Programming Manual

2560B Series
Digital Storage and Mixed Signal Oscilloscopes



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BK PRECISION

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About Commands & Queries

This section lists and describes the remote control commands and queries recognized by the instrument. All commands and queries can be executed in either local or remote state.

The description, command syntax, query syntax, example and respond can be found in a section. The commands are given in both long and short form. All examples are shown in short form. Queries perform actions such as obtaining information are recognized by the question mark (?) following the header.

1.1 How They are Listed

The commands are listed by subsystem and alphabetical order according to their short form.

1.2 How They are Described

In the descriptions themselves, a brief explanation of the function performed is given. This is followed by a presentation of the formal syntax, with the header given in Upper-and-Lower-Case characters and the short form derived from it in ALL UPPER-CASE characters. Where applicable, the syntax of the query is given with the format of its response.

1.3 When can they be used?

The commands and queries listed here can be used for 2560B Series Digital Storage and Mixed Signal Oscilloscope.

1.4 Command Notation

The following notation is used in the commands:

< > Angular brackets enclose words that are used as placeholders, of which there are two types: the header path and the data parameter of a command.

:= A colon followed by an equals sign separates a placeholder from the description of the type and range of values that may be used in a command instead of the placeholder.

{ } Braces enclose a list of choices, one of which one must be made.

[ ] Square brackets enclose optional items.

... An ellipsis indicates that the items both to its left and right may be repeated a number of times.

Common Command Introduction

The IEEE 488.2 standard defines the common commands used for querying the basic inSyntaxion of the instrument or executing basic operations. These commands usually start with "*" and the length of the keywords of the command is usually 3 characters.

Short	Long Form	Subsystem	What Command/Query does
*IDN?	*IDN?	SYSTEM	Returns a string that uniquely identifies the instrument.
*OPC	*OPC	SYSTEM	Generates the OPC message in the standard event status register when all pending overlapped operations have been completed.
*OPC?	*OPC?	SYSTEM	Returns an ASCII "+1" when all pending overlapped operations have been completed.
*RST	*RST	SYSTEM	Initiates a device reset.

Table 2.1

2.1 *IDN?

Description The *IDN? query causes the instrument to identify itself. The response comprises manufacturer, model, serial number, software version and firmware version.

Query Syntax *IDN?

Response Syntax *IDN, <device id>,<model>,<serial number>,<Uboot-OS version><software version>, <hardware version>.

<device id>:=“BK” is used to identify instrument.

<model>:= A model identifier less than 14 characters will contain the model number.

<serial number>:= Each product has its own number, the serial number can labeled product uniqueness.

<Uboot-OS version>:= The Uboot-OS revision of the instument.

<software version>:= A serial numbers about software version.

Example *IDN?

Returns: BK Precision,2569B-MSO,XXXXXXXXXXXXXX,5.0.1.3.9R3

2.2 *OPC

Description The operation complete command causes the device to generate the operation complete message in the Standard Event Status Register, on completion of the selected device operation.
The operation complete query places an ASCII character 1 in the output queue on completion of the selected device operation.

Command Syntax *OPC

Query Syntax *OPC?

Ecample OUTP:STAT 1;*OPC

Response Syntax 1

2.3 *RST

Description The *RST command initiates a device reset. The *RST recalls the default setup equivalent to the **Default** key on the front panel..

Command Syntax *RST

Example *RST

Related Commands :RECall:FDEFault
:RECall:SETup
:SAVE:DEFault
:SAVE:SETup

Root(:) Commands

The Root commands query the basic information of an instrument or performing common basic operations. These commands are only located at the root of the command tree, with no next level and no parameters.



3.1 AUToset

Description Automatically adjust the trigger, vertical, and horizontal controls of the oscilloscope to deliver a usable display of the input signal. Autoset is not recommended for use on low frequency events (< 100 Hz).

Command Syntax AUToset

Examlpe AUT

3.2 PRINt

Description Captures the screen and returns the data of the selected file.

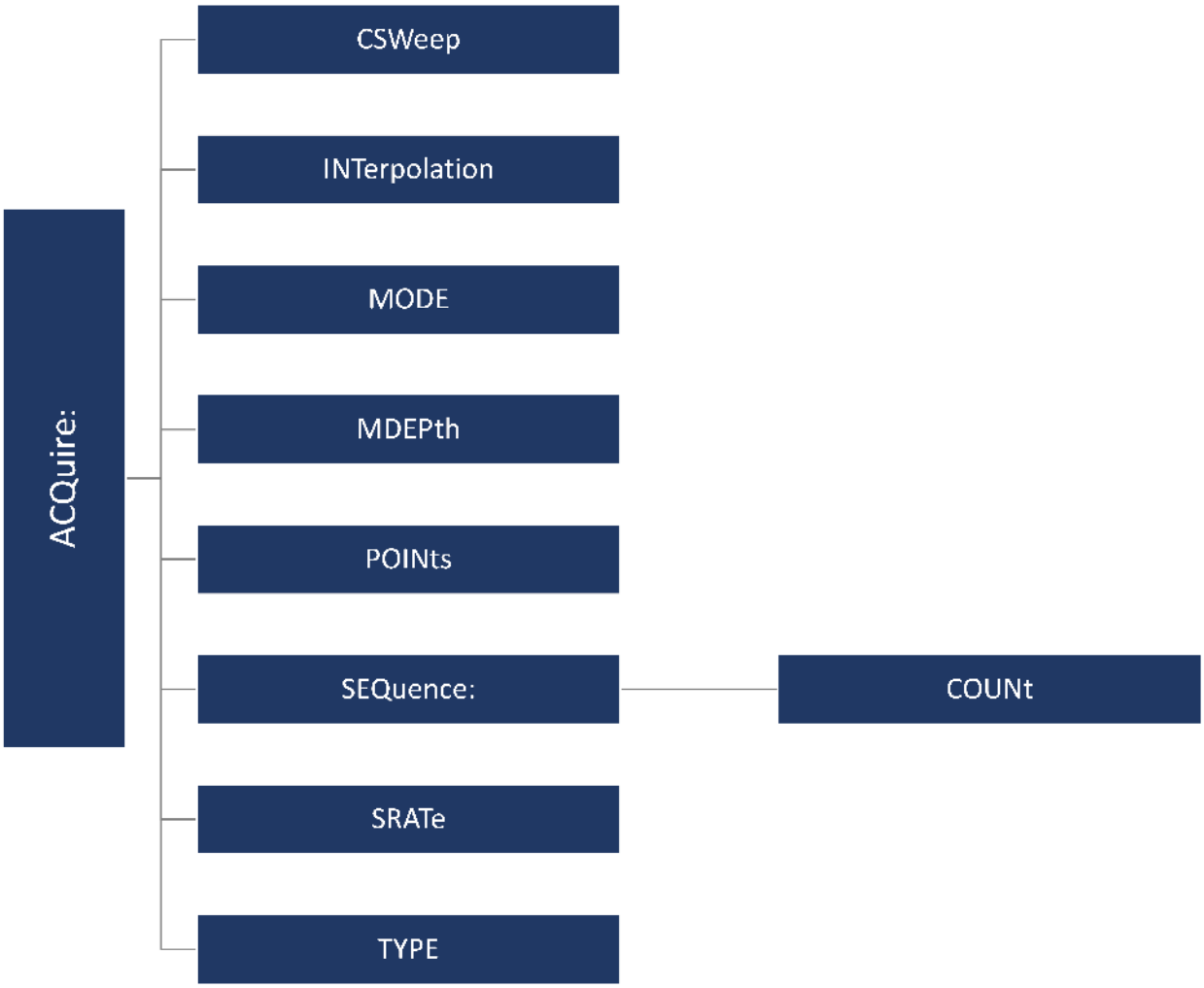
Query Syntax :PRINT? <type>
<type>:= {BMP | PNG}

- **BMP**: Selects bitmap format
- **PNG**: Selects Portable Network Graphics format

Example PRIN? BMP
PRIN? PNG

Acquire Commands

The **ACQuire** subsystem commands control the way in which waveforms are acquired. These commands set the parameters for acquiring and storing data.



4.1 ACQuire:AMODe

Description Writes and reads the rate of waveform capture. This command can provide a high-speed waveform capture rate to help capture signal anomalies.

Command Syntax ACQuire:AMODe <rate>
<rate>:= {FAST |SLOW}

- FAST selects fast waveform capture
- SLOW selects slow waveform capture

Query Format ACQuire:AMODe?

Example :ACQ:AMOD FAST
ACQ:AMOD?

Query Respond Returns: FAST

4.2 ACQuire:CSWeep

Description Clears the sweep and restarts the acquisition. It is equivalent to the **Clear Sweeps** key on the front panel.

Command Syntax ACQuire:CSWeep

Example ACQ:CSW

4.3 ACQuire:INTerpolation

Description Writes and reads the method of interpolation.

Command Syntax ACQuire:INTerpolation <state>
<state>:= {ON | OFF}

- ON selects sinx/x (sinc) interpolation
- OFF selects linear(x) interpolation

Query Format ACQuire:INTerpolation?

Example ACQ:INT ON
ACQ:INT?

Query Respond Returns: ON

4.4 ACQuire:MODE

Description Writes and reads the acquisition mode of the oscilloscope.

Command Syntax ACQuire:MODE <mode_type>
<mode_type>:= {YT | XY | ROLL}

- YT mode plots amplitude (Y) vs. time (T)
- XY mode plots channel X vs. channel Y, commonly referred to as a Lissajous curve
- Roll mode plots amplitude (Y) vs. time (T) as in YT mode, but begins to write the waveforms from the right-hand side of the display. This is similar to a "strip chart" recording and is ideal for slow events that happen a few times/second.

Query Format ACQuire:MODE?

Example ACQ:MODE YT
ACQ:MODE?

Query Respond Returns: YT

4.5 ACQuire:MDEPth

Description Write and read the maximum memory depth.

Command Syntax ACQuire:MDEPth <memory_size>
<memory_size Single Channel>:={20k | 200k | 2M | 20M | 200M}
<memory_size Dual Channel>:={10k | 100k | 1M | 10M | 100M}

- Single Channel Mode: Only one of C1/C2 is turned on, and only one of C3/C4 is turned on.
- Dual-Channel Mode: Both C1/C2 are turned on, or both C3/C4 are turned on.
- Turn on digital channels or set the acquisition type to AVERage/ERES or set the acquisition mode to ROLL, will limit the memory depth.

Query Format ACQuire:MDEPth?

Example ACQ:MDEP 200M
ACQ:MDEP?

Query Respond Returns: 200M

Related Commands **ACQuire:MODE**
ACQuire:TYPE
DIGital

4.6 ACQuire:POINts

Description Returns the number of sampled points of the current waveform on the screen.

Query Format ACQuire:POINts?

Example ACQ:POIN?

Query Respond Returns: <point>:= Value in NR3 format, including a decimal point and exponent.
1.25E+08

4.7 ACQuire:SEQuence

Description Write or read the sequence acquisition mode.

Command Syntax ACQuire:SEQuence <state>
<state>:= ON | OFF

Query Format ACQuire:SEQuence?

Example ACQ:SEQ ON
ACQ:SEQ?

Query Respond Returns: ON

4.8 ACQuire:SEQuence:COUNt

Description Write or read the number of memory segments to acquire. The maximum number of segments may be limited by the memory depth of your oscilloscope.

Command Syntax :ACQuire:SEQuence:COUNt <count>
<count>:= Value in NR1 format, including an integer and no decimal point.

Note:

The range of the value varies from the models and the current timebase, see the user manual for details.

Query Format ACQuire:SEQuence:COUNt?

Example ACQ:SEQ:COUN? 5
ACQ:SEQ:COUN?

Query Respond <count_value>:= Value in NR1 format, including an integer and no decimal point.
Returns: 5

4.9 ACQuire:SRATe

Description Returns the current sampling rate.

Query Format ACQuire:SRATe?

Example ACQ:SRAT?

Query Respond <sample_rate>:= Value in NR3 format, including a decimal point and exponent.
Returns: 1.23E+2.

4.10 ACQuire:TYPE

Description Write or read the type of data acquisition that is to take place.

Command Syntax :ACQuire:TYPE <type>
<type>:= {NORMal | PEAK | AVERage[,<times>] | ERES[,<bits>]}
<times>:= {4 |16 |32 |64 |128 |256 |512 |1024}
<bits>:= {0.5 | 1.0 | 1.5 | 2.0 | 2.5 |3.0}

- NORMal sets the oscilloscope to normal mode.
- PEAK sets the oscilloscope to peak detect mode.
- AVERage sets the oscilloscope acquisition to averaging mode. You can set the number of averages by sending the command followed by a numeric integer value <times>.
- ERES sets the oscilloscope to the enhanced resolution mode. This is essentially a digital boxcar filter and is used to reduce noise at slower sweep speeds. You can set the enhanced bits by sending the command followed by the <bits>

Note:

The AVERage | ERES type is not available when in sequence mode (**ACQuire:SEQuence ON**).

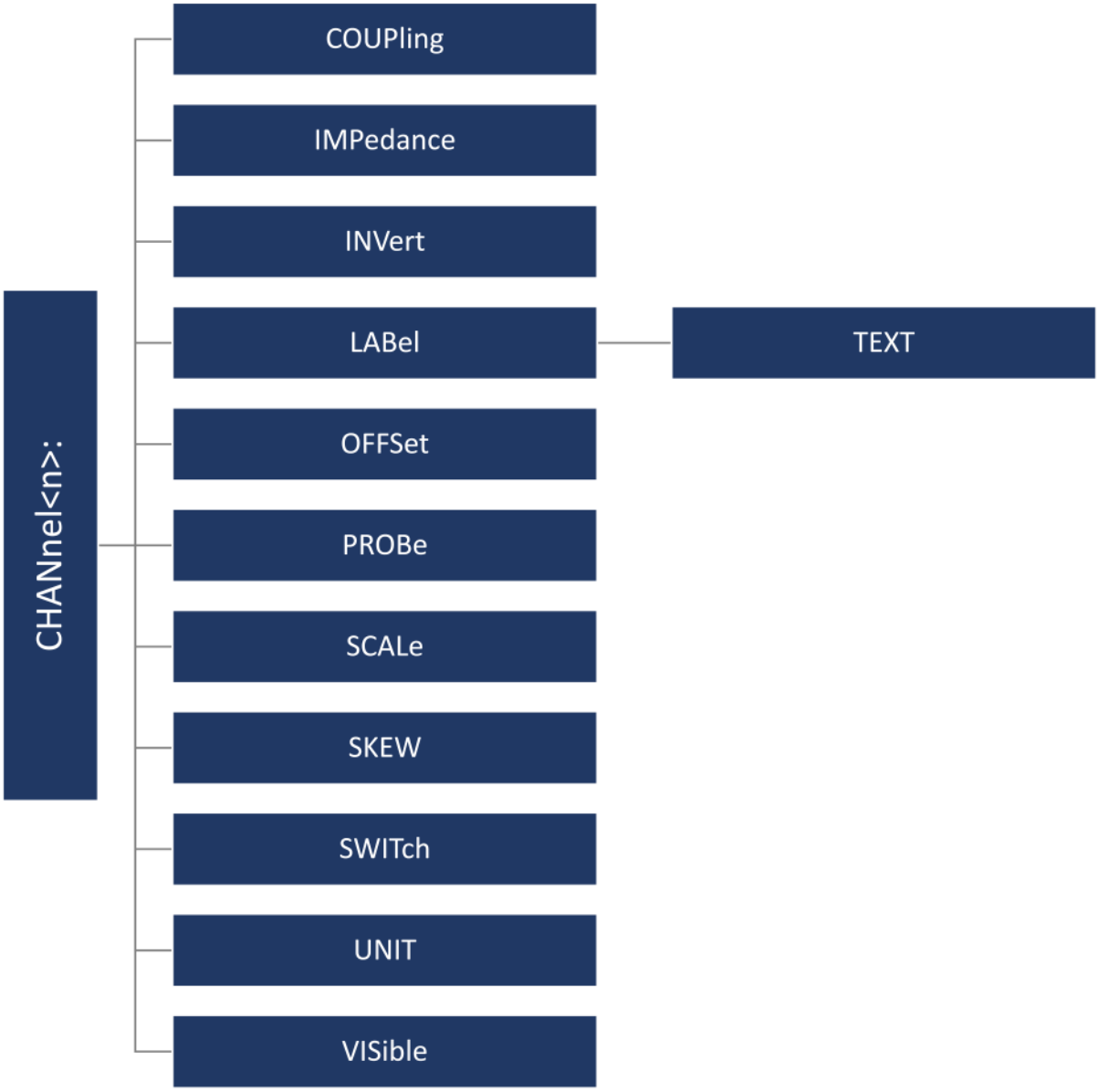
Query Format ACQuire:TYPE?

Example ACQuire:TYPE AVER,16
ACQ:TYPE?

Query Respond Returns: AVERage,16

Channel Commands

The **CHANnel<n>** subsystem commands control the analog channels. Channels are independently programmable for offset, probe, coupling, bandwidth limit, inversion, and more functions. The channel index (1, 2, 3, or 4) specified in the command selects the analog channel that is affected by the command.



5.1 CHANnel<n>:BWLimit

Description Write or read the state of the bandwidth-limiting low-pass filter. If the bandwidth filter is on, it will filter the signal to reduce noise and other unwanted high frequency components. When the filter is on, the bandwidth of the specified channel is limited to approximately 20 MHz or 200 MHz.

Command Syntax CHANnel<n>:BWLimit <bwlimit>
<n>:= 1 to 4 in NR1 format, including an integer and no decimal point.
<bwlimit>:= {FULL | 20M | 200M}

- FULL sets the oscilloscope bandwidth to full.
- 20M enables the 20 MHz bandwidth filter.
- 200M enables the 200 MHz bandwidth filter.

Query Format CHANnel<n>:BWLimit?

Example
```
CHAN1:BWL 20M
CHAN1:BWL?
```

Query Respond Returns: 20M

5.2 CHANnel<n>:COUPling

Description Write or read the coupling mode of the specified input channel.

Command Syntax CHANnel<n>:COUPling <coupling_mode>
<n>:= 1 to 4 in NR1 format, including an integer and no decimal point.
<coupling_mode>:= {DC | AC | GND}

- DC sets the channel coupling to DC.
- AC sets the channel coupling to AC.
- GND sets the channel coupling to Ground.

Query Format CHANnel<n>:COUPling?

Example
```
CHAN1:COUP AC
CHAN1:COUP?
```

Query Respond Returns: AC

5.3 CHANnel<n>:IMPedance

Description Write or read the input impedance of the selected channel. There are two impedance values available, 1 MOhm and 50.

Command Syntax CHANnel<n>:IMPedance <impedance>
<n>:= 1 to 4 in NR1 format, including an integer and no decimal point.
<impedance>:= {ONEMeg | FIFTy}

- ONEMeg means 1 Mohm.
- FIFTy means 50 ohm.

Note:

When set to FIFTy, the range of legal values set by the CHAN<n>:SCAL commands is limited to less than 1 V.

Query Format CHANnel<n>:IMPedance?

Example
```
CHAN2:IMP ONEM
CHAN2:IMP?
```

Query Respond Returns: ONEMeg

5.4 CHANnel<n>:INVert

Description Write or read the state of the mathematical invert for the specified channel. This is a mathematical operation and does not change the polarity of the input signal with reference to ground.

Command Syntax :CHANnel<n>:INVert <state>
<n>:= 1 to 4 in NR1 format, including an integer and no decimal point.
<state>:= {ON | OFF}

- ON enables channel inversion.
- Off disables channel inversion.

Query Format CHANnel<n>:INVert?

Example
```
CHAN2:INV ON
CHAN2:INV?
```

Query Respond Returns: ON

5.5 CHANnel<n>:LABel

Description Write or read the state of the specified channel label.

Command Syntax CHANnel<n>:LABel <state>
<n>:= 1 to 4 in NR1 format, including an integer and no decimal point.
<state>:= {ON | OFF}

- ON enables the channel label.
- OFF disables the channel label.

Query Format CHANnel<n>:LABel?

Example
```
CHAN1:LAB ON
CHAN1:LAB?
```

Query Respond Returns: ON

5.6 CHANnel<n>:LABel:TEXT

Description Write or the selected channel's label. Setting a label for a channel also adds the name to the label list in non-volatile memory (replacing the oldest label in the list

Command Syntax CHANnel<n>:LABel:TEXT <qstring>
<n>:= 1 to 4 in NR1 format, including an integer and no decimal point.
<qstring>:= Quoted string of ASCII text. The length of the string is limited to 20.

Note:

All characters will be automatically converted to uppercase.

Query Format CHANnel<n>:LABel:TEXT?

Example
```
CHAN2:LAB:TEXT "VIN"
CHAN2:LAB:TEXT?
```

Query Respond Returns: VIN

Related Commands **CHANnel<n>:LABel**

5.7 CHANnel<n>:OFFSet

Description Write or read the vertical offset of the specified input channel. The maximum ranges depend on the fixed sensitivity setting.

Command Syntax CHANnel<n>:OFFSet <offset_value>
<n>:= 1 to 4 in NR1 format, including an integer and no decimal point, like 1.
<offset_value>:= Value in NR3 format, including a decimal point and exponent.

Note:

The range of legal values varies with the value set by the **CHANnel<n>:SCALe** commands.

Query Format CHANnel<n>:OFFSet?

