrce CH1
Query RS232C trigger source Return	:TRIGGER:A:RS232C:SOUrce? :TRIGGER:A:RS232C:SOURCE CH1

:TRIGger:A:RS232C:POLarity

Command Format

:TRIGger:A:RS232C:POLarity {NEGative|POSitive}

:TRIGger:A:RS232C:POLarity?

Function Description

Set or query RS232C trigger polarity.

Parameter

- NEGative: negative polarity.
- POSitive: positive polarity.

Instruction

None.

Example

Set RS232C trigger polarity to positive	:TRIGger:A:RS232C:POLarity POSitive
Query RS232C trigger polarity Return	:TRIGger:A:RS232C:POLarity? :TRIGGER:A:RS232C:POLARITY POSITIVE

:TRIGger:A:RS232C:BITRate

Command Format

:TRIGger:A:RS232C:BITRate <NR1>

:TRIGger:A:RS232C:BITRate?

Function Description

Set or query RS232C trigger baud rate.

Parameter

<NR1>: Range is: 50bps-10Mbps, unit is bps.

Instruction

None.

Example

Set RS232C trigger baud rate to 50	:TRIGger:A:RS232C:BITRate 50
Query RS232C trigger baud rate Return	:TRIGger:A:RS232C:BITRate? :TRIGGER:A:RS232C:BITRATE 50

:TRIGger:A:RS232C:CONDition

Command Format

:TRIGger:A:RS232C:CONDition {STARt|ERRor|CERRor|DATA}

:TRIGger:A:RS232C:CONDition?

Function Description

Set or query RS232C trigger condition.

Parameter

- STARt: start frame.
- ERRor: error frame.
- CERRor: CRC error.
- DATA: data.

Instruction

None.

Example

Set RS232C trigger condition to STARt	:TRIGger:A:RS232C:CONDition STARt
Query RS232C trigger condition Return	:TRIGger:A:RS232C:CONDition? :TRIGGER:A:RS232C:CONDITION START

:TRIGger:A:RS232C[:ERRor]:PARity

Command Format

:TRIGger:A:RS232C:PARity {NONe|EVEN|ODD}

:TRIGger:A:RS232C:PARity?

Function Description

Query or set RS232C trigger parity under error frames.

Parameter

- NONe: unspecified parity.
- EVEN: even parity specified.
- ODD: odd parity specified.

Instruction

None.

Example

Set RS232C trigger to even parity on error frames	:TRIGger:A:RS232C:PARity EVEN or TRIGger:A:RS232C:ERRor:PARity EVEN
Query RS232C trigger verification method under error frame Return	:TRIGger:A:RS232C:PARity? or TRIGger:A:RS232C:ERRor:PARity? :TRIGGER:A:RS232C:PARITY EVEN or :TRIGGER:A:RS232C:ERROR:PARITY EVEN

:TRIGger:A:RS232C[:ERRor]:STOPBits

Command Format

:TRIGger:A:RS232C:STOPBits {1|1.5|2}

:TRIGger:A:RS232C:STOPBits?

Function Description

Query or set RS232C trigger stop bit.

Parameter

None.

Instruction

None.

Example

Set RS232C trigger stop bit to 1	:TRIGger:A:RS232C:STOPBits 1 or TRIGger:A:RS232C:ERRor:STOPBits 1
Query RS232C trigger stop bit Return	:TRIGger:A:RS232C:STOPBits? or TRIGger:A:RS232C:ERRor:STOPBits? :TRIGGER:A:RS232C:STOPBITS 1 or :TRIGGER:A:RS232C:ERROR:STOPBITS 1

:TRIGger:A:RS232C:CERRor:PARity

Command Format

:TRIGger:A:RS232C:CERRor:PARity {EVEN|ODD}

:TRIGger:A:RS232C:CERRor:PARity?

Function Description

Query or set RS232C trigger parity under error checking.

Parameter

- EVEN: even parity specified.
- ODD: odd parity specified.

Instruction

None.

Example

Set RS232C trigger with even parity under error checking	:TRIGger:A:RS232C:CERRor:PARity EVEN
Query RS232C trigger check method under error checking Return	:TRIGger:A:RS232C:CERRor:PARity? :TRIGGER:A:RS232C:CERROR:PARITY EVEN

:TRIGger:A:RS232C:DATa:SIZe

Command Format

:TRIGger:A:RS232C:DATa:SIZe {5|6|7|8}

:TRIGger:A:RS232C:DATa:SIZe?

Function Description

Query or set RS232C trigger condition as data bit width.

Parameter

- 5: Data bit width is 5.
- 6: Data bit width is 6.
- 7: Data bit width is 7.
- 8: Data bit width is 8.

Instruction

None.

Example

Set RS232C trigger data bit to 5	:TRIGger:A:RS232C:DATa:SIZe 5
Query RS232C trigger data bit Return	:TRIGger:A:RS232C:DATa:SIZe? :TRIGGER:A:RS232C:DATA:SIZE 5

:TRIGger:A:RS232C:DATa:VALue

Command Format

:TRIGger:A:RS232C:DATa:VALue <QString>

:TRIGger:A:RS232C:DATa:VALue?

Function Description

Query or set RS232C trigger condition to be data value.

Note: Input data needs to be limited based on length.

Parameter

<QString>: Input data is hexadecimal, and the limit is related to the data bit width. If the input data exceeds the data bit width, it will be truncated. If the input data does not reach the byte length, 0 will be padded at the end.

Instruction

None.

Example

Set RS232C trigger data value to 11	:TRIGger:A:RS232C:DATa:VALue 11
Query RS232C trigger data value Return	:TRIGger:A:RS232C:DATa:VALue? :TRIGGER:A:RS232C:DATA:VALUE 11

Trigger SPI Command Subsystem

Used to set the related parameters of SPI trigger.

These commands include:

- :TRIGger:A:SPI{:CLOCk|:SCLk}:SOUrce
- :TRIGger:A:SPI{:CLOCk|:SCLk}:THReshold
- :TRIGger:A:SPI{:DATa|:SDAta}:SOUrce
- :TRIGger:A:SPI{:DATa|:SDAta}:THReshold
- :TRIGger:A:SPI:IDLETime
- :TRIGger:A:SPI{:CLOCk|:SCLk}:POLarity
- :TRIGger:A:SPI:DATa:SIZe
- :TRIGger:A:SPI:DATa:VALue

:TRIGger:A:SPI{:CLOCk|:SCLk}:SOUrce

Command Format

:TRIGger:A:SPI{:CLOCk|:SCLk}:SOUrce {CH1|CH2|CH3|CH4|D<x>}

:TRIGger:A:SPI{:CLOCk|:SCLk}:SOUrce?

Function Description

Set or query SPI trigger's SCL source.

Parameter

- CH1-CH4: analog channel 1-4.
- D<x>: digital channel 0-15.

Instruction

None.

Example

Set SPI trigger's SCL source to CH1	:TRIGger:A:SPI:CLOCk:SOUrce CH1 or :TRIGger:A:SPI:SCLk:SOUrce CH1
Query SPI trigger's SCL source Return	:TRIGGER:A:SPI:CLOCk:SOUrce? or :TRIGger:A:SPI:SCLk:SOUrce? :TRIGGER:A:SPI:CLOCK:SOURCE CH1 or :TRIGGER:A:SPI:SCLK:SOURCE CH1

:TRIGger:A:SPI{:CLOCk|:SCLk}:THReshold

Command Format

:TRIGger:A:SPI{:CLOCk|:SCLk}:THReshold <NR3>

:TRIGger:A:SPI{:CLOCk|:SCLk}:THReshold?

Function Description

Query or set SPI trigger the threshold of the selected source of SCL.

Parameter

<NR3>: Logic trigger thresholds for each channel in volts (V), supports scientific notation input.

Instruction

None.

Example

Set SPI trigger the threshold of the selected source of SCL to1V	:TRIGger:A:SPI:CLOCk:THReshold 1.0000 or :TRIGger:A:SPI:SCLk:THReshold 1.0000
Query SPI trigger the threshold of the selected source of SCL Return	:TRIGGER:A:SPI:CLOCk:THReshold? or :TRIGger:A:SPI:SCLk:THReshold? :TRIGGER:A:SPI:CLOCK:THRESHOLD 1.0000 or :TRIGGER:A:SPI:SCLK:THRESHOLD 1.0000

:TRIGger:A:SPI{:DATa|:SDAta}:SOUrce

Command Format

:TRIGger:A:SPI{:DATa|:SDAta}:SOUrce {CH1|CH2|CH3|CH4|D<x>}

:TRIGger:A:SPI{:DATa|:SDAta}:SOUrce?

Function Description

Set or query SPI trigger’s SDA source.

Parameter

- CH1-CH4: analog channel 1-4.
- D<x>: digital channel 0-15.

Instruction

None.

Example

Set SPI trigger's SDA source to CH1	:TRIGger:A:SPI:DATa:SOUrce CH1 or :TRIGger:A:SPI:SDAta:SOUrce CH1
Query SPI trigger's SDA source Return	:TRIGGER:A:SPI:DATa:SOUrce? or :TRIGger:A:SPI:SDAta:SOUrce? :TRIGGER:A:SPI:DATA:SOURCE CH1 or :TRIGGER:A:SPI:SDATA:SOURCE CH1

:TRIGger:A:SPI{:DATa|:SDAta}:THReshold

Command Format

:TRIGger:A:SPI{:DATa|:SDAta}:THReshold <NR3>

:TRIGger:A:SPI{:DATa|:SDAta}:THReshold?

Function Description

Query or set SPI trigger the threshold of the selected source of SDA.

Parameter

<NR3>: Logic trigger thresholds for each channel in volts (V), supports scientific notation input.

Instruction

None.