Example CHAN1:OFFS -3.8E+00
CHAN1:OFFS?

Query Respond Returns: -3.8E+00

Related Commnads **CHANnel<n>:SCALe**

5.8 CHANnel<n>:PROBe

Description Write or read the probe attenuation factor for the selected channel. This command does not change the actual input sensitivity of the oscilloscope. It changes the reference constants for scaling the display factors, for making automatic measurements, and for setting trigger levels.

Command Syntax CHANnel<n>:PROBe <attenuation>[,<value>]
<n>:= 1 to 4 in NR1 format, including an integer and no decimal point.
<attenuation>:= {DEFault | VALue}

- DEFault means set to the default value 1X.
- VALue means set to the <value>.

<value>:= Probe attenuation ratio in NR3 format when <attenuation> is VALue, and the range is [1E-6, 1E6].

Query Format CHANnel<n>:PROBe?

Example CHAN1:PROB VAL,1.00E+02
CHAN1:PROB?

Query Respond Returns: 1.00E+02

Related Commnads **CHANnel<n>:SCALe**
CHANnel<n>:OFFSet

5.9 CHANnel<n>:SCALe

Description Write or read the vertical sensitivity in Volts/div. If the probe attenuation is changed, the scale value is multiplied by the probe's attenuation factor.

Command Syntax CHANnel<n>:SCALe <scale>
<n>:= 1 to 4 in NR1 format, including an integer and no decimal point.
<scale>:= Value in NR3 format, including a decimal point and exponent.

Note:

The range of value varies from the models and the bandwidth of the model. See the data sheet for details.

Query Format CHANnel<n>:SCALe?

Example CHAN1:SCAL 5.00E-02
CHAN1:SCAL?

Query Respond Returns: 5.00E-02
5.00E-01 (when the probe attenuation ratio is 10:1)

Related Commands **CHANnel<n>:PROBe**

5.10 CHANnel<n>:SKEW

Description Write or read the channel-to-channel skew factor for the specified channel

Command Syntax CHANnel<n>:SKEW <skew_value>
<n>:= 1 to 4 in NR1 format, including an integer and no decimal point.
<skew_value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-1.00E-07, 1.00E-07].

Query Format CHANnel<n>:SKEW?

Example CHAN1:SKEW 1.52E-09 CHAN1:SKEW?

Query Respond Returns: 1.52E-09

5.11 CHANnel<n>:SWITch

Description Write or read the display state of the specified channel.

Command Syntax CHANnel<n>:SWITch <state>
<n>:= 1 to 4 in NR1 format, including an integer and no decimal point.
<state>:= {OFF | ON}

Query Format CHANnel<n>:SWITch?

Example CHAN1:SWIT ON
CHAN1:SWIT?

Query Respond Returns: ON

5.12 CHANnel<n>:UNIT

Description Write or read the unit of input signal of specified channel. There is voltage (V) and current (A) two choice to choose for each channel.

Command Syntax CHANnel<n>:UNIT <unit>
<n>:= 1 to 4 in NR1 format, including an integer and no decimal point.
<unit>:= {V | A}

Note:

The related parameter units are changed to the selected unit after processing this command. This also affects measurement results, cursors value, channel sensitivity, and trigger level

Query Format CHANnel<n>:UNIT?

Example CHAN1:UNIT A
CHAN1:UNIT?

Query Respond Returns: A

5.13 CHANnel<n>:VISible

Description Write or read the display state of the waveform of the specified channel or not. Different from the command **CHANnel<n>:SWITch**, it sets the state on the display, and the latter sets the physical switch.

Command Syntax CHANnel<n>:VISible <display_state>
<n>:= 1 to 4 in NR1 format, including an integer and no decimal point.
<display_state>:= {ON | OFF}

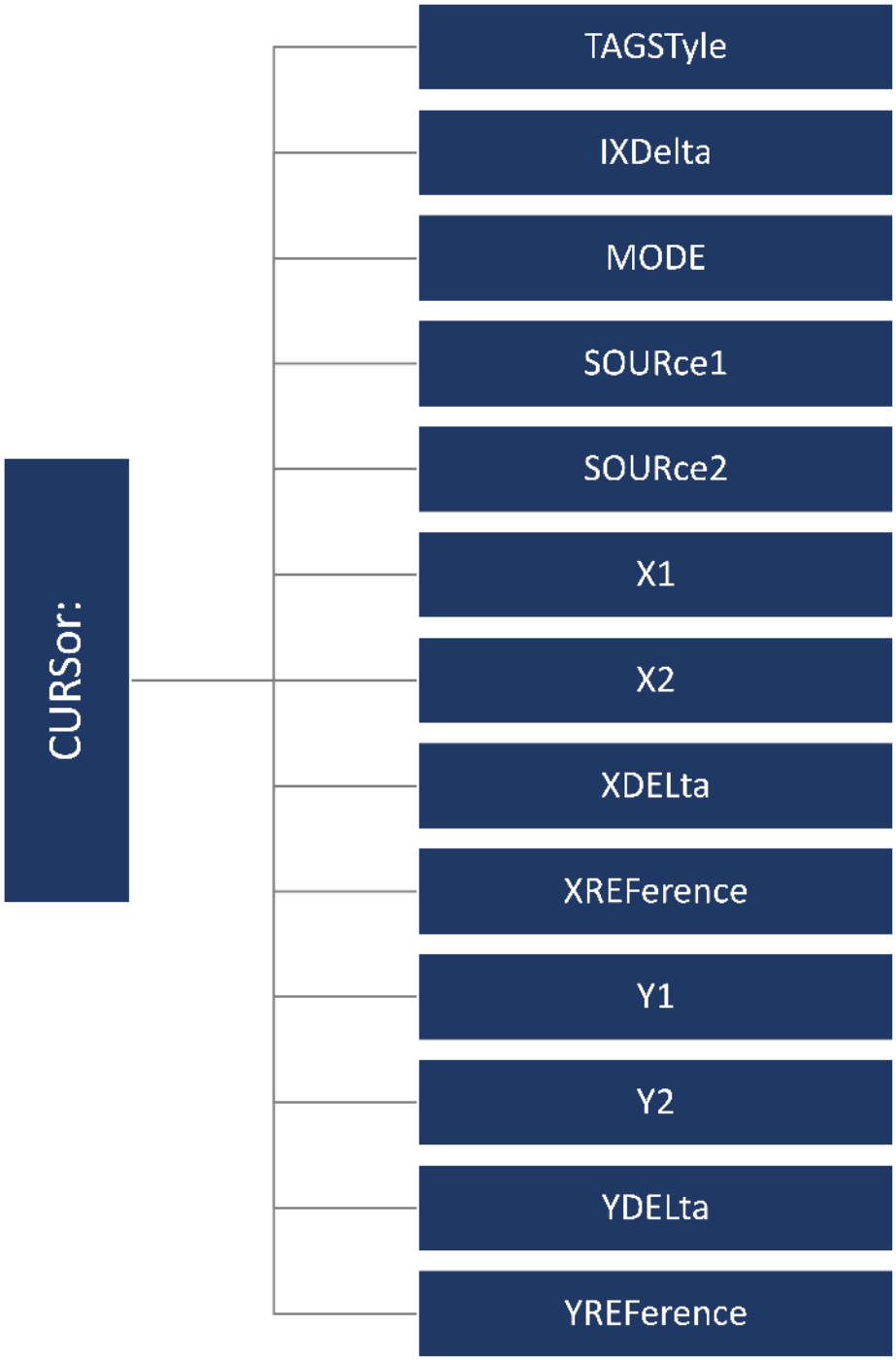
Query Format CHANnel<n>:VISible?

Example CHAN2:VIS ON
CHAN2:VIS?

Query Respond Returns: ON

Cursor Commands

The **CURSor** subsystem commands control the cursor measurement function.



6.1 CURSor

Description Write or read the state of the cursor function.

Command Syntax CURSor <state>
<state>:= {ON | OFF}

Query Format CURSor?

Example CURS ON
CURS?

Query Respond Returns: ON

6.2 CURSor:TAGStyle

Description Write or read the tag type of the cursor value.

Command Syntax CURSor:TAGStyle <type>
<type>:= {FIXed | FOLLowing}

Query Format CURSor:TAGStyle?

Example CURS:TAGS FOLL
CURS:TAGS?

Query Respond Returns: FOLLowing

6.3 CURSor:IXDelta

Description Returns the current value of cursor $1/(X1 - X2)$

Query Format CURSor:IXDelta?

Example CURS:IXD?

Query Respond Returns: 5.7143E+00

Related Commands **CURSor:X1**
CURSor:X2
CURSor:XDELta

6.4 CURSor:MODE

Description Write or read the cursor mode, and the type of cursor to be displayed in manual mode.

Command Syntax CURSor:MODE <type>
<type>:= {TRACk | MANual[,<mode>]}
<mode>:= {X | Y | Y}

- MANul means the manual cursors
- TRACk means the track cursors

Query Format CURSor:MODE?

Example CURS:MODE MAN,X
CURS:MODE?

Query Respond Returns: MANual,X

6.5 CURSor:SOURce1

Description Write or read the source of the cursor source 1.

Command Syntax CURSor:SOURce1 <source>
<source>:={C<x> | F<x> | REFA | REFB | REFC | REFD | DIGital | HISTOGram}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.

Note:

When the cursor mode is a TRACk, the source cannot be set to HISTOGram or DIGita

---

Query Format CURSor:SOURce1?

Example CURS:SOUR1 C1
CURS:SOUR?

Query Respond Returns: C1

Related Commands **CURSor:SOURce2**

6.6 CURSor:SOURce2

Description Write or read the source of the cursor source 2.

Command Syntax CURSor:SOURce2 <source>
<source>:={C<x> | F<x> | REFA | REFB | REFC | REFD | DIGital | HISTOGram}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.

Note:

When the cursor mode is a TRACk, the source cannot be set to HISTOGram or DIGita

---

Query Format CURSor:SOURce2?

Example CURS:SOUR2 C1
CURS:SOUR2?

Query Respond Returns: C1

Related Commands **CURSor:SOURce2**

6.7 CURSor:X1

Description Write or read the position of the cursor X1.

Command Syntax :CURSor:X1 <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-horizontal_grid/2*timebase, horizontal_grid/2*timebase].

Query Format CURSor:X1?

Example CURS:X1 1.00E-06
CURS:X1?

Query Respond Returns: 1.00E-06

Related Commands **CURSor:X2**
CURSor:XDELta
CURSor:IXDelta

6.8 CURSor:X2

Description Write or read the position of the cursor X2.

Command Syntax :CURSor:X2 <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-horizontal_grid/2*timebase, horizontal_grid/2*timebase].

Query Format CURSor:X2?

Example CURS:X2 1.00E-06
CURS:X2?

Query Respond Returns: 1.00E-06

Related Commands **CURSor:X2**
CURSor:XDELta
CURSor:IXDelta

6.9 CURSor:XDELta

Description Returns the horizontal difference between cursor X1 and cursor X2.

Query Format CURSor:XDELta?

Example CURS:XDEL?

Query Respond Returns: 1.750E-01

Related Commands **CURSor:X1**
CURSor:X2
CURSor:IXDelta

6.10 CURSor:XREFerence

Description Write or read the expansion strategy around the cursor X.

Command Syntax CURSor:XREFerence <type>
<type>:= {DELay | POSition}

- DELay means that the cursor value is fixed, and the on-screen cursor position changes for different timebase values.
- POSition means that the cursor position is fixed, and does not change at any time. Timebase changes cause an expansion or contraction of the waveforms around the cursor position.

Query Format CURSor:XREFerence?

Example CURS:XREF DEL
CURS:XREF?

Query Respond Returns: DELay

6.11 CURSor:Y1

Description Write or read the the position of the cursor Y1.

Command Syntax CURSor:Y1 <value>
<value>:= Value in NR3 format, including a decimal point and exponent.The range of the value is [-vertical_grid/2*vertical_scale, vertical_grid/2*vertical_scale].

Query Format CURSor:Y1?

Example CURS:Y1 1.20E+01
CURS:Y1

Query Respond Returns: 1.20E+01

Related Commands **CURSor:Y2**
CURSor:YDELta

6.12 CURSor:Y2

Description Write or read the position of the cursor Y2.

Command Syntax CURSor:Y2 <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-vertical_grid/2*vertical_scale, vertical_grid/2*vertical_scale]

Query Format CURSor:Y2?

Example CURS:Y2 1.00E+01
CURS:Y2?

Query Respond Returns: 1.00E+01

Related Commands **CURSor:Y1**
CURSor:YDELta

6.13 CURSor:YDELta

Description Returns the vertical difference between the cursor Y1 and cursor Y2.

Query Format CURSor:YDELta?

Example CURS:YDEL?

Query Respond Returns: -1.390E+00

Related Commands **CURSor:Y1**
CURSor:Y2

6.14 CURSor:YREFerence

Description Write or read the expansion strategy of the Y cursor.

Command Syntax CURSor:YREFerence <type>
<type>:= {OFFSet | POSition}

- OFFSet means that the cursor value is fixed, and the cursor position moves with vertical scale changes. The cursors expand or contract if the vertical scale changes.
- POSition means that the cursor position is fixed, and does not change at any time.

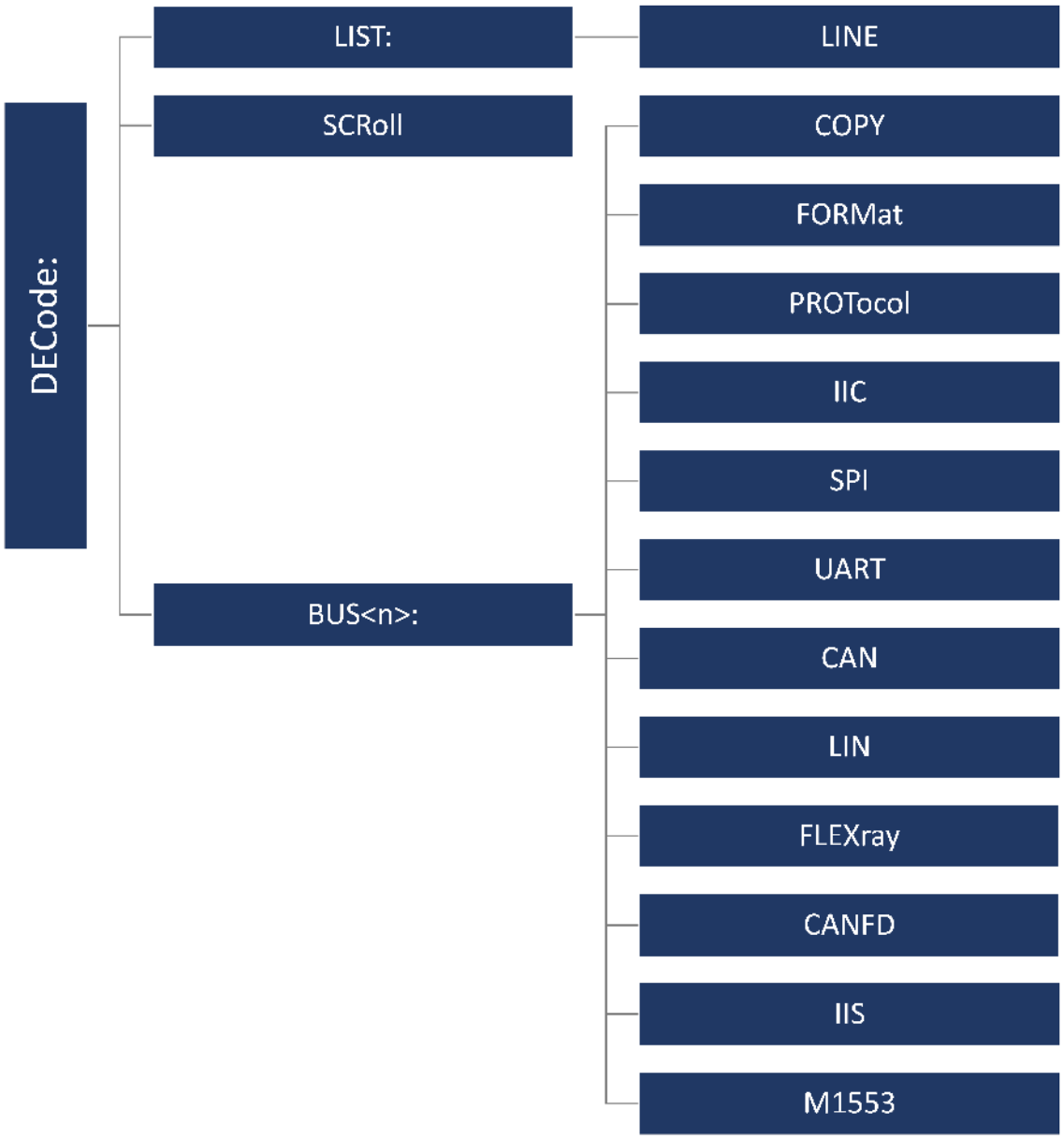
Query Format CURSor:YREFerence?

Example CURS:YREF OFFS
CURS:YREF?

Query Respond Returns: OFFSet

Decode Commands

The **DECode** subsystem commands control the basic decode functions of the oscilloscope.



7.1 DECode

Description Write or read the state of the decode function.

Command Syntax DECode <state>
<state>:= {ON | OFF}

Query Format DECode?

Example DEC ON
DEC?

Query Respond Returns: ON

7.2 DECode:LIST

Description Write or read the list decode result state.

Command Syntax DECode:LIST <state>
<state>:= {OFF | D1 |D2}

- D1 means bus 1
- D2 means bus 2

Query Format DECode:LIST?

Example DEC:LIST D1 DEC:LIST?

Query Respond Returns: D1

7.3 DECode:LIST:LINE

Description Write or read the number of lines displayed in the decoding list on the screen.

Command Syntax DECode:LIST:LINE <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of value is [1, 7].

Query Format DECode:LIST:LINE?

Example DEC:LIST:LINE 6
DEC:LIST:LINE?

Query Respond Returns: 6

7.4 DECode:LIST:SCRoll

Description Write or read the selected line when the decode list is turned on.

Command Syntax DECode:LIST:SCRoll <value>
<value>:= Value in NR1 format, including an integer and no decimal point.

Query Format DECode:LIST:SCRoll?

Example DEC:LIST:SCR 3
DEC:LIST:SCR?

Query Respond Returns: 3

Related Commands **DECode:LIST**
DECode:LIST:LINE

7.5 DECode:BUS<n>

Description Write or read the status of the decode bus operation.

Command Syntax DECode:BUS<n> <state>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<state>:= ON | OFF.

Query Format DECode:BUS<n>?

Example DEC:BUS1 ON
DEC:BUS1?

Query Respond Returns: ON

7.6 DECode:BUS<n>:COPY

Description The command synchronizes the decoding settings with the trigger settings.

Command Syntax DECode:BUS<n>:COPY <operation>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<operation>:= {FROMtrigger | TOTRigger}.

- FROMtrigger means copy trigger settings to the decoding bus.
- TOTRigger means copy decoding settings to trigger.

Example DEC:BUS1:COPY FROM

7.7 DECode:BUS<n>:FORMat

Description Write or read the display format of the specified decode bus.

Command Syntax DECode:BUS<n>:FORMat <format>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<format>:= {BINary | DECimal | HEX | ASCii}

Query Format DECode:BUS<n>:FORMat?

Example DEC:BUS1:FORM ASCii
DEC:BUS1:FORM?

Query Respond Returns: ASCii

7.8 DECode:BUS<n>:PROTocol

Description Write or read the protocol of the specified bus.

Command Syntax DECode:BUS<n>:PROTocol <protocol> <n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.
<protocol>:= {IIC| SPI |UART | CAN | LIN | FLEXray | CANFd | IIS | M1553}

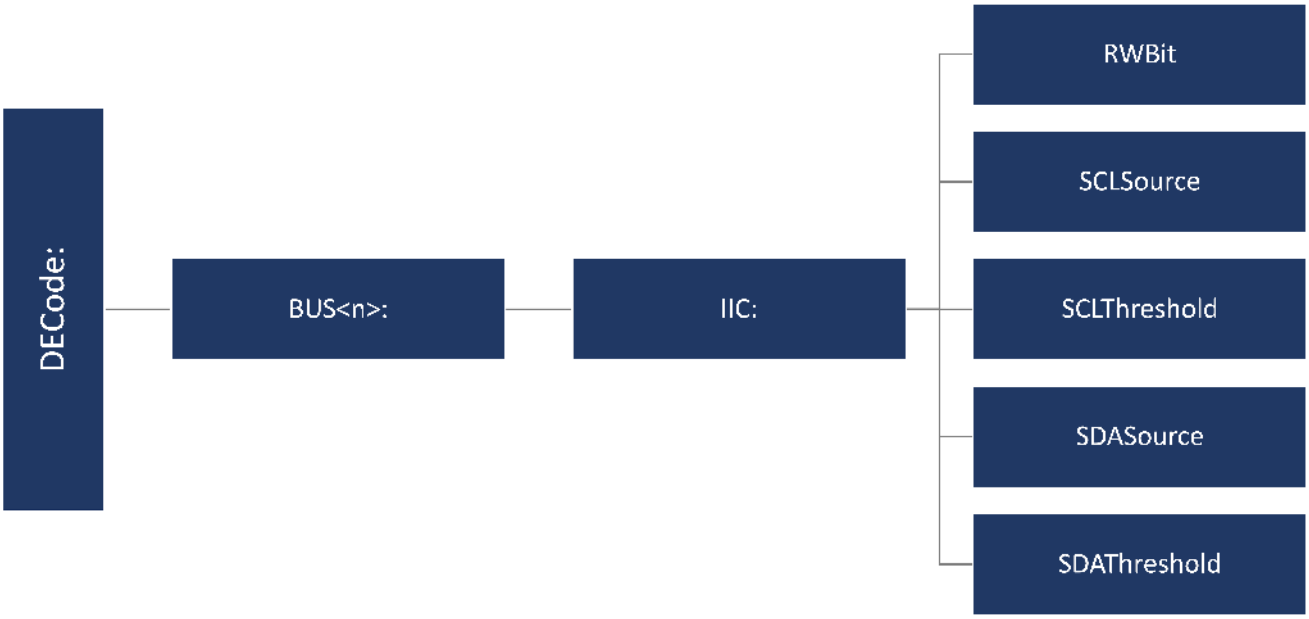
Query Format DECode:BUS<n>:PROTocol?

Example DEC:BUS1:PROT IIC
DEC:BUS1:PROT?

Query Respond Returns: IIC

IIC Commands

The :DECode:BUS<n>:IIC subsystem commands control the IIC decode settings of the specified bus.



8.1 DECode:BUS<n>:IIC:RWBit

Description Write or read the decoding result, which includes the read bit and the write bit.

Command Syntax DECode:BUS<n>:IIC:RWBit <state>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<state>:= {ON | OFF}

Query Format DECode:BUS<n>:IIC:RWBit?

Example DEC:BUS1:IIC:RWB ON
DEC:BUS1:IIC:RWB?

Query Respond Returns: ON

8.2 DECode:BUS<n>:IIC:SCLSource

Description Returns the current SCL source of the IIC bus.

Command Syntax DECode:BUS<n>:IIC:SCLSource <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x> | D<m>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Format DECode:BUS<n>:IIC:SCLSource?

Example DEC:BUS1:IIC:SCLS C1
DEC:BUS1:IIC:SCLS?

Query Respond Returns: C1

Related Commands **DECode:BUS<n>:IIC:SCLThreshold**
DECode:BUS<n>:IIC:SDASource

8.3 DECode:BUS<n>:IIC:SCLThreshold

Description Write or read the threshold of the SCL on IIC bus.

Command Syntax DECode:BUS<n>:IIC:SCLThreshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range is from [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset]

Query Format DECode:BUS<n>:IIC:SCLThreshold?

Example DEC:BUS1:IIC:SCLT 1.00E+00
DEC:BUS1:IIC:SCLT?

Query Respond Returns: 1.00E+00

Related Commands **DECode:BUS<n>:IIC:SCLSource**

8.4 DECode:BUS<n>:IIC:SDASource

Description Write or read the SDA source of the IIC bus.

Command Syntax DECode:BUS<n>:IIC:SDASource <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.
<source>:= {C<x> | D<m>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Format DECode:BUS<n>:IIC:SDASource?

Example DEC:BUS1:IIC:SDAS C1
DEC:BUS1:IIC:SDAS?

Query Respond C1 Returns:

Related Commands **DECode:BUS<n>:IIC:SDAThreshold**
DECode:BUS<n>:IIC:SCLSource

8.5 DECode:BUS<n>:IIC:SDAThreshold

Description Write or read the threshold of the SDA on IIC bus.

Command Syntax DECode:BUS<n>:IIC:SDAThreshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset]

Query Format DECode:BUS<n>:IIC:SDAThreshold?

Example DEC:BUS1:IIC:SDAT 1.00E+00
DEC:BUS1:IIC:SDAT?

Query Respond Returns: 1.00E+00

Related Commands **DECode:BUS<n>:IIC:SDASource**

SPI Commands

The :DECode:BUS<n>:SPI subsystem commands control the SPI decode settings of the specified bus.



9.1 DECode:BUS<n>:SPI:BITorder

Description Write or read the bit order of the SPI bus.

Command Syntax DECode:BUS<n>:SPI:BITorder <order>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<order>:= {LSB | MSB}.

Query Format DECode:BUS<n>:SPI:BITorder?

Example DEC:BUS1:SPI:BIT LSB
DEC:BUS1:SPI:BIT?

Query Respond Returns: LSB

9.2 DECode:BUS<n>:SPI:CLKSource

Description Write or read the CLK source of the SPI bus.

Command Syntax DECode:BUS<n>:SPI:CLKSource <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x> |D<m>}. <x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Format DECode:BUS<n>:SPI:CLKSource?

Example DEC:BUS1:SPI:CLKS C1
DEC:BUS1:SPI:CLKS

Query Respond Returns: C1

Related Command **DECode:BUS<n>:SPI:CLKThreshold**

9.3 DECode:BUS<n>:SPI:CLKThreshold

Description Write or read the threshold of the CLK on SPI bus.

Command Syntax :DECode:BUS<n>:SPI:CLKThreshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Format DECode:BUS<n>:IIC:CLKThreshold?

Example DEC:BUS1:SPI:CLKT 1.00E+00
DEC:BUS1:SPI:CLKT?

Query Respond Returns: 1.00E+00

Related Commands **DECode:BUS<n>:SPI:CLKSource**

9.4 DECode:BUS<n>:SPI:CSSource

Description Write or read the CS source of the SPI bus.

Command Syntax DECode:BUS<n>:SPI:CSSource <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x> | D<m>}.
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Format DECode:BUS<n>:SPI:CSSource?

Example DEC:BUS1:SPI:CSS C1
DEC:BUS1:SPI:CSS?

Query Respond Returns: C1

Related Commands **DECode:BUS<n>:SPI:CSThreshold**

9.5 DECode:BUS<n>:SPI:CSThreshold

Description Write or read the threshold of the CS on SPI bus.

Command Syntax DECode:BUS<n>:SPI:CSThreshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Format DECode:BUS<n>:SPI:CSThreshold?

Example DEC:BUS1:SPI:CST 1.00E+00
DEC:BUS1:SPI:CST?

Query Respond Returns: 1.00E+00

Related Commands **DECode:BUS<n>:SPI:CLKSource**

9.6 DECode:BUS<n>:SPI:CSTYpe

Description Write or read the chip selection type of the SPI bus.

Command Syntax DECode:BUS<n>:SPI:CSTYpe <type>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<type>:= {NCS | CS | TIMeout[,<time>]}

- CS means set to chip select state (Active High).
- NCS means set to non-chip select state (Active Low).
- TIMeout indicates set to clock timeout status (CLK Timeout).

<time>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [1.00E-07, 5.00E-03].

Query Format DECode:BUS<n>:SPI:CSTYpe?

Example DEC:BUS1:SPI:CSTY CS
DEC:BUS1:SPI:CSTY?

Query Respond Returns: CS

9.7 DECode:BUS<n>:SPI:DLENgth

Description Write or read the data length of the SPI bus.

Command Syntax DECode:BUS<n>:SPI:DLENgth <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [4, 32].

Query Format DECode:BUS<n>:SPI:DLENgth?

Example DEC:BUS1:SPI:DLEN 5
DEC:BUS1:SPI:DLEN?

Query Respond Returns: 5

9.8 DECode:BUS<n>:SPI:LATChedge

Description Write or read the sampling edge of CLK on SPI bus.

Command Syntax DECode:BUS<n>:SPI:LATChedge <slope>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<slope>:= {RISing | FALLing}

Query Format DECode:BUS<n>:SPI:LATChedge?

Example DEC:BUS1:SPI:LATC RIS
DEC:BUS1:SPI:LATC?

Query Respond Returns: RISing

9.9 DECode:BUS<n>:SPI:MISOSource

Description Write or read the MISO source of the SPI bus.

Command Syntax DECode:BUS<n>:SPI:MISOSource <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x> | D<m> | DIS} <x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point. For example, C1 selects analog channel 1.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point. For example, D1 selects digital channel 1.

- DIS means no source selected.

Query Format DECode:BUS<n>:SPI:MISOSource?

Example DEC:BUS1:SPI:MISOS C1
DEC:BUS1:SPI:MISOS?

Query Respond Returns: C1

Related Commnads **DECode:BUS<n>:SPI:MISOThreshold**

9.10 DECode:BUS<n>:SPI:MISOThreshold

Description Write or read the threshold of the MISO on SPI bus

Command Syntax DECode:BUS<n>:SPI:MISOThreshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range for this value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Format DECode:BUS<n>:SPI:MISOThreshold?

Example DEC:BUS1:SPI:MISOT 1.00E+00
DEC:BUS1:SPI:MISOT?

Query Respond Returns: 1.00E+00

Related Commands RELATED COMMANDS :DECode:BUS<n>:SPI:MISOSource

9.11 DECode:BUS<n>:SPI:MOSISource

Description Write or read the MOSI source of the SPI bus.

Command Syntax DECode:BUS<n>:SPI:MOSISource <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x> | D<m> | DIS} <x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

- DIS means no source selected

Query Format DECode:BUS<n>:SPI:MOSISource?

Example
```
DEC:BUS1:SPI:MOSIS C1
DEC:BUS1:SPI:MOSIS?
```

Query Respond Returns: C1

Related Commands **DECode:BUS<n>:SPI:MOSIThreshold**

9.12 DECode:BUS<n>:SPI:MOSIThreshold

Description Write or read the threshold of the MOSI.

Command Syntax DECode:BUS<n>:SPI:MOSIThreshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Format DECode:BUS<n>:SPI:MOSIThreshold?

Example
```
DEC:BUS1:SPI:MOSIT 1.00E+00
DEC:BUS1:SPI:MOSIT?
```

Query Respond Returns: 1.00E+00

Related Commands **DECode:BUS<n>:SPI:MOSISource**

9.13 DECode:BUS<n>:SPI:NCSSource

Description Write or read the NCS source of the SPI bus.

Command Syntax DECode:BUS<n>:SPI:NCSSource <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x> | D<m>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Format DECode:BUS<n>:SPI:NCSSource?

Example DEC:BUS1:SPI:NCSS C1
DEC:BUS1:SPI:NCSS?

Query Respond Returns: C1

9.14 DECode:BUS<n>:SPI:NCSThreshold

Description Write or read the threshold of the NCS on SPI bus.

Command Syntax DECode:BUS<n>:SPI:NCSThreshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range of this value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Format DECode:BUS<n>:SPI:NCSThreshold?

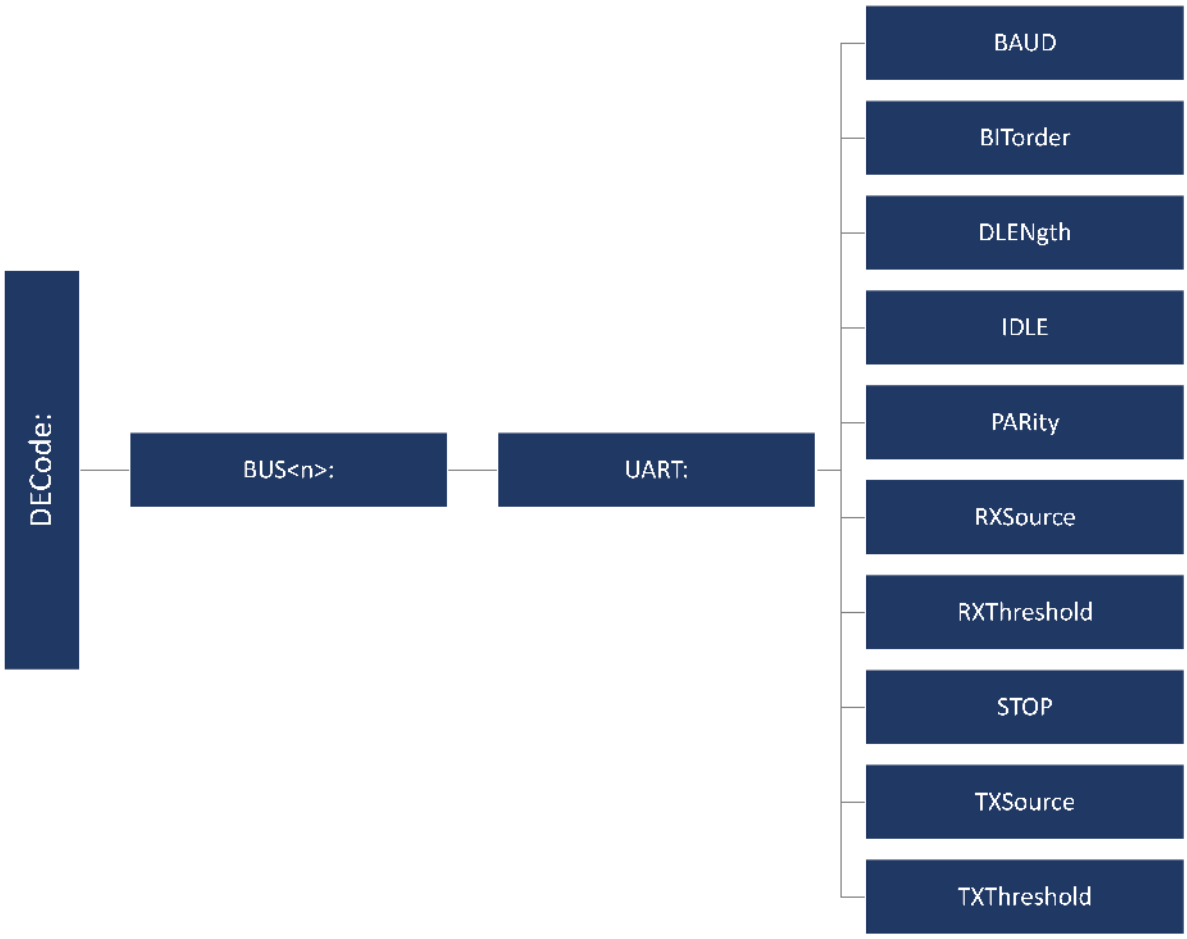
Example DEC:BUS1:SPI:NCST 1.00E+00
DEC:BUS1:SPI:NCST?

Query Respond Returns: 1.00E+00

Related Commands DECode:BUS<n>:SPI:NCSSource

UART Commands

The :DECode:BUS<n>:UART subsystem commands control the UART decode settings of the specified bus.



10.1 DECode:BUS<n>:UART:BAUD

Description Write or read the baud rate of the UART bus.

Command Syntax DECode:BUS<n>:UART:BAUD <baud>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<baud>:= {600bps | 1200bps | 2400bps | 4800bps | 9600bps | 19200bps | 384 00bps | 57600bps | 115200bps | CUSTom[,<value>]}
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [300, 20000000].

Query Syntax DECode:BUS<n>:UART:BAUD?

Example DEC:BUS1:UART:BAUD 9600bps
DEC:BUS1:UART:BAUD?

Query Respond Returns: 9600bps

10.2 DECode:BUS<n>:UART:BITorder

Description Write or read the bit order of the UART bus.

Command Syntax DECode:BUS<n>:UART:BITorder <order>
<n>= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<order>:= {LSB | MSB}

Query Syntax DECode:BUS<n>:UART:BITorder?

Example DEC:BUS1:UART:BIT LSB
DEC:BUS1:UART:BIT?

Query Respond Returns: LSB

10.3 DECode:BUS<n>:UART:DLENgth

Description Write or read the data length of the UART bus.

Command Syntax DECode:BUS<n>:UART:DLENgth <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR1 format, including an integer and no decimal point. The range of value is [5, 8].

Query Syntax DECode:BUS<n>:UART:DLENgth?

Example DEC:BUS1:UART:DLEN 5
DEC:BUS1:UART:DLEN?

Query Respond Returns: 5

10.4 DECode:BUS<n>:UART:IDLE

Description Write or read the idle level of the UART bus.

Command Syntax DECode:BUS<n>:UART:IDLE <idle>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<idle>:= {LOW | HIGH}

Query Syntax DECode:BUS<n>:UART:IDLE?

Example DEC:BUS1:UART:IDLE LOW
DEC:BUS1:UART:IDLE?

Query Respond Returns: LOW

10.5 DECode:BUS<n>:UART:PARity

Description Write or read the parity check of the UART bus.

Command Syntax DECode:BUS<n>:UART:PARity <parity>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<parity>:= {NONE | ODD | EVEN | MARK |SPACe}

Query Syntax DECode:BUS<n>:UART:PARity?

Example DEC:BUS1:UART:PAR NONE
DEC:BUS1:UART:PAR?

Query Respond Returns: NONE

10.6 DECode:BUS<n>:UART:RXSource

Description Write or read the RX source of the UART bus.

Command Syntax DECode:BUS<n>:UART:RXSource <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x> | D<m> | DIS} <x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

- DIS means no source selected

Query Syntax DECode:BUS<n>:UART:RXSource?

Example DEC:BUS1:UART:RXS C1
DEC:BUS1:UART:RXS?

Query Respond Returns: C1

Related Commands **DECode:BUS<n>:UART:RXThreshold**

10.7 DECode:BUS<n>:UART:RXThreshold

Description Write or read the threshold of RX on UART bus.

Command Syntax DECode:BUS<n>:UART:RXThreshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range for this value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax DECode:BUS<n>:UART:RXThreshold?

Example DEC:BUS1:UART:RXT 1.00E+00
DEC:BUS1:UART:RXT?

Query Respond Returns: 1.00E+00

Related Commands DECode:BUS<n>:UART:RXSource

10.8 DECode:BUS<n>:UART:STOP

Description Write or read the length of the stop bit on UART bus.

Command Syntax DECode:BUS<n>:UART:STOP <bit>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<bit>:= {1 | 1.5 | 2}

Query Syntax DECode:BUS<n>:UART:STOP?

Example DEC:BUS1:UART:STOP 1
DEC:BUS1:UART:STOP?

Query Respond Returns: 1

10.9 DECode:BUS<n>:UART:TXSource

Description Write or read the TX source of the UART bus.

Command Syntax DECode:BUS<n>:UART:TXSource <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x> | D<m> | DIS}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

- DIS means no source selected

Query Syntax DECode:BUS<n>:UART:TXSource?

Example DEC:BUS1:UART:TXS C1
DEC:BUS1:UART:TXS?

Query Respond Returns: C1

Related Commands **DECode:BUS<n>:UART:TXThreshold**

10.10 DECode:BUS<n>:UART:TXThreshold

Description Write or read the threshold of TX on UART bus.

Command Syntax DECode:BUS<n>:UART:TXThreshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range of this value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax DECode:BUS<n>:UART:TXThreshold?

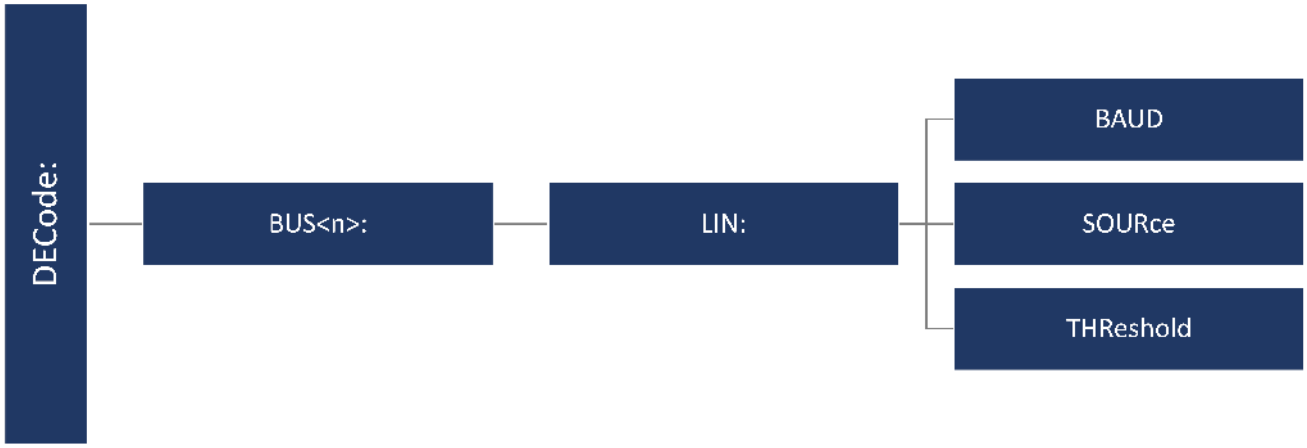
Example DEC:BUS1:UART:TXT 1.00E+00
DEC:BUS1:UART:TXT?

Query Respond Returns: 1.00E+00

Related Commands **DECode:BUS<n>:UART:TXSource**

LIN Commands

The :DECode:BUS<n>:LIN subsystem commands control the LIN decode settings of the specified bus.



11.1 DECode:BUS<n>:LIN:BAUD

Description Write or read the baud rate for the LIN bus.

Command Syntax DECode:BUS<n>:LIN:BAUD <baud>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<baud>:= {600bps | 1200bps | 2400bps | 4800bps | 9600bps | 19200bps | CUSTom[,<value>]}
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [300, 20000000].

Query Syntax DECode:BUS<n>:LIN:BAUD?

Example
```
DEC:BUS1:LIN:BAUD 9600bps
DEC:BUS1:LIN:BAUD?
```

Query Respond Returns: 9600bps

11.2 DECode:BUS<n>:LIN:SOURce

Description Write or read the source of the LIN bus.

Command Syntax DECode:BUS<n>:LIN:SOURce <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x> | D<m>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax DECode:BUS<n>:LIN:SOURce?