Example

Set SPI trigger the threshold of the selected source of SDA to1V	:TRIGger:A:SPI:DATa:THReshold 1.0000 or :TRIGger:A:SPI:SDAta:THReshold 1.0000
Query SPI trigger the threshold of the selected source of SDA Return	:TRIGGER:A:SPI:DATa:THReshold? or :TRIGger:A:SPI:SDAta:THReshold? :TRIGGER:A:SPI:DATA:THRESHOLD 1.0000 or :TRIGGER:A:SPI:SDATA:THRESHOLD 1.0000

:TRIGger:A:SPI:IDLETime

Command Format

:TRIGger:A:SPI:IDLETime <NR3>

:TRIGger:A:SPI:IDLETime?

Function Description

Set or query SPI trigger timeout.

Parameter

<NR3>: Set the idle time for timeout trigger, in seconds, supports scientific notation input; range is 30ns~10 s.

Instruction

None.

Example

Set SPI trigger timeout to 1s	:TRIGger:A:SPI:IDLETime 1.0000
Query SPI trigger timeout Return	:TRIGger:A:SPI:IDLETime? :TRIGGER:A:SPI:IDLETIME 1.0000

:TRIGger:A:SPI{:CLOCk|:SCLk}:POLarity

Command Format

:TRIGger:A:SPI{:CLOCk|:SCLk}:POLarity {RISe|FALL}

:TRIGger:A:SPI{:CLOCk|:SCLk}:POLarity?

Function Description

Query or set SPI trigger clock edge.

Parameter

- RISe: rise edge.
- FALL: fall edge.

Instruction

None.

Example

Set SPI trigger clock edge to rise	:TRIGger:A:SPI:CLOCk:POLarity RISe or :TRIGger:A:SPI:SCLk:POLarity RISe
Query SPI trigger clock edge Return	:TRIGger:A:SPI:CLOCk:POLarity? or :TRIGger:A:SPI:SCLk:POLarity? :TRIGGER:A:SPI:CLOCK:POLARITY RISE or :TRIGGER:A:SPI:SCLK:POLARITY RISE

:TRIGger:A:SPI:DATa:SIZe

Command Format

:TRIGger:A:SPI:DATa:SIZe <NR1>

:TRIGger:A:SPI:DATa:SIZe?

Function Description

Query or set SPI trigger condition to be the byte length of the data.

Parameter

<NR1>: Range is : 4-32.

Instruction

None.

Example

Set SPI trigger data byte length to 5	:TRIGger:A:SPI:DATa:SIZe 5
Query SPI trigger data byte length Return	:TRIGger:A:SPI:DATa:SIZe? :TRIGGER:A:SPI:DATA:SIZE 5

:TRIGger:A:SPI:DATa:VALue

Command Format

:TRIGger:A:BUS:B<x>:SPI:DATa:VALue <QString>

:TRIGger:A:BUS:B<x>:SPI:DATa:VALue?

Function Description

Set or query SPI trigger data.

Note: Input data needs to be limited based on length.

Parameter

<QString>: Input data is hexadecimal data, and the limit is related to the data bit width. If the input data exceeds the data bit width length, it will be truncated. If the input data does not reach the byte length, it will be padded with X (X indicates irrelevant). If the data bit width is 5, the first bit can only be input as 0-1 x. If the data bit width is 6, the first bit can only be input as 0-4 x. If the data bit width is 7, the first bit can only be input as 0-7 x.

Instruction

None.

Example

Set SPI trigger data to 11	:TRIGger:A:SPI:DATa:VALue 8
Query SPI trigger data Return	:TRIGger:A:SPI:DATa:VALue? :TRIGGER:A:SPI:DATA:VALUE 8

Trigger Transition Command Subsystem

Used to set the related parameters of slope trigger.

These commands include:

- :TRIGger:A{:TRANsition|:RISEFall}?
- :TRIGger:A{:TRANsition|:RISEFall}:SOUrce
- :TRIGger:A{:TRANsition|:RISEFall}:POLarity
- :TRIGger:A{:TRANsition|:RISEFall}:WHEn
- :TRIGger:A{:TRANsition|:RISEFall}:DELTAtime

:TRIGger:A{:TRANsition|:RISEFall}? (Query Only)

Command Format

:TRIGger:A{:TRANsition|:RISEFall}?

Function Description

Query returns parameters related to slope trigger: source, edge type, trigger condition, time.

Parameter

None.

Instruction

None.

Example

Query slope trigger parameters	:TRIGger:A:TRANsition?
Return	:TRIGGER:A:TRANSITION:SOURCE CH1;POLARITY POSITIVE; WHEN SLOWER;DELTATIME 100.0000E-9

:TRIGger:A{:TRANsition|:RISEFall}:SOUrce

Command Format

:TRIGger:A{:TRANsition|:RISEFall}:SOUrce {CH1|CH2|CH3|CH4}

:TRIGger:A{:TRANsition|:RISEFall}:SOUrce?

Function Description

Set or query slope trigger source.

Parameter

- CH1-CH4: analog channel 1-4.

Instruction

None.

Example

Set slope trigger source to CH4	:TRIGger:A:TRANsition:SOUrce CH4
Query slope trigger source Return	:TRIGger:A:TRANsition:SOUrce? :TRIGGER:A:TRANSITION:SOURCE CH4

:TRIGger:A{:TRANsition|:RISEFall}:POLarity

Command Format

:TRIGger:A{:TRANsition|:RISEFall}:POLarity {NEGative|POSitive}

:TRIGger:A{:TRANsition|:RISEFall}:POLarity?

Function Description

Set or query slope trigger edge type.

Parameter

- NEGative: fall edge.
- POSitive: rise edge.

Instruction

None.

Example

Set slope trigger edge type to Negative	:TRIGger:A:TRANsition:POLarity POSitive
Query slope trigger edge type Return	:TRIGger:A:TRANsition:POLarity? :TRIGGER:A:TRANSITION:POLARITY POSITIVE

:TRIGger:A{:TRANsition|:RISEFall}:WHEn

Command Format

:TRIGger:A{:TRANsition|:RISEFall}:WHEn {SLOWer|FASTer|EQual}

:TRIGger:A{:TRANsition|:RISEFall}:WHEn?

Function Description

Query or set slope trigger condition.

Note: Used with **TRIGger:A{:TRANsition|:RISEFall}:DELTAtime**, it represents greater than, less than, or equal to the specified value.

Parameter

- SLOWer: Indicates slower than the set time, greater than the set time.
- FASTer: Indicates quicker than the set time, less than the set time.
- EQual: Indicates equal to the set time.

Instruction

None.

Example

Set the slope trigger condition to slower	:TRIGger:A:TRANsition:WHEn SLOWer
Query the slope trigger condition Return	:TRIGger:A:TRANsition:WHEn? :TRIGGER:A:TRANSITION:WHEN SLOWER

:TRIGger:A{:TRANsition|:RISEFall}:DELTAtime

Command Format

:TRIGger:A{:TRANsition|:RISEFall}:DELTatime <NR3>

:TRIGger:A{:TRANsition|:RISEFall}:DELTatime?

Function Description

Query or set slope trigger time.

Parameter

<NR3>: Set the slope trigger time in seconds.

Instruction

None.

Example

Set slope trigger time to 15ns	:TRIGger:A:TRANsition:DELTatime 15E-6
Query slope trigger time Return	:TRIGger:A:TRANsition:DELTatime? :TRIGGER:A:TRANSITION:DELTATIME 15.0000E-6

Trigger Timeout Command Subsystem

Used to set the related parameters of timeout trigger.

These commands include:

- :TRIGger:A:TIMEOut?
- :TRIGger:A:TIMEOut:SOUrce
- :TRIGger:A:TIMEOut:POLarity
- :TRIGger:A:TIMEOut:TIMe

:TRIGger:A:TIMEOut? (Query Only)

Command Format

:TRIGger:A:TIMEOut?

Function Description

Query returns parameters related to timeout trigger: source, slope,idle time.

Parameter

None.

Instruction

None.

Example

Query timeout trigger parameters	:TRIGger:A:WINDows?
Return	:TRIGGER:A:TIMEOUT:SOURCE CH1; POLARITY POSITIVE;TIME 100.0000E-9

:TRIGger:A:TIMEOut:SOUrce

Command Format

:TRIGger:A:TIMEOut:SOUrce {CH1|CH2|CH3|CH4|D<x>}

:TRIGger:A:TIMEOut:SOUrce?

Function Description

Set or query timeout trigger source.

Parameter

- CH1-CH4: analog channel 1-4.
- D<x>: digital channel 0-15.

Instruction

None.

Example

Set timeout trigger source to CH1	:TRIGger:A:TIMEOut:SOUrce CH1
Query timeout trigger source Return	:TRIGGER:A:TIMEOut:SOUrce? :TRIGGER:A:TIMEOUT:SOURCE CH1

:TRIGger:A:TIMEOut:POLarity

Command Format

:TRIGger:A:TIMEOut:POLarity {NEGative|POSitive}

:TRIGger:A:TIMEOut:POLarity?

Function Description

Query or set timeout trigger edge type (slope).

Parameter

- NEGative: fall edge.
- POSitive: rise edge.

Instruction

None.

Example

Set timeout trigger edge type to positive	:TRIGger:A:TIMEOut:POLarity POSitive
Query timeout trigger edge type Return	:TRIGger:A:TIMEOut:POLarity? :TRIGGER:A:TIMEOUT:POLARITY POSITIVE

:TRIGger:A:TIMEOut:TIMe

Command Format

:TRIGger:A:TIMEOut:TIMe <NR3>

:TRIGger:A:TIMEOut:TIMe?

Function Description

Set or query timeout trigger idle time.

Parameter

<NR3>: Set timeout trigger idle time, unit in seconds.

Instruction

None.

Example

Set timeout trigger idle time to 2us	:TRIGger:A:TIMEOut:TIMe 2E-6
Query timeout trigger idle time Return	:TRIGger:A:TIMEOut:TIMe? :TRIGGER:A:TIMEOUT:TIME 2.0000E-6

Trigger Video Command Subsystem

Used to set the related parameters of video trigger.

These commands include:

- :TRIGger:A:VIDeo?
- :TRIGger:A:VIDeo:SOUrce
- :TRIGger:A:VIDeo:STANdard
- :TRIGger:A:VIDeo{:SYNC|:FIELD}
- :TRIGger:A:VIDeo:LINE

:TRIGger:A:VIDeo? (Query Only)

Command Format

:TRIGger:A:VIDeo?

Function Description

Query returns parameters related to the video trigger.

Parameter

None.

Instruction

None.

Example

Query the video trigger parameters	:TRIGger:A:VIDeo?
Return	:TRIGGER:A:VIDEO:SOURCE CH4;STANDARD NTSC; SYNC ALLLINES;LINE 1

:TRIGger:A:VIDeo:SOUrce

Command Format

:TRIGger:A:VIDeo:SOUrce {CH1|CH2|CH3|CH4}

:TRIGger:A:VIDeo:SOUrce?

Function Description

Set or query video trigger source.

Parameter

- CH1-CH4: analog channel 1-4.

Instruction

None.

Example

Set video trigger source to CH1	:TRIGger:A:VIDeo:SOUrce CH1
Query video trigger source Return	:TRIGGER:A:VIDeo:SOUrce? :TRIGGER:A:VIDEO:SOURCE CH1

:TRIGger:A:VIDeo:STANdard

Command Format

:TRIGger:A:VIDeo:STANdard {NTSc|PAL|SECAM}

:TRIGger:A:VIDeo:STANdard?

Function Description

Set or query video trigger standard.

Parameter

- NTSc: Triggers video signals that comply with NTSc.
- PAL: Triggers video signals that comply with PAL.
- SECAM: Triggers video signals that comply with SECAM.

Instruction

None.

Example

Set video trigger standard to NTSC	:TRIGger:A:VIDeo:STANdard NTSc
Query video trigger standard Return	:TRIGger:A:VIDeo:STANdard? :TRIGGER:A:VIDEO:STANDARD NTSC

:TRIGger:A:VIDeo{:SYNC|:FIELD}

Command Format

:TRIGger:A:VIDeo:STANdard{:SYNC|:FIELD} {ODD|EVEN|ALLFields|ALLLines|NUMERic}

:TRIGger:A:VIDeo:STANdard?

Function Description

Query or set video trigger sync type.

Parameter

- ODD: odd field.
- EVEN: even field.
- ALLFields: field.
- ALLLines: line.
- NUMERic: specified line.

Instruction

None.

Example

Set video trigger sync type to allfield	:TRIGger:A:VIDeo:SYNC ALLF
Query video trigger sync type Return	:TRIGger:A:VIDeo:SYNC? :TRIGGER:A:VIDEO:SYNC ALLFIELDS

:TRIGger:A:VIDeo:LINE

Command Format

:TRIGger:A:VIDeo:LINE <NR1>

:TRIGger:A:VIDeo:LINE?

Function Description

Query or set the line number when video trigger synchronization is set to a specified line.

Parameter

<NR1>: Line number, range: NTScis1~525, PAL and SECAMis1~625.

Instruction

None.

Example

Set the specified line number for video trigger to 10	:TRIGger:A:VIDeo:LINE 10
Query the specified line number for video trigger Return	:TRIGger:A:VIDeo:LINE? :TRIGGER:A:VIDEO:LINE 10

Trigger Windows Command Subsystem

Used to set the related parameters of windows trigger.

These commands include:

- :TRIGger:A:WINDows?
- :TRIGger:A:WINDows:SOUrce
- :TRIGger:A:WINDows:POLarity
- :TRIGger:A:WINDows:WHEn
- :TRIGger:A:WINDows:TIMe

:TRIGger:A:WINDows? (Query Only)

Command Format

:TRIGger:A:WINDows?

Function Description

Query returns parameters related to windows trigger.

Parameter

None.

Instruction

None.

Example

Query windows trigger parameters	:TRIGger:A:WINDows?
Return	:TRIGGER:A:WINDOWS:SOURCE CH1;POLARITY POSITIVE;WHEN ENTER;TIME 100.0000E-9

:TRIGger:A:WINDows:SOUrce

Command Format

:TRIGger:A:WINDows:SOUrce {CH1|CH2|CH3|CH4}

:TRIGger:A:WINDows:SOUrce?

Function Description

Set or query windows trigger source.

Parameter

- CH1-CH4: analog channel 1-4.

Instruction

None.

Example

Set windows trigger source to CH1	:TRIGger:A:WINDows:SOUrce CH1
Query windows trigger source Return	:TRIGGER:A:WINDows:SOUrce? :TRIGGER:A:WINDOWS:SOURCE CH1

:TRIGger:A:WINDows:POLarity

Command Format

:TRIGger:A:WINDows:POLarity {NEGative|POSitive}

:TRIGger:A:WINDows:POLarity?

Function Description

Set or query windows trigger polarity.

Parameter

- NEGative: negative polarity.
- POSitive: positive polarity.

Instruction

None.

Example

Set windows trigger polarity to positive	:TRIGger:A:WINDows:POLarity POSitive
Query windows trigger polarity Return	:TRIGger:A:WINDows:POLarity? :TRIGGER:A:WINDOWS:POLARITY POSITIVE

:TRIGger:A:WINDows:WHEn

Command Format

:TRIGger:A:WINDows:WHEn {ENTer|EXIT|TIME}

:TRIGger:A:WINDows:WHEn?

Function Description

Query or set the conditions for out-of-range triggers, which are: out-of-range entry, out-of-range exit, out-of-range time.

Parameter

- ENTer: out-of-range entry.
- EXIT: out-of-range exit.
- TIME: out-of-range time.

Instruction

None.

Example

Set windows trigger condition to exit	:TRIGger:A:WINDows:WHEn EXIT
Query windows trigger condition Return	:TRIGger:A:WINDows:WHEn? :TRIGGER:A:WINDOWS:WHEN EXIT

:TRIGger:A:WINDows:TIMe

Command Format

:TRIGger:A:WINDows:TIMe <NR3>

:TRIGger:A:WINDows:TIMe?

Function Description

Set or query windows trigger time.

Parameter

<NR3>: Set windows trigger time, in seconds.

Instruction

None.

Example

Set windows trigger time to 200ns	:TRIGger:A:WINDows:TIMe 2E-7
Query windows trigger time Return	:TRIGger:A:WINDows:TIMe? :TRIGGER:A:WINDOWS:TIME 200.0000E-9

2.24 Waveform Transfer Command Subsystem

Used to set the related parameters of waveform transfer.

These commands include:

- :CURVe?
- :DATa
- :DATa:TYPe
- :DATa:SOURce
- :DATa:WIDth
- :DATa:ENCdg
- :DATa:STARt
- :DATa:STOP
- :WFMOutpre?
- :WFMOutpre:ENCdg
- :WFMOutpre:BYT_Nr
- :WFMOutpre:BIT_Nr
- :WFMOutpre:BN_Fmt
- :WFMOutpre:BYT_Or
- :WFMOutpre:NR_Pt?
- :WFMOutpre:CENTERFREQuency?
- :WFMOutpre:DOMain?
- :WFMOutpre:PT_Fmt?
- :WFMOutpre:PT_ORder?
- :WFMOutpre:SPAN?
- :WFMOutpre:WFId?
- :WFMOutpre:WFMTYPe?
- :WFMOutpre:XINcr?
- :WFMOutpre:XUNit?
- :WFMOutpre:XZEro?
- :WFMOutpre:YMUlt?
- :WFMOutpre:YOFf?
- :WFMOutpre:YUNit?
- :WFMOutpre:YZEro?
- :WAVFrm?

:CURVe? (Query Only)

Command Format

:CURVe?

Function Description

Query read the waveform data.

Parameter

None.

Instruction

- <Block>: Binary waveform data, the specific binary waveform data format needs to be determined according to the provisions of other instructions. The returned binary block is represented as: #N<N- Digits><binary data>

  Instruction: "#" represents any block token; "N" is a single hexadecimal digit that specifies how many decimal digits; "N-Digits" is a decimal number of N digits long, specifying the number of bytes of binary data following it.
- <asc curve>: ASCII plaintext data.

Example

Query waveform data	:CURVe?
Return	:CURVe 61,62,61,60,60,-59,-59,-58,-58,-59 When using ASCII encoding, the returned data does not include #N<N-Digits>, START and STOP are set to 1 and 10, WIDth is set to 1

:DATa

Command Format

:DATa {INIT|SNAp}

:DATa?

Function Description

Query the configuration of some instructions starting with DATA; Settings can reset parameters or configure the start and end positions based on the cursor, see parameter description.

Parameter

- INIT: Resets all waveform transmission configuration parameters, including:
  :DATa:SOUrce CH1
  :DATa:DESTination REF1
  :DATa:START 1
  :DATa:STOP :WFMInpre:BYT_NR 1
  :WFMInpre:BIT_NR 8
  :WFMInpre:ENCDG BINARY
  :WFMInpre:BN_FMT RI
  :WFMInpre:BYT_OR MSB
  :WFMOutpre:BYT_NR 1
  :WFMOutpre:BIT_NR 8
  :WFMOutpre:ENCDG BINARY
  :WFMOutpre:BN_FMT RI
  :WFMOutpre:BYT_OR MSB
  :WFMOutpre:NR_PT
- SNAp: Set DATA:START and DATA:STOP to the area defined by the cursor.

Instruction

None.

Example

Reset waveform related parameters to factory default values	:DATa INIT
Query current parameter values Return	:DATa? :DATA:ENCDG RIBINARY;SOURCE CH1;START 1;STOP 10000;WIDTH 1

:DATa:TYPe

Command Format

:DATa:TYPe {SCREEN}

:DATa:TYPe?

Function Description

Set or query retrieved screen data.

Parameter

None.

Instruction

None.