Example
```
DEC:BUS1:LIN:SOUR C1
DEC:BUS1:LIN:SOUR?
```

Query Respond Returns: C1

Related Commands **DECode:BUS<n>:LIN:THReshold**

11.3 DECode:BUS<n>:LIN:THReshold

Description Write or read the threshold of the source on LIN bus.

Command Syntax DECode:BUS<n>:LIN:THReshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range of this value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset]

Query Syntax DECode:BUS<n>:LIN:THReshold?

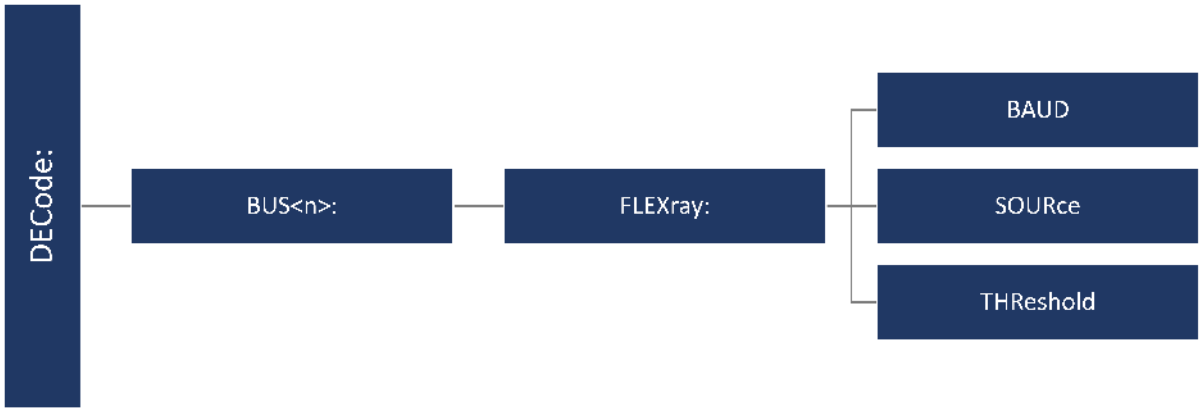
Example
```
DEC:BUS1:LIN:THR 1.00E+00
DEC:BUS1:LIN:THR?
```

Query Respond Returns: 1.00E+00

Related Commands **DECode:BUS<n>:LIN:SOURce**

FLEXray Command

The :DECode:BUS<n>:FLEXray subsystem commands control the FLEXray decode settings of the specified bus.



12.1 DECode:BUS<n>:FLEXray:BAUD

Description Write or read the baud rate of the Flexray bus.

Command Syntax DECode:BUS<n>:FLEXray:BAUD <baud>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<baud>:= {2500kbps | 5Mbps | 10Mbps | CUSTom[,<value>]}
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1000000, 20000000]

Query Syntax DECode:BUS<n>:FLEXray:BAUD?

Example DEC:BUS1:FLEX:BAUD 5Mbps
DEC:BUS1:FLEX:BAUD?

Query Respond Returns: 5Mbps

12.2 DECode:BUS<n>:FLEXray:SOURce

Description Write or read the source of the Flexray bus.

Command Syntax DECode:BUS<n>:FLEXray:SOURce <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x> | D<m>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax DECode:BUS<n>:FLEXray:SOURce?

Example DEC:BUS1:FLEX:SOUR C1
DEC:BUS1:FLEX:SOUR?

Query Respond Returns: C1

Related Commands **DECode:BUS<n>:FLEXray:THReshold**

12.3 DECode:BUS<n>:FLEXray:THReshold

Description Write or read the threshold of the source on Flexray bus.

Command Syntax DECode:BUS<n>:FLEXray:THReshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range of this value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset]

Query Syntax DECode:BUS<n>:FLEXray:THReshold?

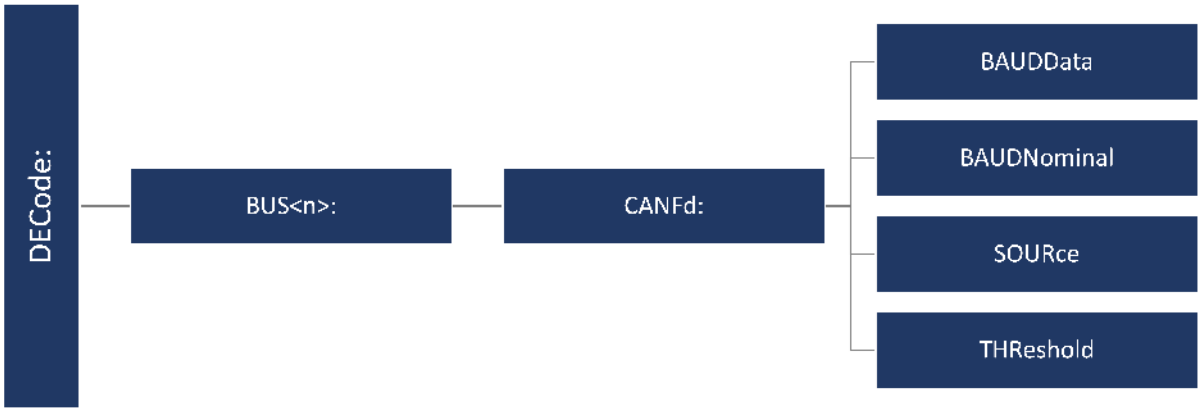
Example DEC:BUS1:FLEX:THR 1.00E+00
DEC:BUS1:FLEX:THR?

Query Respond Returns: 1.00E+00

Related Commands **DECode:BUS<n>:FLEXray:SOURce**

CAN FD Commands

The :DECode:BUS<n>:CANFd subsystem commands control the CANFD decode settings of the specified bus.



13.1 DECode:BUS<n>:CANFd:BAUDData

Description Write or read the data baud rate of the CAN FD bus.

Command Syntax DECode:BUS<n>:CANFd:BAUDData <baud>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<baud>:= {500kbps | 1Mbps | 2Mbps | 5Mbps | 8Mbps | 10Mbps | CUSTom[,<value>]}
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [100000, 10000000]

Query Syntax DECode:BUS<n>:CANFd:BAUDData?

Example DEC:BUS1:CANF:BAUDD 500kbps
DEC:BUS1:CANF:BAUDD?

Query Respond Returns: 500kbps

13.2 DECode:BUS<n>:CANFd:BAUDNominal

Description Write or read the nominal baud rate of the CAN FD bus.

Command Syntax DECode:BUS<n>:CANFd:BAUDNominal <baud>
<n>:= {1 | 2} is attached as a suffix to BUS and defines the bus that is affected by the command.

<baud>:= {10kbps | 25kbps | 50kbps | 100kbps | 250kbps | 1Mbps | CUSTom[,<value>]}
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [10000, 1000000]

Query Syntax DECode:BUS<n>:CANFd:BAUDNominal?

Example DEC:BUS1:CANF:BAUDN 50kbps
DEC:BUS1:CANF:BAUDN?

Query Respond Returns: 50kbps

13.3 DECode:BUS<n>:CANFd:SOURce

Description Write or read the source of the CAN FD bus.

Command Syntax DECode:BUS<n>:CANFd:SOURce <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x> | D<m>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax DECode:BUS<n>:CANFd:SOURce?

Example DEC:BUS1:CANF:SOUR C1
DEC:BUS1:CANF:SOUR?

Query Respond Returns: C1

Related Commands **DECode:BUS<n>:CANFd:THReshold**

13.4 DECode:BUS<n>:CANFd:THReshold

Description Write or read the threshold of the source on CAN FD bus.

Command Syntax DECode:BUS<n>:CANFd:THReshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax DECode:BUS<n>:CANFd:THReshold?

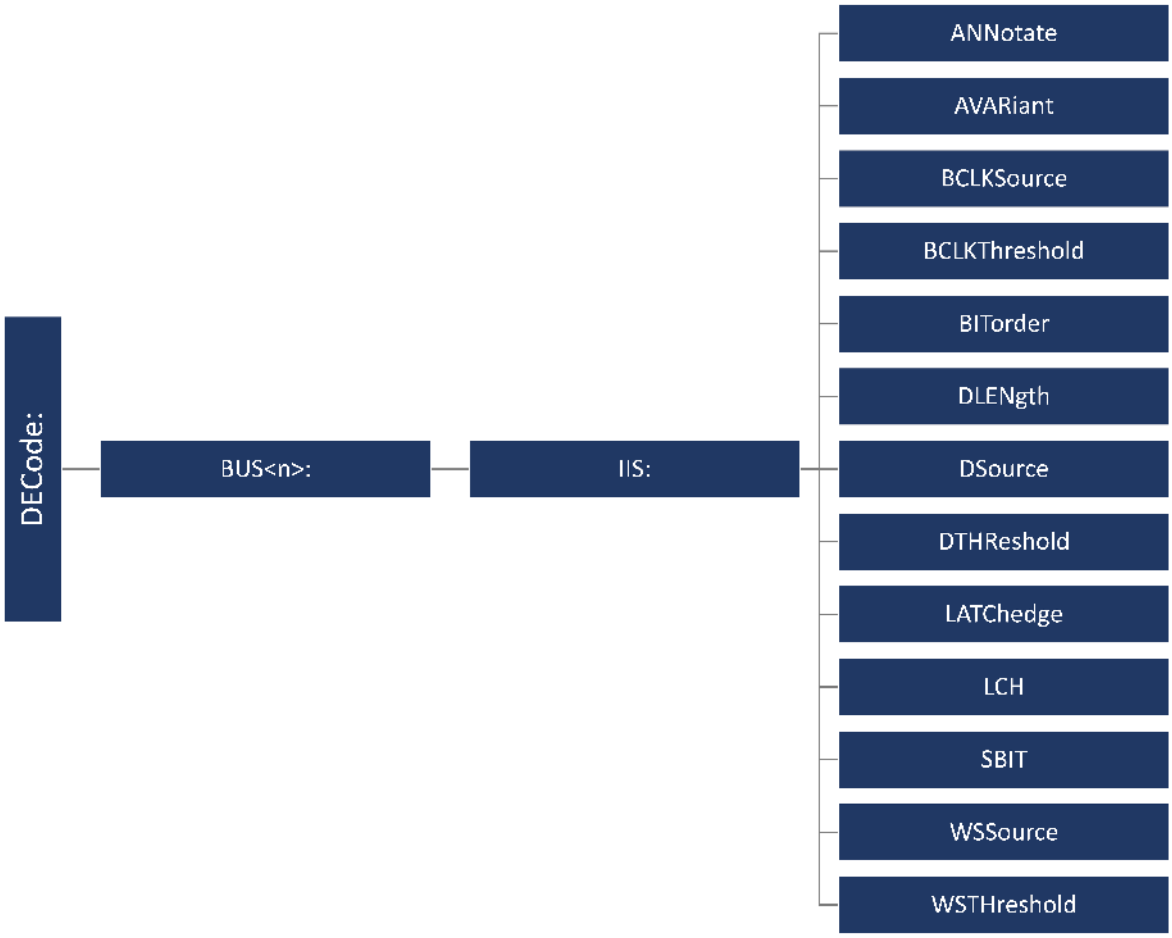
Example DEC:BUS1:CANF:THR 1.00E+0
DEC:BUS1:CANF:THR?

Query Respond Returns: 1.00E+0

Related Commands **DECode:BUS<n>:CANFd:SOURce**

IIS Commands

The **DECode:BUS<n>:IIS** subsystem commands control the IIS decode settings of the specified bus.



14.1 DECode:BUS<n>:IIS:ANNotate

Description Write or read the channel for IIS bus to be annotated.

Command Syntax DECode:BUS<n>:IIS:ANNotate <type>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<type>:= {ALL | LEFT | RIGHt}

Query Syntax DECode:BUS<n>:IIS:ANNotate?

Example DEC:BUS1:IIS:ANN ALL
DEC:BUS1:IIS:ANN?

Query Respond Returns: ALL

Related Commands **DECode:BUS<n>:IIS:LCH**

14.2 DECode:BUS<n>:IIS:AVARiant

Description Write or read the audio variant for IIS bus.

Command Syntax DECode:BUS<n>:IIS:AVARiant <type>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<type>:= {I2S | LJ | RJ}

- I2S justified.
- LJ is left justified.
- RL is right justified.

Query Syntax DECode:BUS<n>:IIS:AVARiant?

Example DEC:BUS1:IIS:AVAR RJ
DEC:BUS1:IIS:AVAR?

Query Respond Returns: RJ

14.3 DECode:BUS<n>:IIS:BCLKSource

Description Write or read the BCLK source of the IIS bus.

Command Syntax DECode:BUS<n>:IIS:BCLKSource <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x> | D<m>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax DECode:BUS<n>:IIS:BCLKSource?

Example DEC:BUS1:IIS:BCLKS C1
DEC:BUS1:IIS:BCLKS?

Query Respond Returns: C1

Related Commands **DECode:BUS<n>:IIS:BCLKThreshold**

14.4 DECode:BUS<n>:IIS:BCLKThreshold

Description Write or read the threshold of the BCLK on IIS bus.

Command Syntax DECode:BUS<n>:IIS:BCLKThreshold <value> <n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax DECode:BUS<n>:IIS:BCLKThreshold?

Example DEC:BUS1:IIS:BCLKT 1.00E+00
DEC:BUS1:IIS:BCLKT?

Query Respond Returns: 1.00E+00

Related Commands **DECode:BUS<n>:IIS:BCLKSource**

14.5 DECode:BUS<n>:IIS:BITorder

Description Write or read the bit order for the IIS bus.

Command Syntax DECode:BUS<n>:IIS:BITorder <order>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<order>:= {LSB | MSB}

- LSB is Least Significant Bit.
- MSB is Most Significant Bit.

Query Syntax DECode:BUS<n>:IIS:BITorder?

Example DEC:BUS1:IIS:BIT LSB
DEC:BUS1:IIS:BIT?

Query Respond Returns: LSB

14.6 DECode:BUS<n>:IIS:DLENgth

Description Write or read the data bits for the IIS bus.

Command Syntax DECode:BUS<n>:IIS:DLENgth <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1, 32].

Query Syntax DECode:BUS<n>:IIS:DLENgth?

Example DEC:BUS1:IIS:DLEN 5
DEC:BUS1:IIS:DLEN?

Query Respond Returns: 5

Related Commands **DECode:BUS<n>:IIS:SBIT**

14.7 DECode:BUS<n>:IIS:DSource

Description Write or read the data source of the IIS bus.

Command Syntax DECode:BUS<n>:IIS:DSource <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x> | D<m>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax DECode:BUS<n>:IIS:DSource?

Example DEC:BUS1:IIS:DS C1
DEC:BUS1:IIS:DS?

Query Respond Returns: C1

Related Commands **DECode:BUS<n>:IIS:DTHReshold**

14.8 DECode:BUS<n>:IIS:DTHReshold

Description Write or read the threshold of the data source on IIS bus.

Command Syntax DECode:BUS<n>:IIS:DTHReshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax DECode:BUS<n>:IIS:DTHReshold?

Example DEC:BUS1:IIS:DTHR 1.00E+00
DEC:BUS1:IIS:DTHR?

Query Respond Returns: 1.00E+00

Related Commands **DECode:BUS<n>:IIS:DSource**

14.9 DECode:BUS<n>:IIS:LATChedge

Description Write or read the sampling edge of BCLK on IIS bus.

Command Syntax DECode:BUS<n>:IIS:LATChedge <slope>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<slope>:= {RISing | FALLing}

Query Syntax DECode:BUS<n>:IIS:LATChedge?

Example DEC:BUS1:IIS:LATC RIS
DEC:BUS1:IIS:LATC?

Query Respond Returns: RIS

14.10 DECode:BUS<n>:IIS:LCH

Description Write or read the level of the left channel.

Command Syntax DECode:BUS<n>:IIS:LCH <left>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<left>:= {LOW | HIGH}

Query Syntax DECode:BUS<n>:IIS:LCH?

Example DEC:BUS1:IIS:LCH LOW
DEC:BUS1:IIS:LCH?

Query Respond Returns: LOW

14.11 DECode:BUS<n>:IIS:SBIT

Description Write or read the start bit of the data.

Command Syntax DECode:BUS<n>:IIS:SBIT <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 31]

Query Syntax DECode:BUS<n>:IIS:SBIT?

Example DEC:BUS1:IIS:SBIT 1
DEC:BUS1:IIS:SBIT?

Query Respond Returns: 1

Related Commands **DECode:BUS<n>:IIS:DLENgth**

14.12 DECode:BUS<n>:IIS:WSSource

Description Write or read the WS source of the IIS bus.

Command Syntax DECode:BUS<n>:IIS:WSSource <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x> | D<m>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax DECode:BUS<n>:IIS:WSSource?

Example DEC:BUS1:IIS:WSS C1
DEC:BUS1:IIS:WSS?

Query Respond Returns: C1

Related Commands **DECode:BUS<n>:IIS:WSTHreshold**

14.13 DECode:BUS<n>:IIS:WSTHreshold

Description Write or read the threshold of the WS on IIS bus.

Command Syntax DECode:BUS<n>:IIS:WSTHreshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax DECode:BUS<n>:IIS:WSTHreshold?

Example DEC:BUS1:IIS:WSTH 1.00E+00
DEC:BUS1:IIS:WSTH?

Query Respond Returns: 1.00E+00

Related Commands **DECode:BUS<n>:IIS:WSSource**

M1553 Commands

The **DECode:BUS<n>:M1553** subsystem commands control the M1553 decode settings of the specified bus.



15.1 DECode:BUS<n>:M1553:LTHReshold

Description Write or read the lower threshold of the M1553 source.

Command Syntax DECode:BUS<n>:M1553:LTHReshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Note:

The lower threshold value cannot be greater than the upper threshold value set by the command DECode:BUS<n>:M1553:UTHReshold.

Query Syntax DECode:BUS<n>:M1553:LTHReshold?

Example
DEC:BUS1:M1553:LTHR 1.00E+00
DEC:BUS1:M1553:LTHR?

Query Respond Returns: 1.00E+00

Related Commands **DECode:BUS<n>:M1553:SOURce**
DECode:BUS<n>:M1553:UTHReshold

15.2 DECode:BUS<n>:M1553:SOURce

Description Write or read the source of the M1553 bus.

Command Syntax DECode:BUS<n>:M1553:SOURce <source>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {C<x>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.

Query Syntax DECode:BUS<n>:M1553:SOURce?

Example
DEC:BUS1:M1553:SOUR C1
DEC:BUS1:M1553:SOUR?

Query Respond Returns: C1

Related Commands **DECode:BUS<n>:M1553:UTHReshold**
DECode:BUS<n>:M1553:LTHReshold

15.3 DECode:BUS<n>:M1553:UTHReshold

Description Write or read the upper threshold of the M1553 source.

Command Syntax DECode:BUS<n>:M1553:UTHReshold <value>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Note:

The upper threshold value cannot be less than the lower threshold value set by the command **DECode:BUS<n>:M1553:LTHReshold**.

Query Syntax DECode:BUS<n>:M1553:UTHReshold?

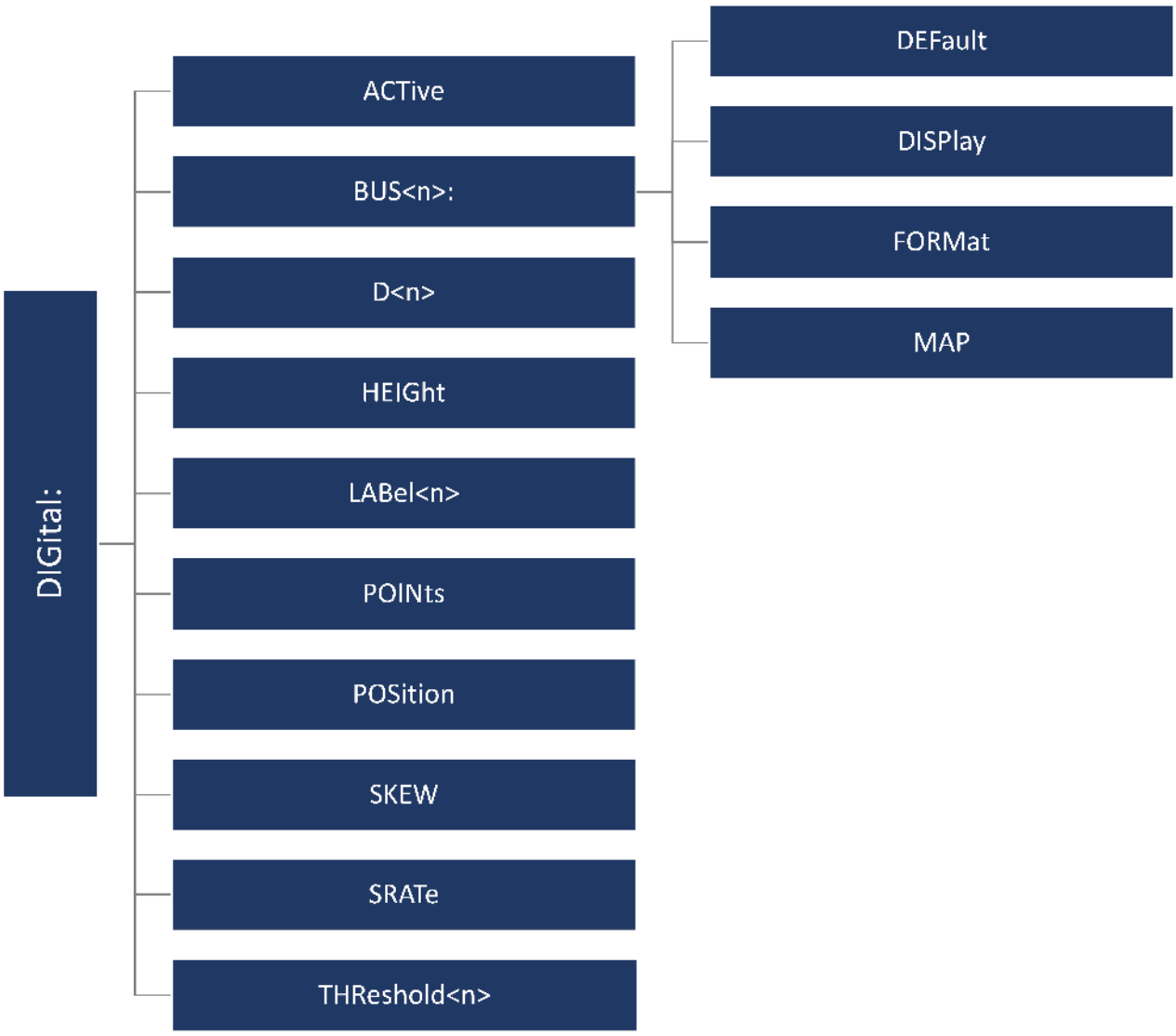
Example DEC:BUS1:M1553:UTHR 2.00E+00
DEC:BUS1:M1553:UTHR?