Example

Set the data retrieved is screen data	:DATa:TYPe SCREEN
Query the retrieved data Return	:DATa:TYPe? :DATA:TYPE SCREEN

:DATa:SOUrce

Command Format

:DATa:SOUrce {CH1|CH2|CH3|CH4|MATH|FFT|REF<x>}

:DATa:SOUrce?

Function Description

Set and query the source channel for the waveform obtained via the CURVe? instruction.

Note: Digital channels, REF, RF, etc., can be configured. In ADS, only analog channels, MATH, and FFT are considered. If the specified channel is not enabled, CURVe? will time out when retrieving data.

Parameter

None.

Instruction

None.

Example

Set CURVe? instruction to get data from CH1	:DATa:SOUrce CH1
Query the channel to obtain data Return	:DATa:SOUrce? :DATA:SOURCE CH1

:DATa:WIDth

Command Format

:DATa:WIDth <NR1>

:DATa:WIDth?

Function Description

Set or query the data width of each point for the waveform data read by the CURVe command.

Parameter

- <NR1>: The valid range is only 1 or 2, values less than 1 are set to 1, and values greater than 2 are set to 2.

Instruction

- Data Width is 1, representing the use of 1Byte to carry data for a single point.
- Data Width is 2, representing the use of 2Byte to carry data for a single point.

Example

Set data width to 2Byte	:DATa:WIDth 2
Query data width Return	:DATa:WIDth? :DATA:WIDTH 2

:DATa:ENCdg

Command Format

:DATa:ENCdg {ASCii|FAStest|RIBinary|RPBinary|SRIbinary|SRPbinary}

:DATa:ENCdg?

Function Description

Set or read the data format for waveform acquire. This command integrates three WFMOutpre

configuration commands:

WFMOutpre:ENCdg, WFMOutpre:BN_Fmt, and WFMOutpre:BYT_Or, see below for details.

Note: For Width = 1, the value range is 0~256, and the screen has a height of 500, so the data within the screen has the topmost point's value not as 0 but as 2, with 0 being outside the screen. The same applies to WIDTH=2.

Parameter

- ASCii Numerical plain text conforming to ASCII encoding, with each point's value separated by commas. The value range varies based on DATa:WIDTH; when WIDTH is 1, each point's range is -127 to 127, and when WIDTH is 2, each point's range is -32,768 to 32,767.
- FAStest & RIBinary binary readings, where the data length for each point is determined by DATA:WIDTH, possibly being 1Byte or 2Byte. The value ranges are -128 to 127 and -32,768 to 32,767, respectively; for 2Byte, big-endian mode is used for concatenation.
- RPBinary binary readings, where the data length for each point is determined by DATA:WIDTH, possibly being 1Byte or 2Byte. The value ranges are -0 to 255 and 0 to 65,535, respectively; for 2Byte, big-endian mode is used for concatenation.
- SRIbinary is similar to RIBinary, but uses little-endian mode for concatenation when 2Byte.

Instruction

None.

Example

Set the waveform data format to be big-endian binary data with positive integers	:DATa:ENCdg RPBinary
Query the data format Return	:DATa:ENCdg? :DATA:ENCDG RPBINARY

:DATa:STARt / :DATa:STOP

Command Format

:DATa:STARt <NR1>

:DATa:STARt?

:DATa:STOP <NR1>

:DATa:STOP?

Function Description

Set and query CURVE? instruction to obtain the start and stop points of the waveform data obtained. The START and STOP instructions together specify a range for data acquisition, and the smaller value is used as the actual start point, while the larger value is used as the actual stop point. If the actual start point is greater than the data length, only the data of the last point is returned. If the specified range exceeds the actual waveform length, it returns to the end of the actual data.

Parameter

- :DATa:STARt <NR1> in <NR1>: Specifies the start point for waveform data transmission, with a minimum value of 1.
- :DATa:STOP <NR1> in <NR1>: Specifies the end point for waveform data transmission. with a minimum value of 1.

Instruction

None.

Example

Example 1

Set the start point to 100 / Set the stop point to 1000	:DATa:STARt 100 / :DATa:STOP 1000
Query start point position / Query end point position Return	:DATa:STARt? / :DATa:STOP? :DATA:START 100 / :DATA:STOP 1000

Example 2

Set start point to 1000 / Set end point to 100	:DATa:STARt 1000 / :DATa:STOP 100
Query start point position / Query end point position Return	:DATa:STARt? / :DATa:STOP? :DATA:START 100 / :DATA:STOP 1000 Note: When reading data, it automatically uses 100 as the actual start point and 1000 as the actual end point.

:WFMOutpre? (Query Only)

Command Format

:WFMOutpre?

Function Description

Explain CURVe? the information required to query the waveform data points returned. It provides the waveform transmission and formatting parameters for the waveform specified by :DATa:SOUrce.

Parameter

None.

Instruction

None.

Example

Information required to retrieve the waveform data points returned by the query	:WFMOutpre?
Return	:WFMOUTPRE:BYT_NR 2;BIT_NR 16;ENCDG ASCII; BN_FMT RI;BYT_OR MSB;WFID "Ch1, DC coupling, 200.0mV/div, 400.0us/div, 1000 points, Sample mode"; NR_PT 1000;PT_FMT Y;PT_ORDER LINEAR; XUNIT "s";XINCR 4.0000E-6;XZERO -2.0000E-3;YUNIT "V"; YMULT 31.2500E-6;YOFF -384.0000;YZERO 0.0E+0; DOMAIN TIME;WFMTYPE ANALOG;CENTERFREQUENCY 0.0E+0;SPAN 0.0E+0

:WFMOutpre:ENCdg

Command Format

:WFMOutpre:ENCdg {ASCii|BINary}

:WFMOutpre:ENCdg?

Function Description

Set or query whether the waveform data read by the CURVe instruction is binary data or ASCII data.

Parameter

- ASCii: matches plain text values in ASCII encoding.
- BINary: binary readings.

Instruction

None.

Example

Set data format to ASCii	:WFMOutpre:ENCdg ASCii
Query data format Return	:WFMOutpre:ENCdg? :WFMOUTPRE:ENCDG ASCII

:WFMOutpre:BYT_Nr

Command Format

:WFMOutpre:BYT_Nr <NR1>

:WFMOutpre:BYT_Nr?

Function Description

Set or query the CURVe instruction to read how many bytes per point for waveform data, this command is equivalent to :DATA:WIDth.

Parameter

- <NR1>: The value range is only 1 or 2, less than 1 is set to 1, and greater than 2 is set to 2.

Instruction

- Data Width is 1, representing the use of 1Byte to carry the data of a point.
- Data Width is 2, representing the use of 2Byte to carry the data of a point.

Example

Set data width to 2Byte	:WFMOutpre:BYT_Nr 2
Query data width Return	:WFMOutpre:BYT_Nr? :WFMOUTPRE:BYT_NR 2

:WFMOutpre:BIT_Nr

Command Format

:WFMOutpre:BIT_Nr <NR1>

:WFMOutpre:BIT_Nr?

Function Description

Set or query the number of bits per point for the waveform data read by the CURVe instruction, DATA:WID, and WFMOutpre:BYT_Nr are mutually influential, the relationship between them is an 8-fold relationship (1Byte = 8bit).

Parameter

- <NR1>: Power of 8, instruments only exist 8 or 16, choose the value close to the one sent.

Instruction

None.

Example

Set data width to 16bit	:WFMOutpre:BIT_Nr 16
Query data width Return	:WFMOutpre:BIT_Nr? :WFMOUTPRE:BIT_NR 16

:WFMOutpre:BN_Fmt

Command Format

:WFMOutpre:BN_Fmt {RI|RP}

:WFMOutpre:BN_Fmt?

Function Description

Set or query the value format for each point of binary data.

Parameter

- RI Natural number, that is, centered at 0, with positive and negative values.
- RP Positive integer, that is, starting from 0, no negative values.

Instruction

None.

Example

Set format to natural number	:WFMOutpre:BN_Fmt RI
Query value format	:WFMOutpre:BN_Fmt?
Return	:WFMOUTPRE:BN_FMT RI

:WFMOutpre:BYT_Or

Command Format

:WFMOutpre:BYT_Or {LSB|MSB}

:WFMOutpre:BYT_Or?

Function Description

Set or query big-endian mode or little-endian mode.

Parameter

- LSB: Little-endian mode.
- MSB: Big-endian mode.

Instruction

None.

Example

Set to little-endian mode	:WFMOutpre:BYT_Or LSB
Query format mode	:WFMOutpre:BYT_Or?
Return	:WFMOUTPRE:BYT_OR LSB

:WFMOutpre:NR_Pt? (Query Only)

Command Format

:WFMOutpre:NR_Pt?

Function Description

Query under the current configuration, how many data points will be returned in the waveform data

Parameter

None.

Instruction

The value depends on :DATa:STOP and :DATa:STARt as defined, if both values exceed the record length, they will automatically use the record length as the value. At least the last point of the waveform record will be returned.

Example

Query how many data points are in the waveform data	:WFMOutpre:NR_Pt?
Return	:WFMOUTPRE:NR_PT 800

:WFMOutpre:CENTERFREQuency? (Query Only)

Command Format

:WFMOutpre:CENTERFREQuency?

Function Description

Query the frequency at the center of screen.

Parameter

None.

Instruction

None.

Example

Query the frequency at the center of screen	:WFMOutpre:CENTERFREQuency?
Return	:WFMOUTPRE:CENTERFREQUENCY 0.0E+0

:WFMOutpre:DOMain? (Query Only)

Command Format

:WFMOutpre:DOMain?

Function Description

Query whether the returned waveform data is processed in the time domain or the frequency domain.

Parameter

None.

Instruction

None.

Example

Query waveform domain processing method	:WFMOutpre:DOMain?
Return	:WFMOUTPRE:DOMAIN TIME

:WFMOutpre:PT_Fmt? (Query Only)

Command Format

:WFMOutpre:PT_Fmt?

Function Description

Query whether the waveform data is in YT format.

Parameter

None.

Instruction

None.

Example

Query the waveform data format	:WFMOutpre:PT_Fmt?
Return	:WFMOUTPRE:PT_FMT Y

:WFMOutpre:PT_ORder? (Query Only)

Command Format

:WFMOutpre:PT_ORder?

Function Description

Query return point sorting.

Parameter

None.

Instruction

None.

Example

Query return point sorting	:WFMOutpre:PT_ORder?
Return	:WFMOUTPRE:PT_ORDER LINEAR

:WFMOutpre:SPAN? (Query Only)

Command Format

:WFMOutpre:SPAN?

Function Description

Query return waveforms' frequency range.

Parameter

None.

Instruction

None.

Example

Query the frequency range of the waveform	:WFMOutpre:SPAN?
Return	:WFMOUTPRE:SPAN 0.0E+0

:WFMOutpre:WFId? (Query Only)

Command Format

:WFMOutpre:WFId?

Function Description

Query the acquisition parameters of the source waveform, including the source channel number, coupling, vertical position, horizontal position, record length, and acquisition mode. The return value is text.

Parameter

None.

Instruction

Return value will include the following, as well as the corresponding possible values:

- Source: "CH1-4"/"Math"/"FFT"
- Coupling Type: "AC coupling" /"DC couplng" /"GND coupling"
- Vert Scale: four significant digits + [space] + unit/div, Math unknown units use U/div
- Horiz Scale: four significant digits + [space] + unit/div, horizontal usually only s/div or Hz/div
- Record Length: Positive integer + [space] + points
- Acquisition Mode: "Sample mode" /"Pk Detect mode" /"Envelope mode" /"Average mode"

Example

Query waveform acquire parameters	:WFMOutpre:WFId?
Return	Source is CH1, it may return :WFMOUTPRE:WFID "Ch1, DC coupling, 20.0mV/div,

	400.0us/div, 100000 points, Sample mode" Source is Math it may return :WFMOUTPRE:WFID "Math, unknown coupling, 500.0mU/div, 400.0us/div, 100000 points, Sample mode" Source is FFT it may return :WFMOUTPRE:WFID "FFT, unknown coupling, 20.00dB/div, 1.250MHz/div, 100000 points, Sample mode"

:WFMOutpre:WFMTYPe? (Query Only)

Command Format

:WFMOutpre:WFMTYPe?

Function Description

Query the type of the returned output waveform: return "RF_FD" for RF channels, and return "ANALOG" for analog channels and math channels.

Parameter

None.

Instruction

None.

Example

Query output waveform type	:WFMOutpre:WFMTYPe?
Return	:WFMOUTPRE:WFMTYPE ANALOG

:WFMOutpre:XINcr? (Query Only)

Command Format

:WFMOutpre:XINcr?

Function Description

Query the interval between each point horizontally represents how much time, i.e., the sampling interval.

Parameter

None.

Instruction

- Source is CH1-4 or Math, it returns the time interval between each point.
- Source is FFT, the frequency difference between each point returned.

Example

Query output waveform interval time	:WFMOutpre:XINcr?
Return	Source is CH1-4 or Math, it may be return :WFMOUTPRE:XINCR 40.0000E-9 , represents an interval of 40ns/point Source is FFT, it may be return :WFMOUTPRE:XINCR 125.0000, represents an interval of 125Hz/point

:WFMOutpre:XUNit? (Query Only)

Command Format

:WFMOutpre:XUNit?

Function Description

Query the horizontal unit of the output waveform.

Parameter

None.

Instruction

None.

Return Format

- Source is CH1-4 or Math, it returns "s".
- Source is FFT, it returns "Hz".

Example

Query the horizontal unit of the output waveform	:WFMOutpre:XUNit?
Return	:WFMOUTPRE:XUNIT "s"

:WFMOutpre:XZEro? (Query Only)

Command Format

:WFMOutpre:XZEro?

Function Description

Query the time coordinate of the first data point in the complete waveform returned by the CURVe query. This time coordinate is relative to the trigger position.

Note: This refers to the position of the first point in the complete waveform. For example, if the full screen contains 1000 points, this is the time coordinate of the first point relative to the trigger position. It is independent of the **:DATA:START** and **:DATA:STOP** settings.

Parameter

None.

Instruction

None.

Return Format

- Source is CH1-4 or Math, here returns the time difference relative to the trigger position, in "s" units.
- Source is FFT, always returns 0.

Example

Query coordinate position	:WFMOutpre:XZEro?
Return	:WFMOUTPRE:XZERO 0

:WFMOutpre:YMUlt? (Query Only)

Command Format

:WFMOutpre:YMUlt?

Function Description

Query returns the vertical scaling multiplication factor used to convert the waveform data point values from the digital level to the YUNit units in the output waveform record.

Parameter

None.

Instruction

The multiplication factor is determined by the vertical position and the data width of each point.

Example

Query the vertical scale multiplication factor	:WFMOutpre:YMUlt?
Return	:WFMOUTPRE:YMULT 4.0000E-3 If width = 1, the unit is V, corresponding to the current setting should be 100mV/div. Since WIDTH=1Byte format, the full-screen waveform is divided into 250. Because the full screen is 10div, so 25 level/div, and the multiplication factor is 0.004/level, the vertical position = 0.004*25 = 0.1, that is 100mV

:WFMOutpre:YOFf? (Query Only)

Command Format

:WFMOutpre:YOFf?

Function Description

Query the position of the vertical channel.

Parameter

None.

Instruction

Return vertical position needs to be considered **:DATA:WIDTH**. If it is 1Byte, it is 25 level/div, and if it is 2Byte, it is 6400/div.

Example

Query the position of the vertical channel	:WFMOutpre:YOFf?
Return	:DATA:WIDth = 2, may return :WFMOUTPRE:YOFF -384.0000 At the position of -0.06div in the current vertical channel

:WFMOutpre:YUNit? (Query Only)

Command Format

:WFMOutpre:YUNit?

Function Description

Query vertical channel unit.

Parameter

None.

Instruction

Data source channel unit,when SOURCE is FFT it mainly returns dB.

Example

Query vertical channel unit	:WFMOutpre:YUNit?
Return	:WFMOUTPRE:YUNIT "dB"

:WFMOutpre:YZEro? (Query Only)

Command Format

:WFMOutpre:YZEro?

Function Description

Query vertical offset.

Parameter

None.

Instruction

None.

Example

Query vertical offset	:WFMOutpre:YZEro?
Return	:WFMOUTPRE:YZERO 0.0000

:WAVFrm? (Query Only)

Command Format

:WAVFrm?

Function Description

Query to simultaneously obtain waveform preset information and waveform data.

Parameter

None.

Instruction

None.

Example

Query waveform preset information and data	:WAVFrm?
Return	:WFMOUTPRE:BYT_NR 1;BIT_NR 8;ENCDG ASCII;BN_FMT RI;BYT_OR MSB;WFID "Ch1, DC coupling, 200.0mV/div, 400.0us/div, 1000 points, Sample mode";NR_PT 1000;PT_FMT Y;PT_ORDER LINEAR;XUNIT "s";XINCR 4.0000E-6;XZERO -2.0000E-3; PT_OFF 0;YUNIT "V";YMULT 8.0000E-3;YOFF -1.5000;YZERO

0.0000;DOMAIN TIME;WFMTYPE ANALOG;

CENTERFREQUENCY 0.0E+0;SPAN 0.0E+0;REFLEVEL 0.0000;