Query Respond Returns: 2.00E+00

Related Commands **DECode:BUS<n>:M1553:SOURce**
DECode:BUS<n>:M1553:LTHReshold

Digital Commans

The **DIGital** subsystem commands control the viewing of digital channels. They also control threshold settings for groups of digital channels.



16.1 DIGital

Description Write or read the state of the digital function.

Command Syntax DIGital <state>
<state>:= {ON | OFF}

- ON enables the channel.
- OFF disables the channel.

Query Syntax DIGital?

Example DIG ON
DIG?

Query Respond Returns: ON

16.2 DIGital:ACTive

Description Write or read the specified digital channel.

Command Syntax DIGital:ACTive <digital>
<digital>:= {D<x>}
<x>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax DIGital:ACTive?

Example DIG:ACT D5
DIG:ACT?

Query Respond Returns:

16.3 DIGital:BUS<n>:DEFault

Description Resets the digital channel bus bit order.

Command Syntax DIGital:BUS<n>:DEFault
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

Example DIG:BUS1:DEF

Related Commands **DIGital:BUS<n>:MAP**

16.4 DIGital:BUS<n>:DISPlay

Description Write or read the display of the specified digital bus.

Command Syntax DIGital:BUS<n>:DISPlay <state>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<state>:= {ON | OFF}

Query Syntax DIGital:BUS<n>:DISPlay?

Example DIG:BUS1:DISP ON
DIG:BUS1:DISP?

Query Respond Returns: ON

16.5 DIGital:BUS<n>:FORMat

Description Write or read the display format of the specified digital bus.

Command Syntax DIGital:BUS<n>:FORMat <format>
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<format>:= {BINary | DECimal | HEX | ASCii}

- BINary presents the decoded data in binary format
- DECimal presents the decoded data in decimal format
- HEX presents the decoded data in hexadecimal format
- ASCii presents the decoded data in ASCII format

Query Syntax DIGital:BUS<n>:FORMat?

Example DiG:BUD1:FORM HEX
DiG:BUD1:FORM ?

Query Respond Returns: HEXadecimal

16.6 DIGital:BUS<n>:MAP

Description Write or read the bit order of each digital channel in the digital bus and the bit width of the digital bus.

Command Syntax DIGital:BUS<n>:MAP <source>[...[,<source>]]
<n>:= {1 | 2}, is attached as a suffix to BUS and defines the bus that is affected by the command.

<source>:= {D<x>}
<x>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Note:

- It will synchronously set the bit width of the digital bus, which is determined by the number of parameters.
- Use the command :DIGital:BUS<n>:DEFault to reset the bit sequence to d0-d15 according to the current digital bus bit width.

Query Syntax DIGital:BUS<n>:MAP?

Example DIG:BUS1:MAP D0,D3,D7,D15
DIG:BUS1:MAP?

Query Respond Returns: D0,D3,D7,D15

Related Commands **DIGital:BUS<n>:DEFault**
DIGital:D<n>

16.7 DIGital:D<n>

Description Write or read the state of the specified digital channel.(ON |OFF)

Command Syntax DIGital:D<n> <state>
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point. <state>:= {ON | OFF}

- ON enables the specified digital channel.
- OFF disables the specified digital channel.

Query Syntax DIGital:D<n>?

Example DIG:D5 OFF
DIG:D5?

Query Respond Returns: OFF

Related Commands **DIGital**

16.8 DIGital:HEIGht

Description Write or read the height of digital channel waveform display.

Command Syntax DIGital:HEIGht <value>
<value>:= Value in NR3 format, including a decimal point and exponent. This value indicates the number of divisions occupied by the digital waveform in the vertical direction when the waveform area is not compressed. The range of the value is [4.00E+00, 8.00E+00].

Query Syntax DIGital:HEIGht?

Example DIG:HEIG 6.00E+00
DIG:HEIG?

Query Respond Returns: 6.00E+00

Related Commnads **DIGital:POSition**

16.9 DIGital:LABel<n>

Description Write or read the label text of the selected digital channel.

Command Syntax DIGital:LABel<n> <string>
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.
<string>:= Quoted string of ASCII text. The length of the string is limited to 7.

Query Syntax DIGital:LABel?

Example DIG:LAB15 "IIC_DATA"
DIG:LAB15?

Query Respond Returns: "IIC_DATA"

Related Commands **DIGital:LABel<n>**

16.10 DIGital:POINts

Description Returns the number of sampling points of the digital channel.

Query Syntax DIGital:POINts?

Example DIG:POIN?

Query Respond Returns: 1.00E+06

Related Commands **DIGital:SRATe**

16.11 DIGital:POSition

Description Write or read the position of the digital channel waveform display.

Command Syntax DIGital:POSition <value>
<value>:= Value in NR3 format, including a decimal point and exponent. This value indicates the number of divisions the digital waveform moves from top to bottom of the waveform area when the waveform area is not compressed

Note:

The range of legal values varies with the number of digital channels displayed.

Query Syntax DIGital:POSition?

Example DIG:POS 4.00E+00
DIG:POS?

Query Respond Returns: 4.00E+00

Related Commands **DIGital:HEIGht**

16.12 DIGital:SKEW

Description Write or read the skew of the digital channel.

Command Syntax DIGital:SKEW <value>
<value>:= Value in NR3 format, including a decimal point and exponent.The range of the value is [-1.00E-07, 1.00E-07].

Query Syntax DIGital:SKEW?

Example DIG:SKEW 1.00E-07
DIG:SKEW?

Query Respond Returns:1.00E-07

16.13 DIGital:SRATe

Description Returns the sampling rate of the digital channel.

Query Syntax DIGital:SRATe?

Example DIG:SRAT?

Query Respond Returns: 5.00E+08

16.14 DIGital:THReshold<n>

Description Write or read the threshold value of the digital channel group.

Command Syntax DIGital:THReshold<n> <type>
<n>:= {1 | 2}

- 1 := D0-D7
- 2 := D8-D15

<type>:= {TTL | CMOS | LVCMOS33 | LVCMOS25 | CUSTom[,<value>]}
<value>:= Value in NR3 format, including a decimal point and exponent.The range of the value is [-1.00E+01, 1.00E+01]

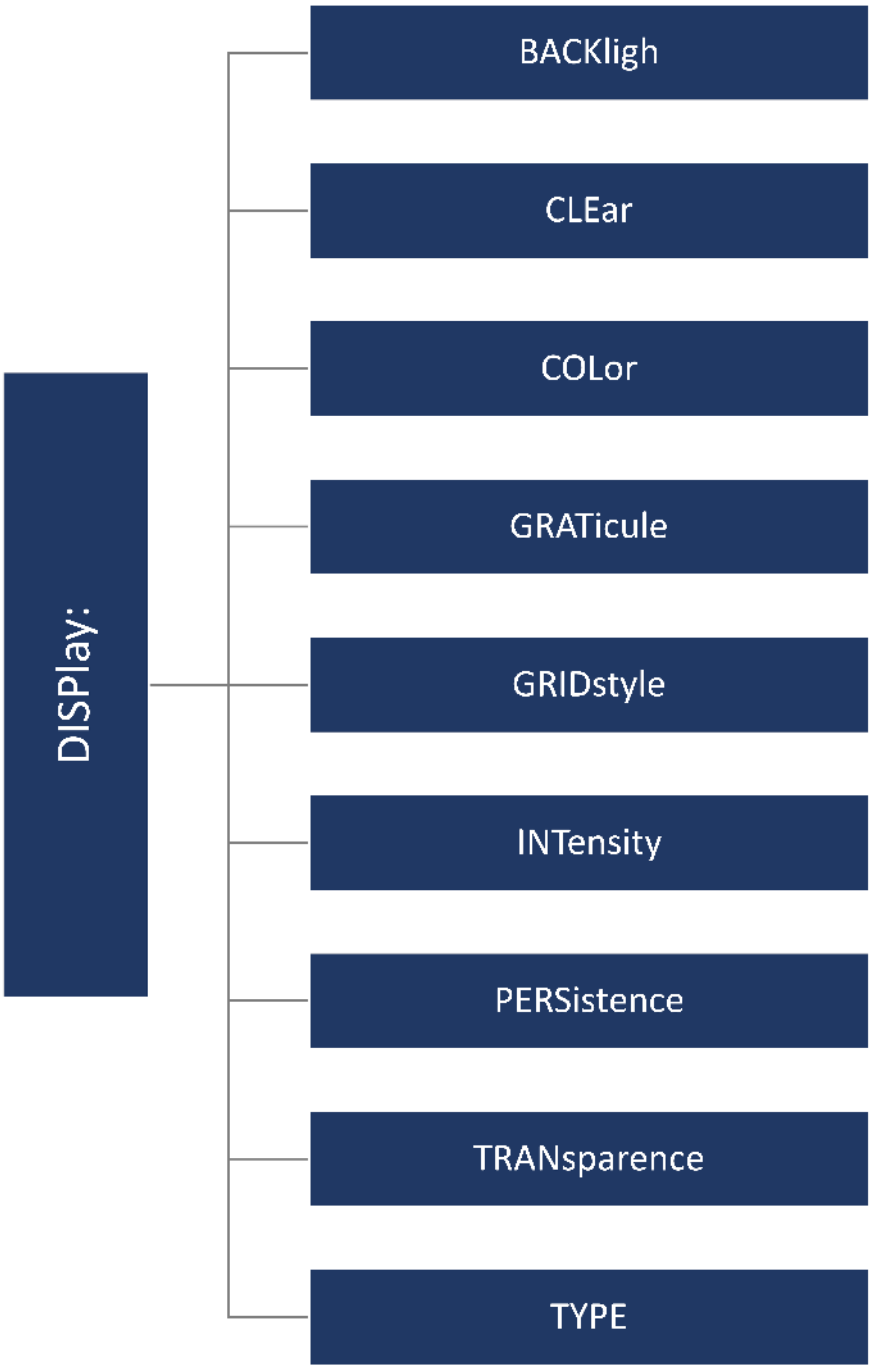
Query Syntax DIGital:THReshold<n>?

Example DIG:THR1 CMOS
DIG:THR1?

Query Respond Returns: CMOS

Display Commands

The **Display** subsystem commands control waveforms and screen displays.



17.1 DISPlay:BACKlight

Description Write or read the backlight level of the screen.

Command Syntax DISPlay:BACKlight <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 100]. 0 is the least bright and 100 is the brightest.

Query Syntax DISPlay:BACKlight?

Example DISP:BACK 100
DISP:BACK?

Query Respond Returns: 100

17.2 DISPlay:CLEar

Description Clears the waveform displayed on the screen.

Command Syntax DISPlay:CLEar

Example DISP:CLE

Related Commands **ACQuire:CSWeep**

17.3 DISPlay:COLor

Description Write or read the state of the color grade.

Command Syntax DISPlay:COLor <state>
<state>:= {ON | OFF}

Query Syntax DISPlay:COLor?

Example DISP:COL ON
DISP:COL?

Query Respond Returns: ON

17.4 DISPlay:GRATicule

Description Write or read the brightness level of the grid.

Command Syntax DISPlay:GRATicule <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 100]. 0 is the least bright and 100 is the brightest.

Query Syntax DISPlay:GRATicule?

Example DISP:GRAT 50
DISP:GRAT?

Query Respond Returns: 50

17.5 DISPlay:GRIDstyle

Description Wriate or read the type of grid to display.

Command Syntax DISPlay:GRIDstyle <type>
<type>:= {FULL | LIGHt | NONE}

Query Syntax DISPlay:GRIDstyle?

Example DISP:GRID LIGH
DISP:GRID?

Query Respond Returns: LIGH

17.6 DISPlay:INTensity

Description Wrrite or read the intensity level of the waveform.

Command Syntax DISPlay:INTensity <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 100]. 0 is the least bright and 100 is the brightest.

Query Syntax DISPlay:INTensity?

Example DISP:INT 75
DISP:INT?

Query Respond Returns: 75

17.7 DISPlay:PERSistence

Description Write or read the persistence duration of the display, in seconds, in persistence mode.

Command Syntax DISPlay:PERSistence <time>
<time>:= {OFF | INFinite | 1S | 5S | 10S | 30S}

Query Syntax DISPlay:PERSistence?

Example DISP:PERS 5S
DISP:PERS?

Query Respond Returns: 5S

17.8 DISPlay:TRANsparence

Description Write or read he transparency level of the information bar.

Command Syntax DISPlay:TRANsparence <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 100]. 0 is the least transparent and 100 is the most transparent.

Query Syntax DISPlay:TRANsparence?

Example DISP:TRAN 80
DISP:TRAN?

Query Respond Returns: 80

17.9 DISPlay:TYPE

Description Write or read the interpolation lines between data points.

Command Syntax DISPlay:TYPE <type>
<type>:= {VECTor | DOT}

- **VECTor** is the default mode and draws lines between points.
- **DOT** mode displays data more quickly than vector mode but does not draw lines between sample points.

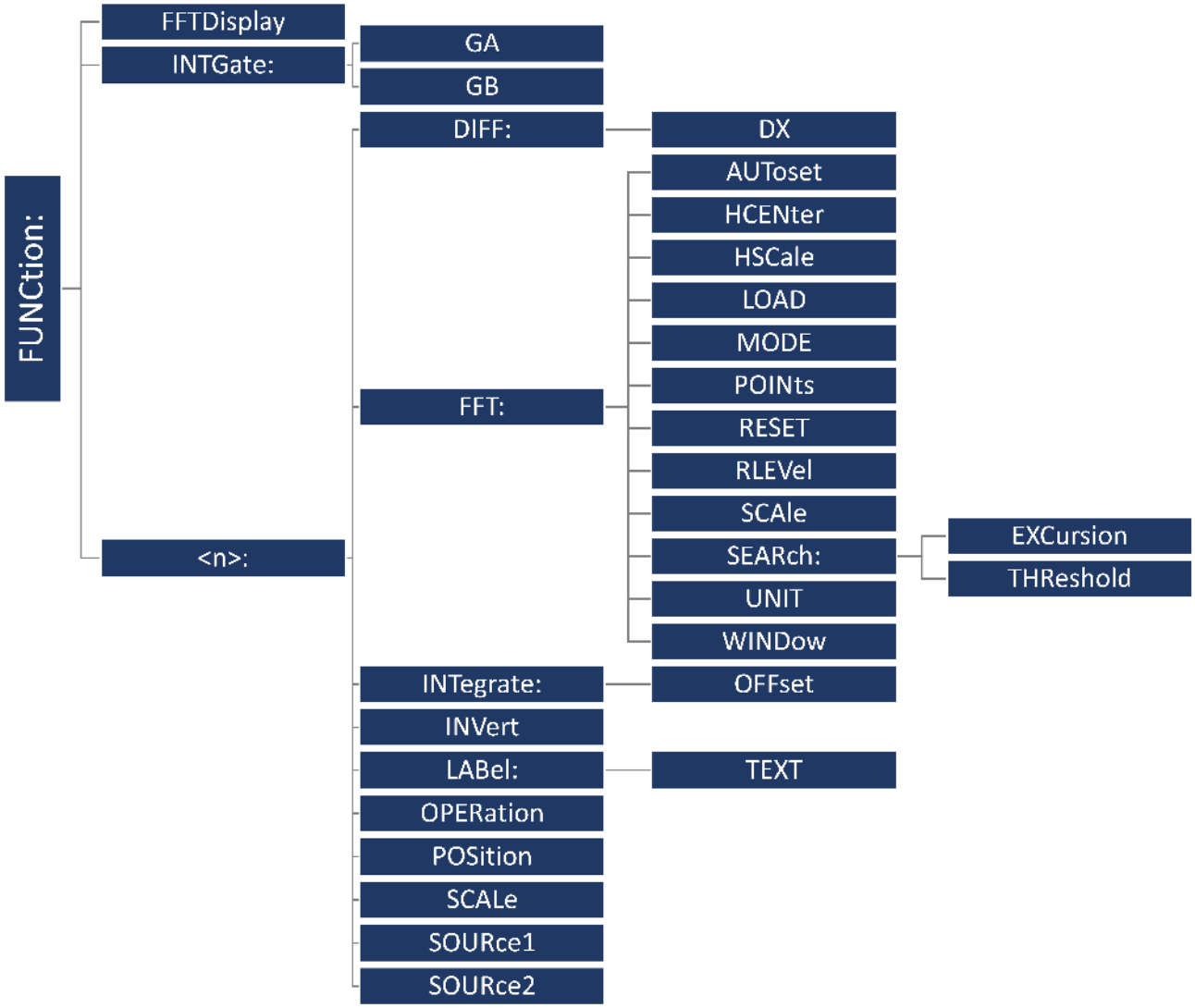
Query Syntax DISPlay:TYPE?

Example DISP:TYPE VECT
DISP:TYPE?

Query Respond Returns: VECTor

Function Commands

The **Function** subsystem commands control the math functions in the oscilloscope.



18.1 FUNCtion:FFTDisplay

Description Write or read the display mode of the FFT waveform.

Command Syntax FUNCtion:FFTDisplay <mode>
<mode>:= {SPLit | FULL | EXCLusive}

- SPLit means that the channel waveform and the FFT waveform are displayed on the screen separately.
- FULL means a full-screen display of the FFT waveform.
- EXCLusive means that only the FFT waveform is displayed on the screen.

Query Syntax FUNCtion:FFTDisplay?

Example FUNC:FFTD SPL
FUNC:FFTD?

Query Respond Returns: SPLit

18.2 FUNCtion:INTGate

Description Write or read the state of the integral operation. (ON | OFF)

Note:

The command is valid for all math integral waveforms at the same time. The query returns the integration threshold state of F1.

Command Syntax FUNCtion:INTGate <state>
<state>:= {ON | OFF}

Query Syntax FUNCtion:INTGate?

Example FUNC:INTG ON
FUNC:INTG?

Query Respond Returns: ON

Related Commands **FUNCtion:INTGate:GA**
FUNCtion:INTGate:GB

18.3 FUNCtion:INTGate:GA

Description Write or read the position of gate A.

Note:

The command is valid for all math integral waveforms at the same time. And the query returns the integration gate A of F1.

Command Syntax FUNCtion<n>:INTGate:GA <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-horizontal_grid/2*timebase, horizontal_grid/2*timebase]

Note:

The value of GA cannot be greater than that of GB. If you set the value greater than GB, it will automatically be set to the same value as GB.

Query Syntax FUNCtion<n>:INTGate:GA?

Example FUNC:INTG:GA -1.00E-07
FUNC:INTG:GA?

Query Respond Returns: -1.00E-07

Related Commands **FUNCtion:INTGate**
FUNCtion:INTGate:GB

18.4 FUNCtion:INTGate:GB

Description Write or read the position of gate B.

Note:

The command is valid for all math integral waveforms at the same time. And the query returns the integration gate B of F1.

Command Syntax FUNCtion<n>:INTGate:GB <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-horizontal_grid/2*timebase, horizontal_grid/2*timebase].

Note:

The value of GB cannot be less than that of GA. If you set the value less than GA, it will automatically be set to the same value as GA.

Query Syntax FUNCtion<n>:INTGate:GB?

Example FUNC:INTG:GB 2.00E-07
FUNC:INTG:GB?

Query Respond Returns: 2.00E-07

Related Commnads **FUNCtion:INTGate**
FUNCtion:INTGate:GA

18.5 FUNCtion<n>

Description Write or read the switch of the math function.

Command Syntax FUNCtion<n> <state>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math function that is affected by the command.
<state>:= {ON | OFF}

Query Syntax FUNCtion<n>?

Example FUNC1 ON
FUNC1?

Query Respond Returns: ON

18.6 FUNCtion<n>:DIFF:DX

Description Write or read the step size of the differential operation.

Command Syntax FUNCtion<n>:DIFF:DX <dx>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<dx>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [2, 20]

Query Syntax FUNCtion<n>:DIFF:DX?