:CURVE -1,-2,-2,-6,-9,-11,-12,-16,-17,-21,-22,-25,-28,-30,-32,-33,-37,

-38,-41,-42,-44,-44,-48,-50,-50,-52,-54,-56,-57,-59,-62,-63,-65,-65,-66,

-66,-68,-70,-70,-71,-72,-72,-73,-73,-75,-74,-75,-75,-75,-77,-75,-76,-75,

-75,-75,-73,-73,-74,-73,-72,-72,-71,-69,-69,-69,-68,-66,-65,-64,-62,-62,

-60,-60,-56,-55,-55,-52,-49,-47,-47,-44,-43,-41,-39,-37,-33,-32,-30,-28,

-27,-23,-20,-18,-17,-14,-12,-9,-7,-5,-2,0,1,5,6,8,12,14,16,19,20,23,25,2

7,30,31,33,36,40,41,42,46,48,48,51,51,54,55,56,58,58,60,61,63,64,65

,67,68,70,69,71,72,71,73,72,74,74,75,74,75,75,75,74,75,76,76,76,74,

74,73,72,72,71,69,68,68,66,67,64,64,63,61,60,58,56,54,56,51,51,49,4

6,45,42,40,39,36,34,32,31,28,24,23,21,19,16,14,12,9,7,3,1,-1,-2,-4,-6,

-8,-11,-14,-16,-19,-20,-23,-24,-27,-27,-31,-34,-35,-39,-40,-41,-43,-45,

-48,-50,-51,-55,-57,-57,-58,-59,-62,-62,-64,-65,-66,-66,-67,-69,-69,-70,

-72,-71,-73,-73,-75,-75,-75,-75,-74,-76,-76,-76,-75,-75,-73,-74,-75,-73,

-72,-71,-72,-71,-72,-68,-68,-66,-66,-66,-63,-63,-63,-59,-59,-57,-54,-54,

-53,-51,-48,-47,-46,-43,-40,-38,-36,-34,-32,-30,-28,-25,-24,-22,-19,-16,

-13,-12,-9,-6,-5,-2,0,2,3,6,7,11,13,14,19,22,23,26,28,29,31,33,36,39,4

0,41,45,45,48,48,52,53,55,58,59,59,62,63,64,65,66,66,69,69,69,71,72

,72,73,73,74,74,74,74,76,75,76,76,76,76,74,74,74,74,73,72,73,71,69,

69,68,67,66,65,62,63,63,59,59,57,56,54,51,50,49,47,44,42,40,38,37,3

5,30,30,29,26,23,22,18,17,14,11,10,8,5,2,0,-2,-3,-8,-9,-13,-13,-16,-18,

-20,-23,-24,-28,-30,-31,-35,-35,-39,-41,-43,-44,-46,-48,-50,-50,-54,-55,

-56,-59,-59,-61,-63,-64,-65,-65,-69,-67,-68,-70,-70,-73,-71,-72,-73,-74,

-73,-75,-73,-74,-75,-74,-75,-74,-75,-75,-75,-74,-72,-73,-72,-70,-70,-70,

-69,-68,-67,-67,-65,-65,-61,-61,-59,-59,-55,-54,-54,-51,-50,-49,-47,-45,

-42,-39,-38,-37,-34,-32,-30,-28,-25,-25,-20,-18,-17,-15,-12,-8,-8,-6,-1,0

,1,5,8,9,12,14,17,16,20,23,26,26,30,31,33,37,39,40,42,44,47,47,50,51

,53,55,56,57,59,60,64,64,66,66,66,69,69,69,72,71,72,72,73,74,75,74,

74,75,75,75,76,75,76,74,74,74,72,74,72,72,70,70,69,69,66,66,63,64,6

2,61,60,59,56,54,53,51,50,48,46,44,42,42,39,36,34,32,31,26,25,22,21

,18,16,13,10,9,8,5,2,0,-2,-4,-5,-9,-12,-13,-17,-17,-20,-24,-25,-26,-30,-3

2,-35,-38,-38,-40,-43,-44,-47,-48,-50,-51,-54,-55,-56,-58,-59,-62,-63,-6

5,-66,-66,-67,-68,-67,-71,-72,-72,-73,-74,-72,-74,-74,-75,-77,-74,-77,-7

6,-75,-75,-75,-73,-75,-73,-74,-72,-73,-72,-71,-68,-69,-68,-67,-67,-65,-6
3,-63,-63,-59,-59,-56,-54,-53,-51,-50,-48,-46,-44,-43,-40,-38,-36,-34,-3
2,-30,-28,-26,-24,-21,-19,-16,-14,-12,-9,-9,-6,-2,0,2,3,7,9,10,14,16,18,
20,24,24,28,30,31,33,35,37,39,42,45,45,48,50,52,52,55,58,57,61,61,6
4,64,64,66,68,67,71,70,69,72,72,72,72,74,74,74,74,75,76,76,75,76,74
,73,75,74,74,73,73,72,71,69,69,68,66,67,65,64,63,59,61,57,55,55,52,
52,51,48,47,46,43,42,38,36,35,33,30,28,26,24,21,18,17,13,12,10,7,3,
2,-1,-1,-6,-6,-9,-11,-14,-16,-19,-20,-23,-25,-28,-29,-32,-34,-35,-36,-43,-
42,-44,-46,-48,-50,-50,-53,-55,-57,-58,-59,-63,-62,-63,-65,-65,-66,-67,-
68,-70,-71,-72,-72,-74,-74,-73,-75,-74,-73,-75,-75,-75,-76,-76,-75,-75,-
75,-76,-75,-74,-73,-70,-70,-70,-68,-70,-67,-65,-65,-64,-63,-61,-60,-59,-
56,-55,-54,-51,-50,-47,-48,-45,-44,-41,-37,-37,-35,-30,-30,-28,-26,-24,-
21,-18,-16,-14,-11,-9,-8,-4,-2,1,2,4,7,7,12,14,15,18,20,23,26,27,30,31,
33,36,38,40,42,44,46,47,50,50,52,56,56,58,59,61,64,63,65,64,67,68,6
8,70,72,71,72,73,74,74,74,75,74,74,75,74,76,76,75,76,75,75,73,74,73
,71,71,71,69,68,67,66,64,63,64,60,60,57,58,56,52,51,50,49,45,45,44,
42,39,34,33,31,28,27,24,22,21,19,16,14,10,8,6,4,2

2.25 Configuration Command Subsystem

Used to set the related parameters of Configuration mode.

These commands include:

- :HEADer
- :LANGuage
- :LANGuage:FORCe
- :SYSTem:WINDow:IDLEtime
- :SYSTem:BEEPer
- :SYSTem:LOCKed

:HEADer

Command Format

:HEADer {ON|OFF|<NR1>}

:HEADer?

Function Description

Query or set the header returned by SCPI commands.

Parameter

- ON: enable the return header function.
- OFF: disable the return header function.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set return header to ON	:HEADer ON
Query return header status Return	:HEADer? :HEADER 1

:LANGuage

Command Format

:LANGuage {ENGLish|SIMPlifiedchinese|TRADitionalchinese|SYNCsystem}

:LANGuage?

Function Description

Set or query language.

Note:This setting will take effect after the next restart.

Parameter

- ENGLish: English.
- SIMPlifiedchinese: Chinese.

- TRADitionalchinese: Traditional Chinese.
- SYNCsystem: Synchronizes with the system, and this item will never return.

Instruction

None.

Example

Set the current language configuration to match the system. (The change will take effect the next time the app is launched).	:LANGuage SYNCsystem
Query language Return	:LANGuage? :LANGUAGE ENGLISH

:LANGuage:FORCe

Command Format

:LANGuage:FORCe {ENGLish|SIMPlifiedchinese|TRADitionalchinese|SYNCsystem}

:LANGuage:FORCe?

Function Description

Set the language.

Parameter

- ENGLish: English.
- SIMPlifiedchinese: Chinese.
- TRADitionalchinese: Traditional Chinese.
- SYNCsystem: Synchronize with the system.

Instruction

After this setting is applied, if the current oscilloscope configuration differs from the command, the app will restart after the setting takes effect, the NIVISA connection will be interrupted, and it will need to be reconnected.

Example

Set the current language configuration to match the system. (The change will take effect the next time the app is launched).	:LANGuage:FORCe SYNCsystem
Query the language Return	:LANGuage FORCE? :LANGUAGE FORCE ENGLISH

:SYSTem:WINDow:IDLEtime

Command Format

:SYSTem:WINDow:IDLEtime {OFF|5s|10s|15s|20s|25s|30s}

:SYSTem:WINDow:IDLEtime?

Function Description

Query or set auto-close time for the window.

Parameter

- OFF: Disable this function.
- 5s|10s|15s|20s|25s|30s: Close the pop-up after the corresponding number of seconds.

Instruction

None.

Example

Set auto-close window time to OFF	:SYSTem:WINDow:IDLEtime OFF
Query auto-close window time Return	:SYSTem:WINDow:IDLEtime? :SYSTEM:WINDOW:IDLETIME OFF

:SYSTem:BEEPer

Command Format

:SYSTem:BEEPer {ON|OFF|<NR1>}

:SYSTem:BEEPer?

Function Description

Set or query beeper status.

Parameter

- ON: enable beeper.
- OFF: disable beeper.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set beeper status to ON	:SYSTem:BEEPer ON
Query beeper status Return	:SYSTem:BEEPer? :SYSTEM:BEEPER 1

:SYSTem:LOCKed

Command Format

:SYSTem:LOCKed {ON|OFF|<NR1>}

:SYSTem:LOCKed?

Function Description

Set or query lock status.

Parameter

- ON: enable lock.
- OFF: disable lock.
- <NR1> is 0 to disable this function; other values to enable this function.

Instruction

None.

Example

Set lock status to ON	:SYSTem:LOCKed ON
Query lock status Return	:SYSTem:LOCKed? :SYSTEM:LOCKED 1

2.26 Record&Replay Command Subsystem

Used to set the related parameters of Record&Replay mode.

These commands include:

- :WAVeform:RECord?
- :WAVeform:RECord:STATE
- :WAVeform:RECord:OPERate
- :WAVeform:RECord:FRAMes
- :WAVeform:RECord:FRAMes:MAX
- :WAVeform:RECord:INTerval
- :WAVeform:RECord:BEEP
- :WAVeform:RECord:PROGress?
- :WAVeform:RECord:PROGress:PERCent?
- :WAVeform:REPlay?
- :WAVeform:REPlay:ENABle?
- :WAVeform:REPlay:STATE
- :WAVeform:REPlay:STARt
- :WAVeform:REPlay:STOP
- :WAVeform:REPlay:FMAX?
- :WAVeform:REPlay:FRAMe
- :WAVeform:REPlay:INTerval
- :WAVeform:REPlay:MODE
- :WAVeform:REPlay:DIREction

:WAVeform:RECord? (Query Only)

Command Format

:WAVeform:RECord?

Function Description

Query Record current configuration.

Parameter

None.

Instruction

None.

Example

Query Record current configuration	:WAVeform:RECord?
Return	:WAVEFORM:RECORD:STATE 1;OPERATE 0;FRAMES 32500;FRAMES:MAX 32500; WAVEFORM:RECORD:INTERVAL 1.0000E-6;BEEP 1; PROGRESS 0;PROGRESS:PERCENT 100.0000

:WAVeform:RECord:STATE

Command Format

:WAVeform:RECord:STATE {ON|OFF|<NR1>}

:WAVeform:RECord:STATE?

Function Description

Set or query Record function status.

Parameter

- ON: Enable Record function.
- OFF: Disable Record function.
- <NR1> is 0 to turn off this function; other values to open this function.

Instruction

None.

Example

Set Record function status to ON	:WAVeform:RECord:STATE ON
Query Record function status Return	:WAVeform:RECord:STATE? :WAVEFORM:RECORD:STATE 1

:WAVeform:RECord:OPERate

Command Format

:WAVeform:RECord:OPERate {ON|OFF|<NR1>}

:WAVeform:RECord:OPERate?

Function Description

Query returns whether Record is recording; Set to start or stop recording.

Note: If State is OFF, setting Start will result in an error.

Parameter

- ON: enable waveform record.
- OFF: disable waveform record.
- <NR1> is 0 to turn off this function; other values to open this function.

Instruction

None.