Example FUNC1:DIFF:DX 8
FUNC1:DIFF:DX?

Query Respond Returns: 8

18.7 FUNCtion<n>:FFT:AUToset

Description Automatically sets the settings that will cause the FFT waveform to be displayed at the best position on the screen.

Command Syntax FUNCtion<n>:FFT:AUToset <type> <n>:= {1 | 2}, is attached as a suffix to on FUNCtion and defines the math that is affected by the command.
<type> := {SPAN | PEAK | NORMal}

Example FUNC2:FFT:AUT SPAN

18.8 FUNCtion<n>:FFT:HCENter

Description Write or read the center frequency of FFT.

Command Syntax FUNCtion<n>:FFT:HCENter
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
:= Value in NR3 format, including a decimal point and exponent.

Note:

The range of legal values varies with the value set by the command **TIMebase:SCALe**.

Query Syntax FUNCtion<n>:FFT:HCENter?

Example FUNC2:FFT:HCEN 2.00E+06
FUNC2:FFT:HCEN?

Query Respond Returns: 2.00E+06Hz

Related Commands **TIMebase:SCALe**

18.9 FUNCtion<n>:FFT:LOAD

Description Write or read sets the external load of the FFT.

Command Syntax FUNCtion<n>:FFT:LOAD <load>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<load>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1, 1000000].

Note:

The load can be set only when the FFT unit is dBm.

Query Syntax FUNCtion<n>:FFT:LOAD?

Example FUNC2:FFT:LOAD 50
FUNC2:FFT:LOAD?

Query Respond Returns: 50

Related Commands **FUNCtion<n>:FFT:UNIT**

18.10 FUNCtion<n>:FFT:MODE

Description Write or read the acquisition mode of the FFT operation.

Command Syntax FUNCtion<n>:FFT:MODE <mode>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command. <mode>:= {NORMal | MAXHold | AVERage[,<num>]}

- NORMal sets the FFT in the normal mode.
- MAXHold sets the FFT in the max detect mode.
- AVERage sets the FFT in the averaging mode.

<num>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [4, 1024].

Query Syntax FUNCtion<n>:FFT:MODE?

Example FUNC2:FFT:MODE NORM
FUNC2:FFT:MODE?

Query Respond Returns: Normal

18.11 FUNCtion<n>:FFT:POINts

Description Write or read the maximum number of points for the FFT operation.

Command Syntax FUNCtion<n>:FFT:POINts <point>
<n>:= {1 |2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<point>:= {2k | 4k | 8k | 16k | 32k | 64k | 128k | 256k | 512k | 1M | 2M}

Query Syntax FUNCtion<n>:FFT:POINts?

Example FUNC2:FFT:POIN 2M
FUNC2:FFT:POIN?

Query Respond Returns: 2M

18.12 FUNCtion<n>:FFT:RESET

Description Restarts counting when the acquisition mode is average.

Command Syntax FUNCtion<n>:FFT:RESET
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.

Example FUNC2:FFT:RESET

Related Commands **FUNCtion<n>:FFT:MODE**

18.13 FUNCtion<n>:FFT:RLEVel

Description Write or read the reference level of the FFT operation.

Command Syntax FUNCtion<n>:FFT:RLEVel <level>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<level>:= Value in NR3 format, including a decimal point and exponent. The range of the values is related to the probe of the FFT source.

Probe	dBVrms	Vrms	dBm
1E6 X	[-40,200]	[1E-2,1E10]	[-27,213]
1E5 X	[-60,180]	[1E-3,1E9]	[-47,193]
1E4 X	[-80,160]	[1E-4,1E8]	[-67,173]
1000X	[-100,140]	[1E-5,1E7]	[-87,153]
100X	[-120,120]	[1E-6,1E6]	[-107,133]
10X	[-140,100]	[1E-7,1E5]	[-127,113]
1	[-160,80]	[1E-8,1E4]	[-147,93]
0.1X	[-180,60]	[1E-9,1E3]	[-167,73]
0.01X	[-200,40]	[1E-10,1E2]	[-187,53]
1E-3 X	[-220,20]	[1E-11,10]	[-207,33]
1E-4 X	[-240,0]	[1E-12,1]	[-227,13]
1E-5 X	[-260,-20]	[1E-13,1E-1]	[-247,-7]
1E-6 X	[-280,-40]	[1E-14,1E-2]	[-267,-27]

Table 18.1 FFT Level

Note:

The smaller the :FUNCtion<n>:FFT:SCALe,
the greater the accuracy of the level value.

Query Syntax FUNCtion<n>:FFT:RLEVel?

Example FUNC2:FFT:RLEV 1.00E+01
FUNC2:FFT:RLEV?

Query Respond Returns: 1.00E+01

Related Commnads **CHANnel<n>:PROBe**
FUNCtion<n>:FFT:SCALe

18.14 FUNCtion<n>:FFT:SCALe

Description Write or read the vertical scale of the FFT.

Command Syntax FUNCtion<n>:FFT:SCALe <scale>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<scale>:= Value in NR3 format, including a decimal point and exponent. The range of the values is related to the vertical unit.

Unit	Rang.
dBVrms	
Vrms	
dBm	

Table 18.2 FFT Scale

Query Syntax FUNCtion<n>:FFT:SCALe?

Example FUNC2:FFT:SCAL 2.00E+01
FUNC2:FFT:SCAL?

Query Respond Returns: 2.00E+01

Related Commands **CHANnel<n>:PROBe**

18.15 FUNCtion<n>:FFT:SEARch

Description Write or read the search tools type of the FFT operation.

Command Syntax FUNCtion<n>:FFT:SEARch <type>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<type>:= {OFF | PEAK | MARKer}

Query Syntax FUNCtion<n>:FFT:SEARch?

Example FUNC2:FFT:SEAR MAR
FUNC2:FFT:SEAR?

Query Respond Returns: MARKer

Related Commands **FUNCtion<n>:FFT:SEARch:THReshold**
FUNCtion<n>:FFT:SEARch:EXCursion

18.16 FUNCtion<n>:FFT:SEARch:EXCursion

Description Write or read the search excursion of the search tool (marker or peak) for the FFT operation.

Command Syntax FUNCtion<n>:FFT:SEARch:EXCursion <value>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the values is [0, 1.60E+02] when the FFT unit is dBVrms. The value range varies with the corresponding unit.

Note:

The range of values varies with the value set by the **CHANnel<n>:PROBe** commands.

Query Syntax FUNCtion<n>:FFT:SEARch:EXCursion?

Example FUNC2:FFT:SEAR:EXC 2.00E+01
FUNC2:FFT:SEAR:EXC?

Query Respond Returns: 2.00E+01

Related Commands **FUNCtion<n>:FFT:SEARch:THReshold**

18.17 FUNCtion<n>:FFT:SEARch:THReshold

Description Write or read the search threshold of the search tool (marker or peak) for the FFT operation.

Command Syntax FUNCtion<n>:FFT:SEARch:THReshold <value>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the values is [-1.60E+02, 8.00E+01], when FFT unit is dBVrms. The value changes to match the set Units value.

Query Syntax FUNCtion<n>:FFT:SEARch:THReshold?

Example FUNC2:FFT:SEAR:THR -1.00E+2
FUNC2:FFT:SEAR:THR?

Query Respond Returns: -1.00E+02

Related Commands **FUNCtion<n>:FFT:SEARch:EXCursion**

18.18 FUNCtion<n>:FFT:UNIT

Description Write or read the unit type of the FFT operation.

Command Syntax FUNCtion<n>:FFT:UNIT <unit>
<n>:= {1 | 2} is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<unit>:= {DBVrms | Vrms | DBm}

Query Syntax FUNCtion<n>:FFT:UNIT?

Example FUNC2:FFT:UNIT DBVrms
FUNC2:FFT:UNIT?

Query Respond Returns: DBVrms

18.19 FUNCtion<n>:FFT:WINDow

Description Write or read the window type of the FFT operation.

Command Syntax FUNCtion<n>:FFT:WINDow <window>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<window>:= {RECTangle | BLACkman | HANNing | HAMMing | FLATtop}

- RECTangle is useful for transient signals, and signals where there are an integral number of cycles in the time record.
- BLACkman reduces time resolution compared to the rectangular window, but it improves the capacity to detect smaller impulses due to lower secondary lobes (provides minimal spectral leakage).
- HANNing is useful for frequency resolution and general-purpose use. It is good for resolving two frequencies that are close together, or for making frequency measurements.
- HAMMing means Hamming.
- FLATtop is the best for making accurate amplitude measurements of frequency peaks.

Query Syntax FUNCtion<n>:FFT:WINDow?

Example FUNC2:FFT:WIND FLAT
FUNC2:FFT:WIND?

Query Respond Returns: FLATtop

18.20 FUNCtion<n>:INTegrate:OFFSet

Description Write or read the dc offset of the integrate operation.

Command Syntax FUNCtion<n>:INTegrate:OFFSet <offset>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<offset>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-1.67E+00, 1.67E+00].

Query Syntax FUNCtion<n>:INTegrate:OFFSet?

Example FUNC1:INT:OFFS 1.00E-01
FUNC1:INT:OFFS?

Query Respond Returns: 1.00E-01

Related Commands **CHANnel<n>:PROBe**

18.21 FUNCtion<n>:INVert

Description Write or read the invert state of the math waveform.

Command Syntax FUNCtion<n>:INVert <state>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<state>:= {ON | OFF}

Query Syntax FUNCtion<n>:INVert?

Example FUNC1:INV ON
FUNC1:INV?

Query Respond Returns: ON

18.22 FUNCtion<n>:LABel

Description Write or read the state of the specified math label.(ON or OFF)

Command Syntax FUNCtion<n>:LABel <state>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<state>:= {ON | OFF}

Query Syntax FUNCtion<n>:LABel?

Example FUNC1:LAB ON
FUNC1:LAB?

Query Respond Returns: **FUNCtion<n>:LABel:TEXT**

18.23 FUNCtion<n>:LABel:TEXT

Description Write or read the selected math label to the string that follows. Setting a label for a math function also adds the name to the label list in non-volatile memory (replacing the oldest label in the list)

Command Syntax FUNCtion<n>:LABel:TEXT <string>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<string>:= Quoted string of ASCII text. The length of the string is limited to 20.

Query Syntax FUNCtion<n>:LABel:TEXT?

Example FUNC1:LAB:TEXT "MATH" FUNC1:LAB:TEXT?

Query Respond Returns: MATH

Related Commands FUNCtion<n>:LABe

18.24 FUNCtion<n>:OPERation

Description Write or read the desired waveform math operation.

Command Syntax FUNCtion<n>:OPERation <operation>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<operation>:= {ADD | SUBTract | MULTiply | DIVision | INTegrate | DIFF | FFT | SQRT | ERES | AVERage}

Query Syntax FUNCtion<n>:OPERation?

Example FUNC1:OPER MULT
FUNC1:OPER?

Query Respond Returns: MULTiply

18.25 FUNCtion<n>:POSition

Description Write or read the vertical position of the selected math operation (arithmetic and algebra operation).

Command Syntax FUNCtion<n>:POSition <offset>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<offset>:= Value in NR3 format, including a decimal point and exponent.

Note:

The range of values is uniform related to an operation.

Query Syntax FUNCtion<n>:POSition?

Example FUNC1:POS 5.00E-01
FUNC1:POS?

Query Respond Returns: 5.00E-01

Related Commands **FUNCtion<n>:OPERation**

18.26 FUNCtion<n>:SCALe

Description Write or read the vertical scale of the selected math operation (arithmetic and algebra operation).

Command Syntax FUNCtion<n>:SCALe <scale>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<scale>:= Value in NR3 format, including a decimal point and exponent.

Note:

The range of the function scale is related to the scale of the function source. When the operation is **INTegrate** or **DIFF**, the scale range is related to the timebase.

Query Syntax FUNCtion<n>:SCALe?

Example FUNC1:SCAL 1.00E+00
FUNC1:SCAL?

Query Respond Returns: 1.000E+00

Related Commands **CHANnel<n>:SCALe**

18.27 FUNCtion<n>:SOURce1

Description Write or read the source1 of the math operation.

Command Syntax FUNCtion<n>:SOURce1 <source>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<source>:= {C<x> | Z<x> | F<x>}
- C is analog channel <x>
- Z is zoom channel <x>
- F is math function <x>, for math-on-math operations

<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.

Note:

Z<x> is optional only when Zoom is on.
FUNCtion<n> cannot set itself as the source.

Query Syntax FUNCtion<n>:SOURce1?

Example
```
FUNC2:SOUR1 C1
FUNC2:SOUR1?
```

Query Respond Returns: C1

Related Commands **FUNCtion<n>:SOURce2**

18.28 FUNCtion<n>:SOURce2

Description Write or read the source1 of the math operation.

Command Syntax FUNCtion<n>:SOURce2 <source>
<n>:= {1 | 2}, is attached as a suffix to FUNCtion and defines the math that is affected by the command.
<source>:= {C<x> | Z<x> | F<x>}
- C is analog channel <x>
- Z is zoom channel <x>
- F is math function <x>, for math-on-math operations

<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.

Note:

Z<x> is optional only when Zoom is on.
FUNCtion<n> cannot set itself as the source.

Query Syntax FUNCtion<n>:SOURce2?

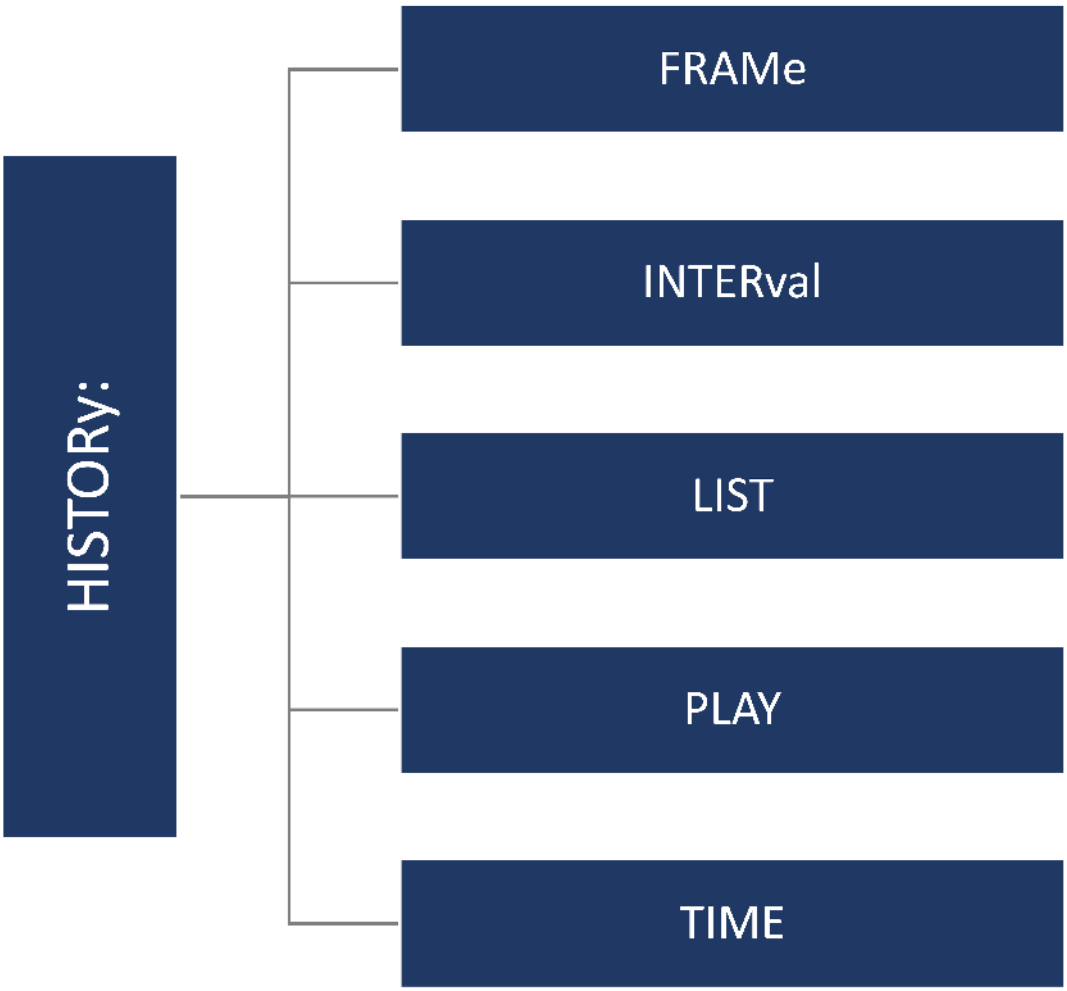
Example FUNC2:SOUR1 C1
FUNC2:SOUR1?

Query Respond Returns: C1

Related Commands **FUNCtion<n>:SOURce2**

History Commands

The :HISTORy subsystem commands control the waveform recording function and the history waveform play function.



19.1 HISTORy

Description Write or read the mode of the history function.

Command Syntax HISTORy <state> <state>:= {ON | OFF}

Query Syntax HISTORy?

Example
HISTOR ON
HISTOR?

Query Respond Returns: ON

19.2 HISTORy:FRAMe

Description Write or read the number of the history frame.

Command Syntax HISTORy:FRAMe <value>
<value>:= Value in NR1 format, including an integer and no decimal point.

Note:

The maximum number of frames is related to the number of samples set for the acquisition (memory depth). More points/frame means less total frames available. Fewer points/frame equals more frames available.

Query Syntax HISTORy:FRAMe?

Example
HISTOR:FRAM 4
HISTOR:FRAM?

Query Respond Returns: 4

19.3 HISTORy:INTERval

Description Write or read the play interval of the history frame.

Command Syntax HISTORy:INTERval <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [1.00E-06, 1].

Query Syntax HISTORy:INTERval?

Example
HISTOR:INTER 1.00E-03
HISTOR:INTER?

Query Respond Returns: 1.00E-03

19.4 HISTORy:LIST

Description Write or read the state of the history list.

Command Syntax HISTORy:LIST <state>
<state>:= {OFF | ON[,<type>]}
<type>:= {TIME | DELTa}
- TIME indicates that the time column is displayed by sampling time
- DELTa indicates that the time column is displayed by the sampling interval.

Query Syntax HISTORy:LIST?

Example HISTOR:LIST ON,TIME
HISTOR:LIST?

Query Respond Returns: ON,TIME

19.5 HISTORy:PLAY

Description Write or read the play state of the history waveform.

Command Syntax HISTORy:PLAY <state>
<state>:= {BACKWards | PAUSe | FORWards}
- BACKWards indicates that the frame number is played from highest frame number to lowest (last-to-first, chronologically).
- FORWards indicates that the frame number is played from the lowest frame number to the highest (first-to-last, chronologically).
- PAUSe will pause playback.

Query Syntax HISTORy:PLAY?

Example HISTOR:PLAY BACKW
HISTOR:PLAY?

Query Respond Returns: BACKWards

19.6 HISTORy:TIME

Description Returns the acquire timestamp of the current frame.

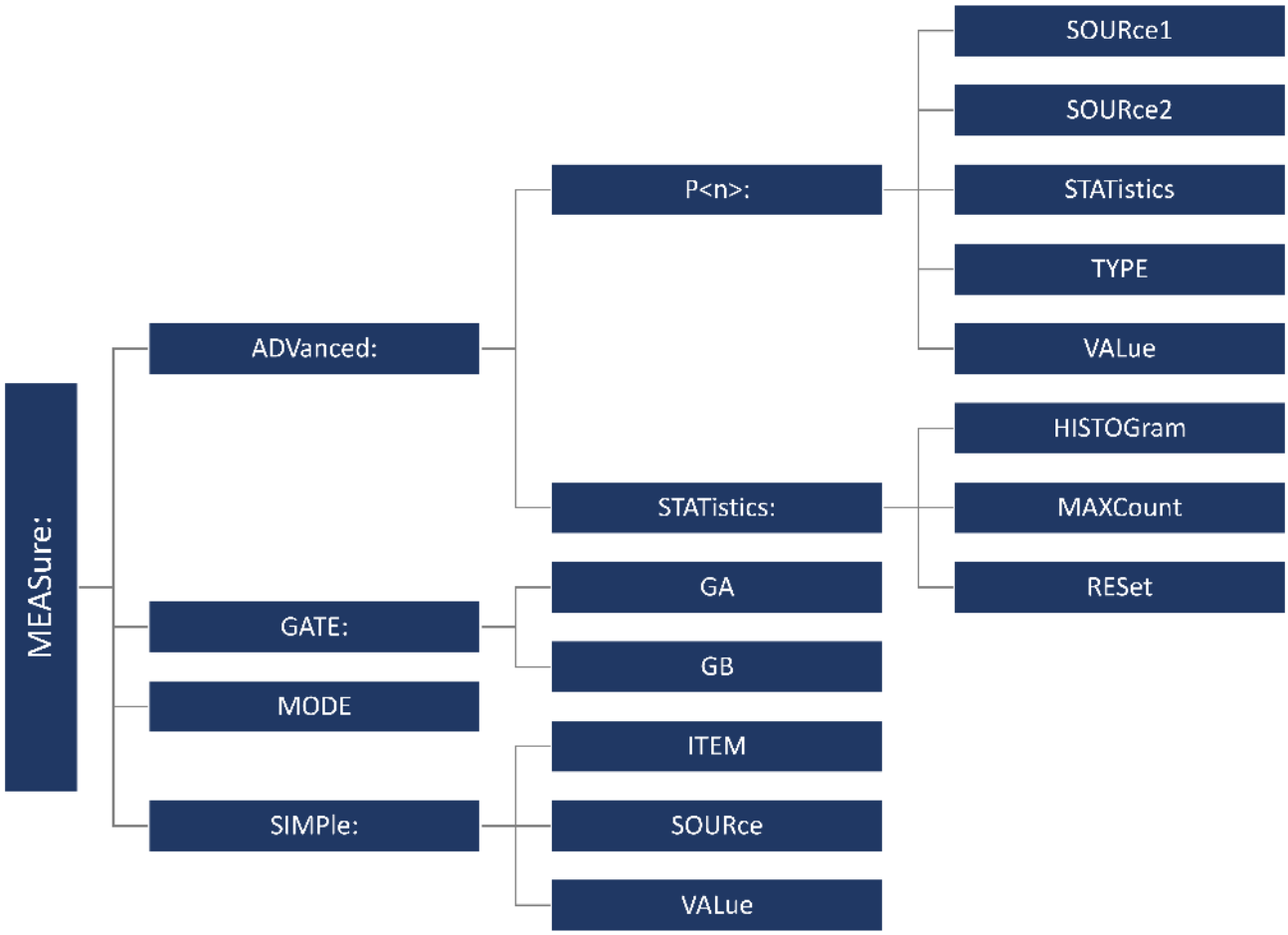
Query Syntax HISTORy:TIME?

Example HISTOR:TIME?

Query Respond Returns: 22: 23: 24. 993866

Measure Commands

The **MEASure** subsystem commands are used to control automatic measurements.



20.1 MEASure

Description Write or read the state of the measurement function.

Command Syntax MEASure <state>
<state>:= {ON | OFF}

Query Syntax MEASure?

Example MEAS ON
MEAS?

Query Respond Returns: ON

20.2 MEASure:ADVanced:LINenumber

Description Write or read the total number of advanced measurement items displayed.

Command Syntax MEASure:ADVanced:LINenumber <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1, 12].

Query Syntax MEASure:ADVanced:LINenumber?

Example MEAS:ADV:LIN 12
MEAS:ADV:LIN?

Query Respond Returns: 12

Related Commands **MEASure:MODE**

20.3 MEASure:ADVanced:P<n>

Description Write or read the state of the specified measurement item.

Command Syntax MEASure:ADVanced:P<n> <state>
P is the physical location of the specified measurement on the display.
<n>:= {1 to 12}
<state>:= {ON | OFF}

Query Syntax MEASure:ADVanced:P<n>?

Example MEAS:ADV:P1 ON
MEAS:ADV:P1?

Query Respond Returns: ON

Related Commands **MEASure:ADVanced:P<n>:TYPE**
MEASure:ADVanced:P<n>:SOURce1
MEASure:ADVanced:P<n>:SOURce2

20.4 MEASure:ADVanced:P<n>:SOURce1

Description Write or read the source1 of the specified advanced measurement item.

Command Syntax MEASure:ADVanced:P<n>:SOURce1 <source>
<n>:= {1 to 12}
<source>:= {C<x> | Z<x | F<x | D<m | ZD<m | REFA | REFB | REFC | REFD}

- C denotes an analog input channel.
- Z denotes a zoomed input.
- F denotes a math function.
- D denotes a digital input channel.
- ZD denotes a zoomed digital input channel.
- REF denotes a reference waveform.

<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Note:

Z<x> and ZD<m> are optional only when Zoom is on. The source can only be set to C<x> when the type is delay measurement.

Query Syntax MEASure:ADVanced:P<n>:SOURce1?

Example
MEAS:ADV:P1:SOUR1 C1
MEAS:ADV:P1:SOUR1?

Query Respond Returns: C1

Related Commands MEASure:ADVanced:P<n>:SOURce2
MEASure:ADVanced:P<n>:TYPE

20.5 MEASure:ADVanced:P<n>:SOURce2

Description Write or read the source1 of the specified advanced measurement item.

Command Syntax MEASure:ADVanced:P<n>:SOURce2 <source>
<n>:= {1 to 12}
<source>:= {C<x> | Z<x | F<x | D<m | ZD<m | REFA | REFB | REFC | REFD}

- C denotes an analog input channel.
- Z denotes a zoomed input.
- F denotes a math function.
- D denotes a digital input channel.
- ZD denotes a zoomed digital input channel.
- REF denotes a reference waveform.

<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Note:

Z<x> and ZD<m> are optional only when Zoom is on. The source can only be set to C<x> when the type is delay measurement.

Query Syntax MEASure:ADVanced:P<n>:SOURce2?

Example MEAS:ADV:P1:SOUR2 C1
MEAS:ADV:P1:SOUR2?

Query Respond Returns: C1

Related Commands MEASure:ADVanced:P<n>:SOURce1
MEASure:ADVanced:P<n>:TYPE

20.6 MEASure:ADVanced:P<n>:STATistics

Description Returns statistics for the specified advanced measurement item.

Query Syntax MEASure:ADVanced:P<n>:STATistics? <type>
<n>:= {1 to 12} <type>:= {ALL | CURRent | MEAN | MAXimum | MINimum | STDev | COUNt}

- ALL returns all the statistics
- CURRent returns the current value of the statistics
- MEAN returns the mean value of the statistics
- MAXimum returns the maximum value of the statistics
- MINimum returns the minimum value of the statistics
- STDev returns the standard deviation of the statistics
- COUNt returns the current number of counts used to calculate the statistical data.

Note:

When measurement statistics are off, it returns OFF.

Example MEAS:ADV:P1:STAT? CURR

Query Respond Returns: 6.7E-02

Related Commands **MEASure:ADVanced:STATistics**

20.7 MEASure:ADVanced:P<n>:TYPE

Description Write or read the type for the specified measurement item.

Command Syntax MEASure:ADVanced:P<n>:TYPE <parameter> <n>:= {1 to 12} <parameter>:= {PKPK | MAX | MIN | AMPL | TOP | BASE | LEVELX | CMEAN | MEAN | STDEV | VSTD | RMS | CRMS | MEDIAN | CMEDIAN | OVSN | FPRE | OVSP | RPRE | PER | FREQ | TMAX | TMIN | PWID | NWID | DUTY | N DUTY | WID | NBWID | DELAY | TIMEL | RISE | FALL | RISE20T80 | F ALL80T20 | CCJ | PAREA | NAREA | AREA | ABSAREA | CYCLES | REDGES | FEDGES | EDGES | PPULSES | NPULSES | PHA | SKE W | FRR | FRF | FFR | FFF | LRR | LRF | LFR | LFF}

Parameter	Description
PKPK	Vertical peak-to-peak
MAX	Maximum vertical value
MIN	Minimum vertical value
AMPL	Vertical amplitude
TOP	Waveform top value
BASE	Waveform base value
LEVELX	Level measure at trigger position
CMEAN	Average value in the first cycle
MEAN	Average value
STDEV	Standard deviation of the data
VSTD	Standard deviation of the first cycle
RMS	RMS value
CRMS	RMS value in the first cycle
MEDIAN	Value at which 50% of the measurement are above and 50% are below
CMEDIAN	Median of the first cycle
OVSN	Overshoot of a falling edge
FPRE	Preshoot of a falling edge
OVSP	Overshoot of a rising edge
RPRE	Preshoot of a rising edge
PER	Period
FREQ	Frequency
TMAX	Time of maximum value
TMIN	Time of minimum value
PWID	Positive pulse width
NWID	Negative pulse width
WID	Time from the first rising edge to the last falling edge at the 50% crossing
DUTY	Positive duty cycle
NDUTY	Negative duty cycle
WID	Time from the first rising edge to the last falling edge at the 50% crossing
NBWID	Time from the first falling edge to the last rising edge at the 50% crossing
DELAY	Time from the trigger to the first transition at the 50% crossing
TIMEL	Time from the trigger to each rising edge at the 50% crossing
RISE	Duration of rising edge from 10-90%
FALL	Duration of falling edge from 10-90%
RISE20T80	Duration of rising edge from 20-80%
FALL80T20	Duration of falling edge from 80-20%

Table 20.1 Measurements

Parameter	Description
CCJ	The difference between two continuous periods
PAREA	Area of the waveform above zero
NAREA	Area of the waveform below zero
AREA	Area of the waveform
ABSAREA	Absolute area of the waveform
CYCLES	Number of cycles in a periodic waveform
EDGES	Number of edges in a waveform
REDGES	Number of rising edges in a waveform
FEDGES	Number of falling edges in a waveform
PPULSES	Number of edges a periodic waveform
NPULSES	Number of positive pulses in a waveform
PHA	Number of negative pulses in a waveform
SKEW	Phase difference between two edges
FRR	Time of source A edge minus time of nearest source B edge
FRF	The time between the first rising edge of source A and the following first rising edge of source B at the 50% crossing
FFR	The time between the first rising edge of source A and the following first falling edge of source B at the 50% crossing
FFF	The time between the first falling edge of source A and the following first falling edge of source B at the 50% crossing
LRR	The time between the first rising edge of source A and the following last rising edge of source B at the 50% crossing
LRF	The time between the first rising edge of source A and the last falling edge of source B at the 50% crossing
LFR	The time between the first falling edge of source A and the last rising edge of source B at the 50% crossing
LFF	The time between the first falling edge of source A and the last falling edge of source B at the 50% crossing

Table 20.2 Measurements Continued

Query Syntax MEASure:ADVanced:P<n>:TYPE?

Example MEAS:ADV:P1:TYPE MAX
MEAS:ADV:P1:TYPE?

Query Respond Returns: MAX

Related Commands **MEASure:ADVanced:P<n>**

20.8 MEASure:ADVanced:P<n>:VALue

Description Returns the value of the specified advanced measurement item.

Query Syntax MEASure:ADVanced:P<n>:VALue?
<n>:= {1 to 12}

Example MEAS:ADV:P1:VAL?

Query Respond Returns: 4.033E+00

Related Commands **MEASure:ADVanced:P<n>:TYPE**

20.9 MEASure:ADVanced:STATistics

Description Write or read the state of the measurement statistics.

Command Syntax MEASure:ADVanced:STATistics <state>
<state>:= {ON | OFF}

Query Syntax MEASure:ADVanced:STATistics?

Example MEAS:ADV:STAT ON
MEAS:ADV:STAT?

Query Respond Returns: ON

Related Commands **MEASure:ADVanced:P<n>:STATistics**

20.10 MEASure:ADVanced:STATistics:HISTOGram

Description Write or read the state of the histogram function.

Command Syntax MEASure:ADVanced:STATistics:HISTOGram <state>
<state>:= {ON | OFF}

Query Syntax MEASure:ADVanced:STATistics:HISTOGram?

Example MEAS:ADV:STAT:HISTOG ON
MEAS:ADV:STAT:HISTOG?

Query Respond Returns: ON

Related Commands **MEASure:ADVanced:STATistics**

20.11 MEASure:ADVanced:STATistics:MAXCount

Description Write or read the maximum value of the statistics count.

Command Syntax MEASure:ADVanced:STATistics:MAXCount <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 1024].

Note:

When the value is set to 0, it means unlimited statistics.

Query Syntax MEASure:ADVanced:STATistics:MAXCount?

Example MEAS:ADV:STAT:MAXC 1024
MEAS:ADV:STAT:MAXC?

Query Respond Returns: 1024

Related Commands **MEASure:ADVanced:STATistics**

20.12 MEASure:ADVanced:STATistics:RESet

Description Resets the measurement statistics.

Command Syntax MEASure:ADVanced:STATistics:RESet

Example MEAS:ADV:STAT:RES

Related Commands **MEASure:ADVanced:STATistics**

20.13 MEASure:ADVanced:STYLe

Description Write or read the display mode of the advanced measurements.

Command Syntax MEASure:ADVanced:STYLe <type>
<type>:= {M1 | M2}
- M1 lists a measurement, corresponding statistics, and histogram vertically on the display.
- M2 lists a measurement and corresponding statistics horizontally on the display. No histogram is available with M2.

Query Syntax MEASure:ADVanced:STYLe?

Example MEAS:ADV:STYL M1
MEAS:ADV:STYL?

Query Respond Returns: M1

20.14 MEASure:GATE

Description Write or read the state of the measurement gate.

Command Syntax MEASure:GATE <state>
<state>:= {ON | OFF}

Query Syntax MEASure:GATE?

Example MEAS:GATE ON
MEAS:GATE?

Query Respond Returns: ON

Related Commands **MEASure:GATE:GA**
MEASure:GATE:GB

20.15 MEASure:GATE:GA

Description Write or read the position of gate A.

Command Syntax MEASure:GATE:GA <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-horizontal_grid/2*timebase, horizontal_grid/2*timebase]

Note:

The value of GA cannot be greater than that of GB. If you set the value greater than GB, it will automatically be set to the same value as GB.

Query Syntax MEASure:GATE:GA?

Example MEAS:GATE:GA -1.00E-07
MEAS:GATE:GA?

Query Respond Returns: -1.00E-07

Related Commands **MEASure:GATE**
MEASure:GATE:GB

20.16 MEASure:GATE:GB

Description Write or read the position of gate B.

Command Syntax MEASure:GATE:GB <value> <value>:= Value in NR3 format, including a decimal point and exponent, like 1.23E+2. The range of the value is [-horizontal_grid/2*timebase, horizontal_grid/2*timebase]

Note:

The value of GB cannot be less than that of GA. If you set the value less than GA, it will automatically be set to the same value as GA.

Query Syntax MEASure:GATE:GB?

Example MEAS:GATE:GB 1.00E-07
MEAS:GATE:GB?

Query Respond Returns: 1.00E-07

Related Commands **MEASure:GATE**
MEASure:GATE:GA

20.17 MEASure:MODE

Description Write or read the mode of measurement.

Command Syntax MEASure:MODE <type>
<type>:= {SIMPle | ADVanced}

- SIMPle shows measurements only.
- ADVanced shows measurements and includes selections for statistics, view mode (M1, M2), histogram, and trending.

Query Syntax MEASure:MODE?

Example MEAS:MODE SIMP
MEAS:MODE?

Query Respond Returns: SIMPle

20.18 MEASure:SIMPle:ITEM

Description Sets the type of simple measurement.

Command Syntax MEASure:SIMPle:ITEM <parameter>,<state>
<parameter>:= {PKPK | MAX | MIN | AMPL | TOP | BASE | LEVELX | CMEAN | MEAN | STDEV | VSTD | RMS | CRMS | MEDIAN | CMEDIAN | OVSN | FPRE | OVSP | RPRE | PER | FREQ | TMAX | TMIN | PWID | NWID | DUTY | N DUTY | WID | NBWID | DELAY | TIMEL | RISE | FALL | RISE20T80 | F ALL80T20 | CCJ | PAREA | NAREA | AREA | ABSAREA | CYCLES | REDGES | FEDGES | EDGES | PPULSES | NPULSES}
<state>:= {ON | OFF}

Note:

See table **20.1** for details.

Example MEAS:SIMP:ITEM MAX,ON

Related Commands **MEASure:SIMPle:VALue**

20.19 MEASure:SIMPle:SOURce

Description Write or read the source of the simple measurement.

Command Syntax MEASure:SIMPle:SOURce <source>
<source>:= {C<x> | Z<x> | F<x> | D<m> | ZD<m> | REFA | REFB | REFC | REFD}

- C denotes an analog input channel. For example, C1 is analog input 1.
- Z denotes a zoomed waveform. For example, Z1 is zoom waveform 1.
- F denotes a math function. For example, F1 is math function 1.
- D denotes a digital waveform. For example, D1 denotes digital input 1.
- REF denotes a reference waveform.

<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Note:

Z<x> and ZD<m> are optional only when Zoom is on.

Query Syntax MEASure:SIMPle:SOURce?

Example MEAS:SIMP:SOUR C1
MEAS:SIMP:SOUR?

Query Respond Returns: C1

20.20 MEASure:SIMPle:VALue

Description Return the specified measurement value that appears on the simple measurement.

Query Syntax MEASure:SIMPle:VALue? <type>
<type>:= {PKPK | MAX | MIN | AMPL | TOP | BASE | LEVELX | CMEAN | MEAN | STDEV | VSTD | RMS | CRMS | MEDIAN | CMEDIAN | OVSN | FPRE | OVSP | RPRE | PER | FREQ | TMAX | TMIN | PWID | NWID | DUTY | N DUTY | WID | NBWID | DELAY | TIMEL | RISE | FALL | RISE20T80 | F ALL80T20 | CCJ | PAREA | NAREA | AREA | ABSAREA | CYCLES | REDGES | FEDGES | EDGES | PPULSES | NPULSES | ALL}

Note:

See table **20.1** for more details. ALL is only valid for queries, and it returns all measurement values of all measurement types except for delay measurements.

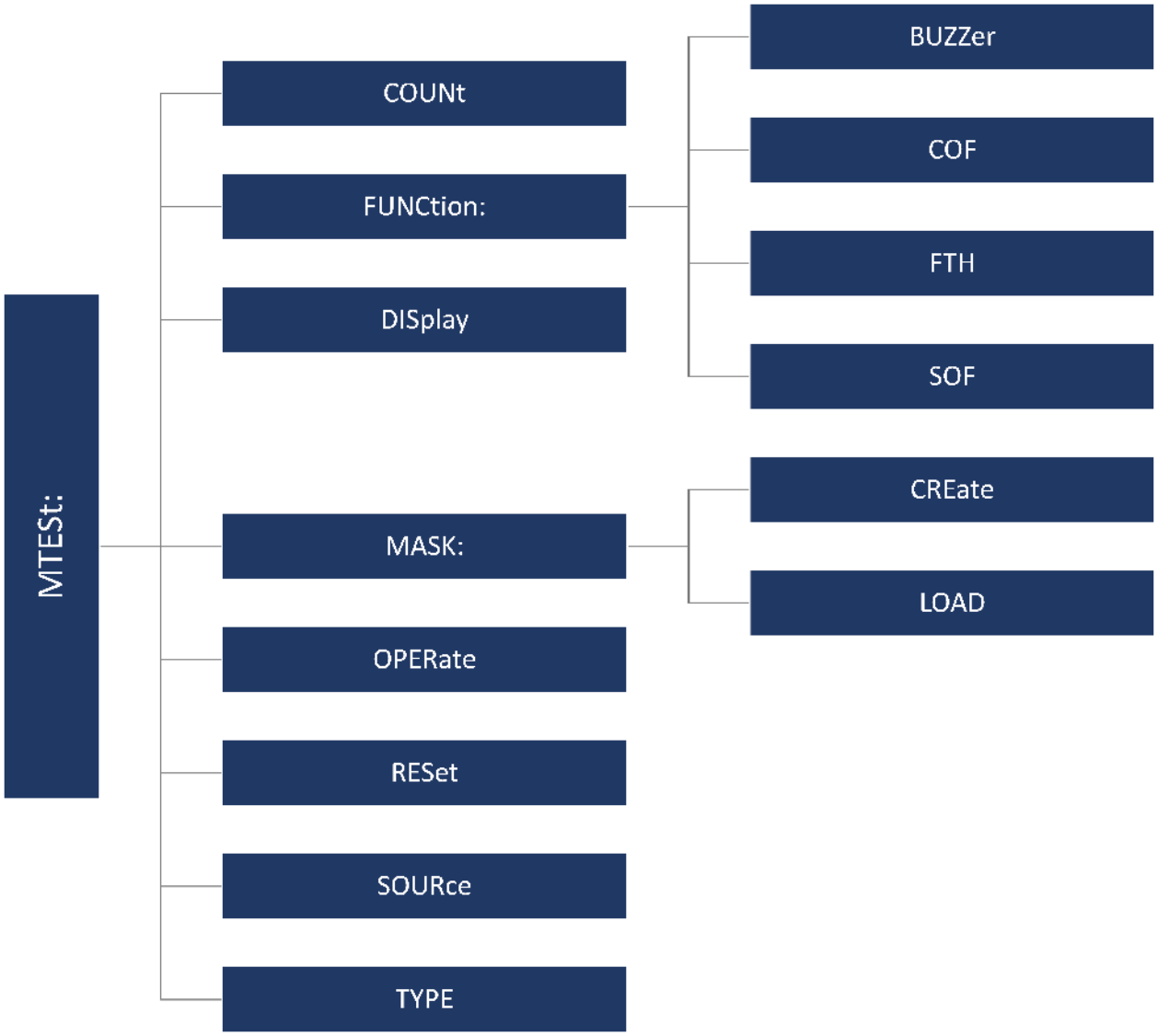
Example MEAS:SIMP:VAL? MAX

Query Respond Returns: 2.000E+00

Related Commands **MEASure:SIMPle:ITEM**

MTEst Commands

The **MTEst** subsystem commands control the mask test features.



21.1 MTESt

Description Write or read the state of the mask test.

Command Syntax MTESt <state>
<state>:= {ON | OFF}

Query Syntax MTESt?

Example MTES ON
MTES?

Query Respond Returns: ON

21.2 MTESt:COUNt

Description Retruns the result of the mask test.

Query Syntax MTESt:COUNt?

Example MTES:COUN?

Query Respond Returns: FAIL,38176,PASS,5617,TOTAL,43793

Related Commands **MTESt:OPERate**

21.3 MTESt:FUNCtion:BUZZer

Description Write or read the state of the buzzer when failure frames are detected.