Example

Set waveform record to ON	:WAVeform:RECord:OPERate ON
Query waveform record status Return	:WAVeform:RECord:OPERate? :WAVEFORM:RECORD:OPERATE 1

:WAVeform:RECord:FRAMes

Command Format

:WAVeform:RECord:FRAMes {MAX|<NR1>}

:WAVeform:RECord:FRAMes?

Function Description

Query or set the number of frames for waveform record.

Parameter

- MAX: Set the number of frames to the maximum.
- <NR1>: an integer that sets the number of frames for waveform recording to the specified value, with a range of: 2~MAX.

Instruction

None.

Example

Set the number of frames for waveform record to 100	:WAVeform:RECord:FRAMes 100
Query the number of frames for waveform record Return	:WAVeform:RECord:FRAMes? :WAVEFORM:RECORD:FRAMES 100

:WAVeform:RECord:FRAMes:MAX

Command Format

:WAVeform:RECord:FRAMes:MAX

:WAVeform:RECord:FRAMes:MAX?

Function Description

Query or set the maximum frames of waveform record.

Parameter

None.

Instruction

None.

Example

Set the waveform record frame to maximum	:WAVeform:RECord:FRAMes:MAX
Query the waveform record maximum frame Return	:WAVeform:RECord:FRAMes:MAX? :WAVEFORM:RECORD:FRAMES 32500

:WAVeform:RECord:INTerval

Command Format

:WAVeform:RECord:INTerval <NR3>

:WAVeform:RECord:INTerval?

Function Description

Query or set the waveform record interval time.

Parameter

<NR3>: Interval time for each frame of waveform recording, unit is s.

Instruction

None.

Example

Set the waveform record interval time to 1ms	:WAVeform:RECord:INTerval 1E-3
Query the waveform record interval time Return	:WAVeform:RECord:INTerval? :WAVEFORM:RECORD:INTERVAL 1.0000E-3

:WAVeform:RECord:BEEP

Command Format

:WAVeform:RECord:BEEP {ON|OFF|<NR1>}

:WAVeform:RECord:BEEP?

Function Description

Query or set the waveform record end tone switch status.

Parameter

- ON: enable end sound.
- OFF: disable end sound.
- <NR1> is 0 to turn off this function; other values to open this function.

Instruction

None.

Example

Set waveform record end sound to ON	:WAVeform:RECord:BEEP ON
Query waveform record end sound status Return	:WAVeform:RECord:BEEP? :WAVEFORM:RECORD:BEEP 1

:WAVeform:RECord:PROGress? (Query Only)

Command Format

:WAVeform:RECord:PROGress?

Function Description

Query current waveform record progress.

Parameter

None.

Instruction

None.

Example

Query current waveform record progress	:WAVeform:RECord:PROGress?
Return	:WAVEFORM:RECORD:PROGRESS 100

:WAVeform:RECord:PROGress:PERCent? (Query Only)

Command Format

:WAVeform:RECord:PROGress:PERCent?

Function Description

Query percentage of current waveform record progress.

Parameter

None.

Instruction

None.

Example

Query percentage of current waveform record progress	:WAVeform:RECord:PROGress:PERCent?
Return	:WAVEFORM:RECORD:PROGRESS:PERCENT 50.0

:WAVeform:REPlay? (Query Only)

Command Format

:WAVeform:REPlay?

Function Description

Query the current playback configuration.

Parameter

None.

Instruction

None.

Example

Query the current playback configuration	:WAVeform:REPlay?
Return	:WAVEFORM:REPLAY:ENABLE 1;STATE PAUSE;START 1; STOP 32500;FMAX 32500;FRAME 0;INTERVAL 1.0000E-6;

MODE SINGLE;DIRECTION FORWARD

:WAVeform:REPlay:ENABle? (Query Only)

Command Format

:WAVeform:REPlay:ENABle?

Function Description

Query whether the current waveform playback is available.

Parameter

None.

Instruction

None.

Example

Query whether the current waveform playback is available	:WAVeform:REPlay:ENABle?
Return	:WAVEFORM:REPLAY:ENABLE 1

:WAVeform:REPlay:STATE

Command Format

:WAVeform:REPlay:STATE {PLAY|PAUSE}

:WAVeform:REPlay:STATE?

Function Description

Query or set current playback status.

Parameter

- PLAY: start.
- PAUSE: stop.

Instruction

None.

Example

Set waveform status to playback	:WAVeform:REPlay:STATE PLAY
Query waveform playback status Return	:WAVeform:REPlay:STATE? :WAVEFORM:REPLAY:STATE PLAY

:WAVeform:REPlay:STARt

Command Format

:WAVeform:REPlay:STARt <NR1>

:WAVeform:REPlay:STARt?

Function Description

Query or set the start frame of playback.

Parameter

<NR1>: Start frame of playback, starting from 1.

Instruction

None.

Example

Set playback start frame to 10	:WAVeform:REPlay:STARt 10
Query playback start frame Return	:WAVeform:REPlay:STARt? :WAVEFORM:REPLAY:START 10

:WAVeform:REPlay:STOP

Command Format

:WAVeform:REPlay:STOP <NR1>

:WAVeform:REPlay:STOP?

Function Description

Query or set the end frame of playback.

Parameter

<NR1>: End frame of playback.

Instruction

None.

Example

Set playback end frame to 100	:WAVeform:REPlay:STOP 100
Query playback end frame Return	:WAVeform:REPlay:STOP? :WAVEFORM:REPLAY:STOP 100

:WAVeform:REPlay:FMAX? (Query Only)

Command Format

:WAVeform:REPlay:FMAX?

Function Description

Query the maximum frame of playback.

Parameter

None.

Instruction

None.

Example

Query the maximum frame of playback	:WAVeform:REPlay:FMAX?
Return	:WAVEFORM:REPLAY:FMAX 100

:WAVeform:REPlay:FRAMe

Command Format

:WAVeform:REPlay:FRAMe {PREV|NEXT|FIRST|LAST|<NR1>}

:WAVeform:REPlay:FRAMe?

Function Description

Query or set the current frame of playback

Note: If less than the start frame, it is set to the start frame, and if greater than the end frame, it is set to the end frame.

Parameter

- PREV: previous frame.
- NEXT: next frame.
- FIRST: first frame.
- LAST: last frame.
- <NR1>: Set the specific frame number to the current frame.

Instruction

None.

Example

Set current playback frame to next frame	:WAVeform:REPlay:FRAMe NEXT
Query current playback frame Return	:WAVeform:REPlay:FRAMe? :WAVEFORM:REPLAY:FRAME 2

:WAVeform:REPlay:INTerval

Command Format

:WAVeform:REPlay:INTerval <NR3>

:WAVeform:REPlay:INTerval?

Function Description

Query or set the interval time for playback.

Parameter

<NR3>: Interval time for each frame of waveform playback, unit is s.

Instruction

None.

Example

Set playback interval time to 1ms	:WAVeform:REPlay:INTerval 1E-3
Query playback interval time	:WAVeform:REPlay:INTerval?

Return	:WAVEFORM:REPLAY:INTERVAL 1.0000E-3

:WAVeform:REPlay:MODE

Command Format

:WAVeform:REPlay:MODE {REPeat|SINGle}

:WAVeform:REPlay:MODE?

Function Description

Query or set playback mode, which includes loop playback and single playback.

Parameter

- REPeat: loop playback.
- SINGle: single playback.

Instruction

None.

Example

Set playback mode to single	:WAVeform:REPlay:MODE SINGle
Query playback mode Return	:WAVeform:REPlay:MODE? :WAVEFORM:REPLAY:MODE SINGLE

:WAVeform:REPlay:DIREction

Command Format

:WAVeform:REPlay:DIREction {FORWard|REVerse}

:WAVeform:REPlay:DIREction?

Function Description

Query or set the playback direction, forward playback or reverse playback.

Parameter

- FORWard: forward playback.
- REVerse: reverse playback.

Instruction

None.

Example

Set playback direction to reverse	:WAVeform:REPlay:DIREction REVerse
Query playback direction Return	:WAVeform:REPlay:DIREction? :WAVEFORM:REPLAY:DIRECTION REVERSE

2.27 Waveform Clone Command Subsystem

Used to set the related parameters of Waveform Clone mode.

These commands include:

- :WFMClone?
- :WFMClone EXECute
- :WFMClone:STATE
- :WFMClone:VBArs
- :WFMClone:VBArs?
- :WFMClone:VBArs:POSITION<x>
- :WFMClone:VBArs:DIVISION<x>
- :WFMClone:VBArs:VDELTa?
- :WFMClone:DOTs?
- :WFMClone:SOURCE<x>
- :WFMClone:WAV<x>?
- :WFMClone:WAV<x>
- :WFMClone:WAV<x>:LABel
- :WFMClone:WAV<x>:DATE?
- :WFMClone:WAV<x>:TIMe?
- :WFMClone:WAV<x>:OUTPut?

:WFMClone? (Query Only)

Command Format

:WFMClone?

Function Description

Query the related parameters of waveform clone function.

Parameter

None.

Instruction

None.

Example

Query the related parameters of waveform clone function	:WFMClone?
Return	:WFMCLONE:STATE 0;VBARS:POSITION1 4.0000E-3;POSITION2 -4.0000E-3;VDELTA 8.0000E-3;:WFMCLONE:DOTS 4000;SOURCE1 CH1;SOURCE2 CH2;WAV0 WAV0:LABEL "waveform0";DATE 1970/01/01;TIME 08:00:00;OUTPUT CH1-Null,CH2-Null;WAV1 WAV1:LABEL "waveform1";DATE 1970/01/01;TIME 08:00:00;OUTPUT CH1-Null,CH2-Null;WAV2 WAV2:LABEL "waveform2";DATE 1970/01/01;TIME 08:00:00;OUTPUT CH1-Null,CH2-Null;WAV3 WAV3:LABEL "waveform3";DATE 1970/01/01;TIME 08:00:00;OUTPUT CH1-Null,CH2-Null

:WFMClone EXECute (No Query Form)

Command Format

:WFMClone EXECute

Function Description

Execute waveform clone function.

Parameter

EXECute: Execute waveform clone function.

Instruction

None.

Example

Execute waveform clone function	:WFMClone EXECute

:WFMClone:STATE

Command Format

:WFMClone:STATE {ON|OFF|<NR1>}

:WFMClone:STATE?

Function Description

Set or query waveform clone function status.

Parameter

- ON: enable waveform clone function.
- OFF: disable waveform clone function.
- <NR1> is 0 to turn off this function; other values to open this function.

Instruction

None.

Example

Set waveform clone function status to ON	:WFMClone:STATE ON
Query waveform clone function status Return	:WFMClone:STATE? :WFMCLONE:STATE 1

:WFMClone:VBArs (No Query Form)

Command Format

:WFMClone:VBArs SCREEN

Function Description

Set the positions of X1 and X2 to the far left and far right of the screen, i.e., select full screen.

Parameter

SCREEN: X-axis full screen.

Instruction

None.

Example

Set X-axis full screen	:WFMClone:VBArs SCREEN

:WFMClone:VBArs? (Query Only)

Command Format

:WFMClone:VBArs?

Function Description

Query X-axis information of waveform clone.

Parameter

None.

Instruction

None.

Example

Query X-axis information of waveform clone	:WFMClone:VBArs?
Return	:WFMCLONE:VBARS:POSITION1 45.0000E-3;POSITION2 -44.9000E-3;VDELTA 89.9000E-3

:WFMClone:VBArs:POSITION<x>

Command Format

:WFMClone:VBArs:POSITION<x> <NR3>

:WFMClone:VBArs:POSITION<x>?

Function Description

Query or set the position of the X1 axis or X2 axis for the waveform clone function.

Parameter

- <NR3>: X1 or X2 value, default unit is s.

Instruction

None.

Example

Set X1 axis position to 1ms	:WFMClone:VBArs:POSITION1 1.0000E-3
Query X1 axis position Return	:WFMClone:VBArs:POSITION1? :WFMCLONE:VBARS:POSITION1 1.0000E-3

:WFMClone:VBArs:DIVISION<x>

Command Format

:WFMClone:VBArs:DIVISION<x> <NR3>

:WFMClone:VBArs:DIVISION<x>?

Function Description

Query or set the position of the X1 axis or X2 axis for the waveform clone function.

Parameter

- <NR3>: X1 or X2 value, default unit is div.

Instruction

None.

Example

Set X1 axis position to 5div	:WFMClone:VBArs:DIVISION1 5.0
Query X1 axis position Return	:WFMClone:VBArs:DIVISION1? :WFMCLONE:VBARS:DIVISION1 5.0

:WFMClone:VBArs:VDELTa? (Query Only)

Command Format

:WFMClone:VBArs:VDELTa?

Function Description

Query X-axis difference (X2-X1).

Parameter

None.

Instruction

None.

Example

Query X-axis difference	:WFMClone:VBArs:VDELTa?
Return	:WFMCLONE:VBARS:VDELTA 69.9000E-3

:WFMClone:DOTs? (Query Only)

Command Format

:WFMClone:DOTs?

Function Description

Query number of points in X-axis range.

Parameter

None.

Instruction

None.

Example

Query number of points in X-axis range	:WFMClone:DOTs?
Return	:WFMCLONE:DOTS 699

:WFMClone:SOURCE<x>

Command Format

:WFMClone:SOURCE<x> {CH1|CH2|CH3|CH4|NULL}

:WFMClone:SOURCE<x>?

Function Description

Query or set the source output to AG CH1 or CH2.

Parameter

- CH1~4: Channel 1~4
- NULL: This AG channel does not clone.

Instruction

None.

Example

Set the oscilloscope source selection for output to AG CH2 to null	:WFMClone:SOURCE2 NULL
Query output to source of AG CH2 Return	:WFMClone:SOURCE2? :WFMCLONE:SOURCE2 NULL

:WFMClone:WAV<x>? (Query Only)

Command Format

:WFMClone:WAV<x>?

Function Description

Query parameter information of WAV<x>.

Parameter

None.

Instruction

None.

Example

Query parameter information of WAV0	:WFMClone:WAV0?
Return	:WFMCLONE:WAV0:LABEL "waveform0"; DATE 2025/05/15;TIME 08:46:14;OUTPUT CH1-Saved, CH2-Saved

:WFMClone:WAV<x> (No Query Form)

Command Format

:WFMClone:WAV<x> {SAVE|RECAll}

Function Description

Set to save data to WAV<x> or call stored data for output.

Parameter

- SAVE: Save the current configuration and data to WAV<x>.
- RECAll: Retrieve data from WAV<x> and output it to AG.

Instruction

None.

Example

Set the current configuration and data to WAV1	:WFMClone:WAV1 SAVE

:WFMClone:WAV<x>:LABel

Command Format

:WFMClone:WAV<x>:LABel <QString>

:WFMClone:WAV<x>:LABel?

Function Description

Query or set the name of WAV<x>. If setting when no data is saved, an error will occur.

Parameter

<QString>: **Name**.

Instruction

None.

Example

Set WAV0’s Name to ABC	:WFMClone:WAV0:LABel waveform0
Query WAV0’s Name Return	:WFMClone:WAV0:LABel? :WFMCLONE:WAV0:LABEL "waveform0"

:WFMClone:WAV<x>:DATE? (Query Only)

Command Format

:WFMClone:WAV<x>:DATE?

Function Description

Query data save date.

Parameter

None.

Instruction

None.

Example

Query WAV0’s data save date	:WFMClone:WAV0:DATE?
Return	:WFMCLONE:WAV0:DATE 2025/05/15

:WFMClone:WAV<x>:TIMe? (Query Only)

Command Format

:WFMClone:WAV<x>:TIMe?

Function Description

Query data save time.

Parameter

None.

Instruction

None.

Example

Query WAV0’s data save time	:WFMClone:WAV0:TIMe?
Return	:WFMCLONE:WAV0:TIME 08:46:14

:WFMClone:WAV<x>:OUTPut? (Query Only)

Command Format

:WFMClone:WAV<x>:OUTPut?

Function Description

Query whether the stored wave channel has data.

Parameter

None.

Instruction

- Whether CH1 and CH2 have data respectively, in the format: "CH1-Saved,CH2-Null".
- Data is displayed as "Saved", no data is displayed as "Null".

Example

Query is there data in WAV0	:WFMClone:WAV0:OUTPut?
Return	:WFMCLONE:WAV0:OUTPUT CH1-Saved,CH2-Saved

2.28 ZOOm Command Subsystem

Used to set the related parameters of the zoom function.

These commands include:

- :ZOOm?
- :ZOOm{:MODe|:STATE}
- :ZOOm:FACtor?
- :ZOOm:TRIGPOS
- :ZOOm:SCALe
- :ZOOm:POSition

:ZOOm? (Query Only)

Command Format

:ZOOm?

Function Description

Query returns the following Zoom mode parameters:

- Zoom mode switch status
- Zoom window time base scale
- Zoom window horizontal position
- Magnification ratio

Parameter

None.

Instruction

None.

Example

Query current zoom mode parameters	:ZOOm?
Return	:ZOOM:MODE 1;SCALE 200.0000E-6;POSITION 28.0400;FACTOR 5.0000

:ZOOm{:MODe|:STATE}

Command Format

:ZOOm{:MODe|:STATE} {ON|OFF|<NR1>}

:ZOOm{:MODe|:STATE}?

Function Description

Set or query the zoom mode status.

Parameter

- ON: Enter zoom mode.

- OFF: Exit zoom mode.
- <NR1> is 0, exit zoom mode; other values enter zoom mode.

Instruction

- Return "0" indicates exit zoom mode.
- Return "1" indicates enter zoom mode.

Example

Set exit zoom mode	:ZOOm:MODe OFF
Query zoom mode status	:ZOOm:MODe?
Return	:ZOOM:MODE 0

:ZOOm:FACtor? (Query Only)

Command Format

:ZOOm:FACtor?

Function Description

Query the returns magnification.

Parameter

None.

Instruction

Magnification is always an integer multiple, with the maximum value is 1000.

Example

Query current magnification	:ZOOm:FACtor?
Return	:ZOOM:FACTOR 5.0

:ZOOm:TRIGPOS

Command Format

:ZOOm:POSition:TIME <NR3>

:ZOOm:TRIGPOS?

Function Description

Set or query the time difference between the horizontal center position of the zoom window and the trigger position of the main window.

Parameter

None.

Instruction

Set horizontal trigger position offset time in seconds.

Example

Set the time difference between the center point of the zoom window and the horizontal trigger position to 300us	:ZOOm:TRIGPOS 0.0003
Query time difference Return	:ZOOm:TRIGPOS? :ZOOM:TRIGPOS 20.0000E-9

:ZOOm:SCALe

Command Format

:ZOOm:SCALe <NR3>

:ZOOm:SCALe?

Function Description

Set or query the time base scale in zoom window.

Parameter

Name	Type	Range	Default value
<NR3>	Float	See Instruction	---

Instruction

Float type value, the range of values may vary depending on different models and different main time base scale , with the maximum equal to the main time base scale and the minimum possibly reaching 1/1000 of the main time base. After issuing the command, it will select the scale closest to the parameter for setting.

Example

Set the zoom time base scale to 2us/div	:ZOOm:SCALe 2E-6
Query time difference Return	:ZOOm:SCALe? :ZOOM:SCALE 2.0000E-6

:ZOOm:POSition

Command Format

:ZOOm:POSition <NR3>

:ZOOm:POSition?

Function Description

Set or query horizontal position of zoom.

Parameter

Name	Type	Range	Default value
<NR3>	Float	See Instruction	---

Instruction

Specify horizontal position as a percentage of the upper window.

Example

Set horizontal position of zoom to 50.0%	:ZOOm:POSition 50.0
Query horizontal position of zoom Return	:ZOOm:POSition? :ZOOM:POSITION 50.0