Command Syntax MTESt:FUNCtion:BUZZer <state>
<state>:= {ON | OFF}

Query Syntax MTESt:FUNCtion:BUZZer?

Example MTES:FUNC:BUZZ ON
MTES:FUNC:BUZZ?

Query Respond Returns: ON

21.4 MTESt:FUNCtion:COF

Description Write or read the state of the mask test function "Capture on Fail".

Command Syntax MTESt:FUNCtion:COF <state>
<state>:= {OFF | ON}

Query Syntax MTESt:FUNCtion:COF?

Example MTES:FUNC:COF ON
MTES:FUNC:COF?

Query Respond Returns: ON

21.5 MTESt:FUNCtion:FTH

Description Write or read the state of the mask test function **Failure to History**.

Command Syntax MTESt:FUNCtion:FTH <state>
<state>:= {ON | OFF}

Query Syntax MTESt:FUNCtion:FTH?

Example MTES:FUNC:FTH ON
MTES:FUNC:FTH?

Query Respond Returns: ON

Related Commands **MTESt:OPERate**

21.6 MTESt:FUNCtion:SOF

Description Write or read the state of the mask test function **Stop-on-Fail**.

Command Syntax MTESt:FUNCtion:SOF <state>
<state>:= {ON | OFF}

Query Syntax MTESt:FUNCtion:SOF?

Example MTES:FUNC:SOF ON
MTES:FUNC:SOF?

Query Respond Returns: ON

21.7 MTESt:IDISplay

Description Write or read the state of the mask test result display.

Command Syntax MTESt:IDISplay <state>
<state>:= {ON | OFF}

Query Syntax MTESt:IDISplay?

Example MTES:IDIS ON
MTES:IDIS?

Query Respond Returns: ON

Related Commands **MTESt:COUNt**

21.8 MTESt:MASK:CREate

Description Set the mask X and mask Y of mask test.

Command Syntax MTESt:MASK:CREate <XMARgin>,<YMARgin>
<XMARgin>:= Value in NR2 format. The range of the value is [0.08, 4.00]
<YMARgin>:= Value in NR2 format. The range of the value is [0.08, 4.00]

Example MTES:MASK:CRE 0.8,0.08

21.9 MTESt:MASK:LOAD

Description Recalls the mask from internal or external memory locations.

Command Syntax MTESt:MASK:LOAD <location>
<location>:= {INTernal,<num> | EXTernal,<path>}
<num>:= {1 | 2 | 3 | 4}
<path>:= Quoted string of path name with an extension ".msk" or ".smsk"

Note:

The file format is not automatically determined by the file name extension. You need to choose a file name with an extension which is consistent with the selected file format.

Example MTES:MASK:LOAD INT,1
MTES:MASK:LOAD EXTernal,"BK/TEST.msk"

21.10 MTESt:OPERate

Description Write or read the state of the mask test operation.

Command Syntax MTESt:OPERate <state>
<state>:= {ON | OFF}

Query Syntax MTESt:OPERate?

Example MTES:OPER ON
MTES:OPER?

Query Respond Returns: ON

21.11 MTESt:RESet

Description Resets the mask test.

Command Syntax MTESt:RESet

Example MTES:RES

Related Commands **MTESt:OPERate**

21.12 MTESt:SOURce

Description Write or read the source of the mask test.

Command Syntax MTESt:SOURce <source>
<source>:= {C<x> | Z<x>}

- C denotes an analog input. C1 is analog input channel 1, for example.
- Z denotes a zoomed input. Z1 denotes zoom 1. <x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point

Note:

Only Z<x> can be selected when Zoom is on.

Query Syntax MTESt:SOURce?

Example
MTES:SOUR C1
MTES:SOUR?

Query Respond Returns: C1

21.13 MTESt:TYPE

Description Write or read the type of mask test.

Command Syntax MTESt:TYPE <type>
<type>:= {ALL_IN | ALL_OUT | ANY_IN | ANY_OUT}

- ALL_IN means that all of the waveform elements must fall within the mask area.
- ALL_OUT means that all of the waveform elements are all outside of the mask area.
- ANY_IN means that the waveform is partially within the mask area.
- ANY_OUT means that the waveform is partially outside the mask area.

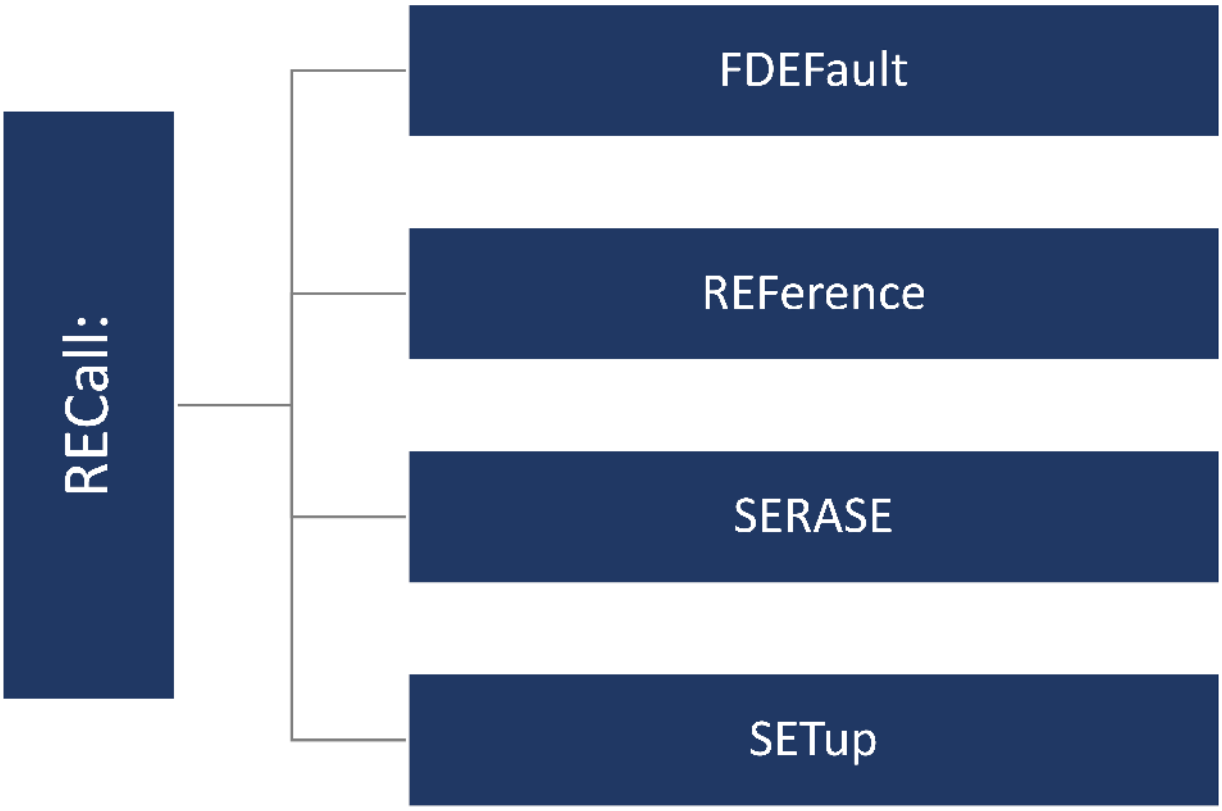
Query Syntax MTESt:TYPE?

Example
MTES:TYPE ALL_IN
MTES:TYPE?

Query Respond Returns: ALL_IN

RECall Commands

The **RECall** subsystem commands control the recall of setups or waveform data to the oscilloscope.



22.1 RECall:FDEFault

Description Recalls the factory settings.

Command Syntax RECall:FDEFault

Example REC:FDEF

Related Commands **RECall:SETup**

22.2 RECall:REFerence

Description Recalls the specified waveform file from an external USB memory device and copies it to the selected reference waveform.

Command Syntax RECall:REFerence <location>,<path>
<location>:= {REFA | REFB | REFC | REFD}
- REF is the reference waveform name

<path>:= Quoted string of path with an extension ".ref"

Note:

The file format is not automatically determined by the file name extension. You need to choose a file name with an extension which is consistent with the selected file format.

Example REC:REF REFD,"BK\math.ref"

Related Commands SAVE:REFerence

22.3 RECall:SERase

Description Deletes user defined files stored inside the oscilloscope including: reference waveforms, internal setups, internal mask files, custom default setups, the waveform files copied from analog trace to AWG.

Command Syntax RECall:SERase

Example REC:SER

22.4 RECall:SETup

Description Recalls the saved settings file from internal or external sources.

Command Syntax RECall:SETup <state>
<state>:= {INTernal,<num> | EXTernal,<path>}
<num>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1 to 10]
<path>:= Quoted string of path with an extension ".xml"

Note:

The file format is not automatically determined by the file name extension. You need to choose a file name with an extension which is consistent with the selected file format.

Example

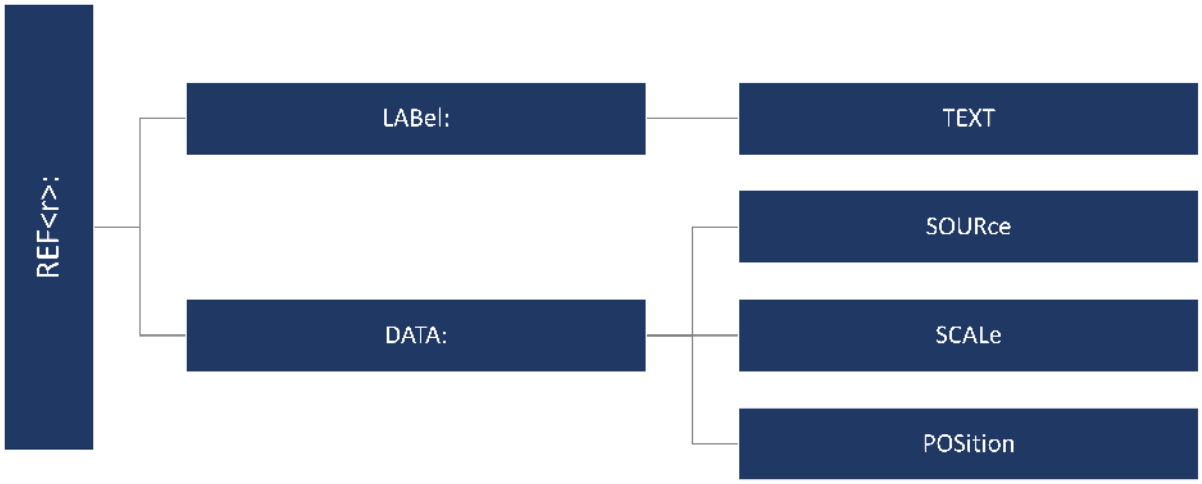
```
REC:SET INT,1
REC:SET EXT,"BK\default.xml"
```

Related Commands

RECall:FDEFault
SAVE:SETup

REF Commands

The **REF**<**r**> subsystem commands control the reference waveforms.



23.1 REF<r>:LABel

Description Write or read the specified reference label on or off.

Command Syntax REF<r>:LABel <state>
<r>:= {A | B | C | D}
- Reference waveform name

<state>:= {ON | OFF}

Query Syntax REF<r>:LABel?

Example REFA:LAB ON
REFA:LAB?

Query Respond Returns: ON

Related Commands **REF<r>:LABel:TEXT**

23.2 REF<r>:LABel:TEXT

Description Write or read the selected REF label to the string that follows. Setting a label for a REF also adds the name to the label list in non-volatile memory (replacing the oldest label in the list).

Command Syntax REF<r>:LABel:TEXT <string>
<r>:= {A | B | C | D}
- Reference waveform name

<string>:= Quoted string of ASCII text. The length of the string is limited to 20 characters.

Query Syntax REF<r>:LABel:TEXT?

Example REFA:LAB:TEXT “REFA”
REFA:LAB:TEXT?

Query Respond “REFA” Returns:

Related Commands **REF<r>:LABel**

23.3 REF<r>:DATA

Description Controls the display and saving of reference waveforms.

Command Syntax REF<r>:DATA <operation>
<r>:= {A | B | C | D}
- Reference waveform name <operation>:= LOADUNLoadSAVE,<source>
- LOAD means to call up the reference waveform display.
- UNLoad means to turn off the reference waveform display.
- SAVE means to save the waveform to the reference waveform.

<source>:= {C<x> | F<x> | D<n>}
- C denotes an analog input channel. For example, C1 is analog input 1.
- F denotes a math function. For example, F1 is math function 1.
- D denotes a digital waveform. For example, D1 denotes digital input 1.

<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Example REFA:DATA LOAD

23.4 REF<r>:DATA:SOURce

Description Returns the source of the current reference channel.

Query Syntax REF<r>:DATA:SOURce?
<r>:= {A | B | C | D}

Example REFA:DATA:SOUR?

Query Respond Returns: C1

23.5 REF<r>:DATA:SCALe

Description Write or read the vertical scale of the current reference channel. This command is only used when the current reference channel has been stored, and the display state is on.

Command Syntax REF<r>:DATA:SCALe <value>
<r>:= {A | B | C | D}
- Reference waveform name

<value>:= Value in NR3 format, including a decimal point and exponent.

Note:

The scale range of the reference waveform is the same as that of the reference source.

Query Syntax REF<r>:DATA:SCALe?

Example REFA:DATA:SCAL 1.00E-01
REFA:DATA:SCAL?

Query Respond Returns: 1.00E-01

Related Commands **REF<r>:DATA:POSition**

23.6 REF<r>:DATA:POSition

Description Write or read the vertical offset of the current reference channel. This command is only used when the current reference channel has been saved, and the display state is on.

Command Syntax REF<r>:DATA:POSition <value>
<r>:= {A | B | C | D}
- Reference channel name

<value>:= Value in NR3 format, including a decimal point and exponent.

Note:

The position range of the reference waveform
is the same as that of the reference source.

Query Syntax REF<r>:DATA:POSition?

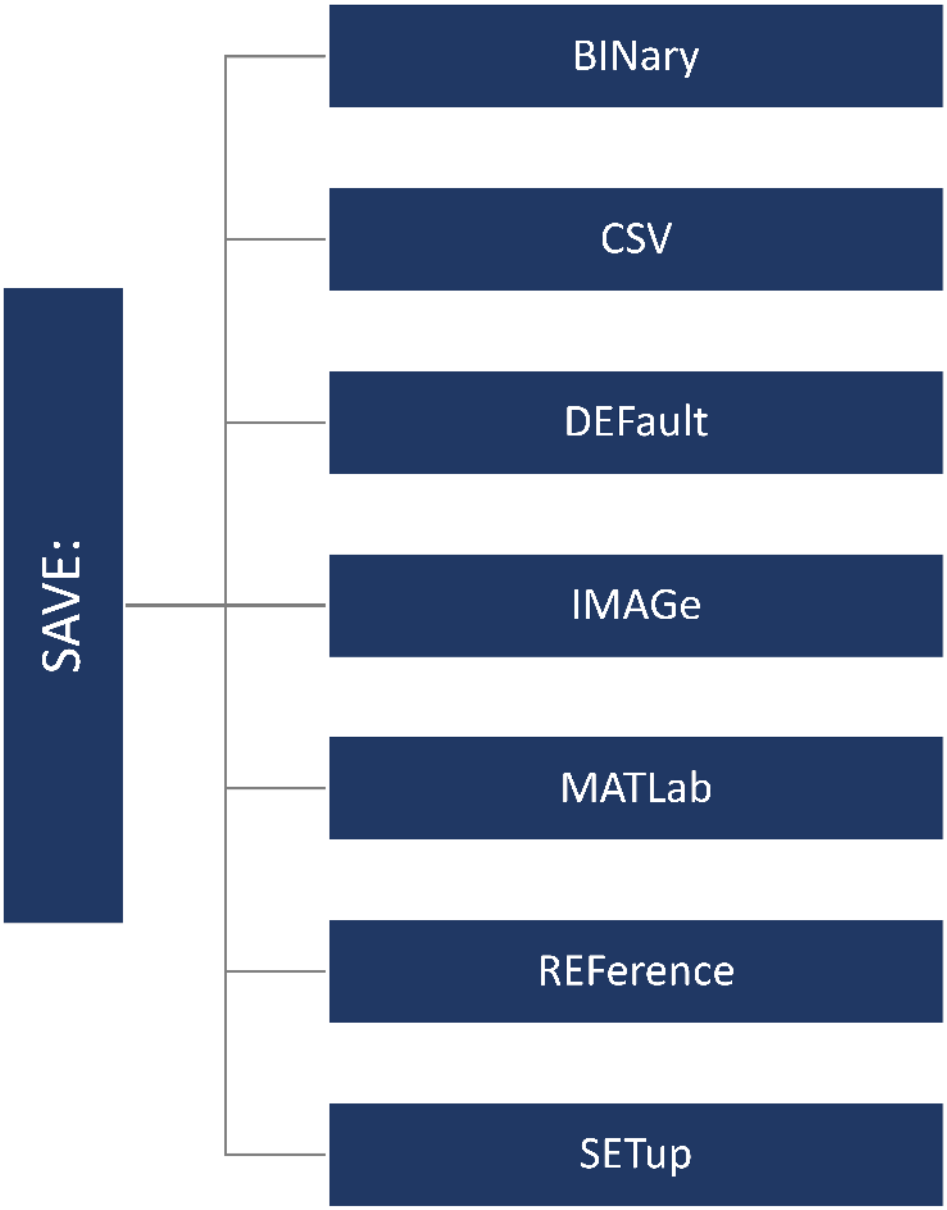
Example
```
REFA:DATA:POS 2.00E-01
REFA:DATA:POS?
```

Query Respond Returns: 2.00E-01

Related Commands **REF<r>:DATA:SCALe**

SAVE Commands

The **SAVE** subsystem commands control to save oscilloscope setups and waveform data to internal or external memory locations.



24.1 SAVE:BINary

Description Saves the binary date of lthe channel displayed on the screen to an external USB memory device.

Query Syntax SAVE:BINary <path>
<path>:= Quoted string of path with an extension ".bin"

Note:

The file format is not automatically determined by the file name extension. Choose a file name with an extension which is consistent with the selected file format.

Example SAVE:BIN "BK\c1_digital.bin

24.2 SAVE:CSV

Description Saves the waveform data of the specified channel to an external U disk/USB memory device in CSV format.

Command Syntax SAVE:CSV <path>,<source>,<state>
<path>:= Quoted string of path with an extension ".csv".
<source>:= {C<x> | D<n>}

- C denotes an analog input channel. For example, C1 is analog input 1.
- D denotes a digital waveform. For example, D1 denotes digital input 1.

<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.
<state>:= {OFF | ON}

- ON enables parameter save. This adds vertical scale values, horizontal timebase settings, and more instrument configuration information to the file.
- OFF means to disables parameter save.

Note:

The file format is not automatically determined by the file name extension. Choose a file name with an extension which is consistent with the selected file format.

Example SAVE:CSV "BK/channel1.csv",C1,ON

Related Commands **SAVE:MATLab**

24.3 SAVE:DEFault

Description Saves the current settings or factory settings as sefault settings.

Command Syntax SAVE:DEFault <set>
<set>:= {CUSTom | FACTory}
- CUSTom means the current settings.
- FACTory means factory settings.

Example SAVE:DEF CUST

Related Commands **RECall:SETup**

24.4 SAVE:IMAGe

Description Saves the screenshot to external storage.

Command Syntax SAVE:IMAGe <path>,<type>,<invert>
<path>:= Quoted string of path with an extension ".bmp"/".jpg"/".png"
<type>:= {BMP | JPG | PNG}
<invert>:= {OFF | ON}
- ON will store images that have inverted colors. This means that a normally black background will be white when inverted. This setting is recommended if you plan on printing the image as an inverted image with a white background will save on ink.
- OFF will store images that are identical to the display of the instrument.

Example SAVE:IMAG "BK/screen.bmp",BMP,ON

Related Commands **PRINt**

24.5 SAVE:MATLab

Description Saves the waveform data of the specified channel to an external USB meory device in Matlab format.

Command Syntax SAVE:MATLab <path>,<source>
<path>:= Quoted string of path with an extension ".dat".
<source>:= {C<x> | D<n>}
- C denotes an analog input channel. For example, C1 is analog input 1.
- D denotes a digital waveform. For example, D1 denotes digital input 1.

<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Note:

The file format is not automatically determined by the file name extension. Choose a file name with an extension which is consistent with the selected file format.

Example SAVE:MATL "BK/channel.dat",C1

Related Commands **SAVE:CSV**

24.6 SAVE:REFerence

Description Saves the selected channel waveform to external memory as reference.

Command Syntax SAVE:REFerence <path>,<source>
<path>:= Quoted string of path with an extension ".ref".
<source>:= {C<x> | F<x> | D<n>}
- C denotes an analog input channel. For example, C1 is analog input 1.
- F denotes a math function. For example, F1 is math function 1.
- D denotes a digital waveform. For example, D1 denotes digital input 1.

<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Note:

The file format is not automatically determined by the file name extension. Choose a file name with an extension which is consistent with the selected file format.

Example SAVE:REF "channel.ref",C1

Related Commands **RECall:REFerence**

24.7 SAVE:SETup

Description Saves the current setting to internal or external memory locations.

Command Syntax SAVE:SETup <setup_num>
<setup_num>:= {INTernal,<num> | EXTernal,<path>}
<num>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1 to 10].
<path>:= Quoted string of path with an extension ".xml"

Note:

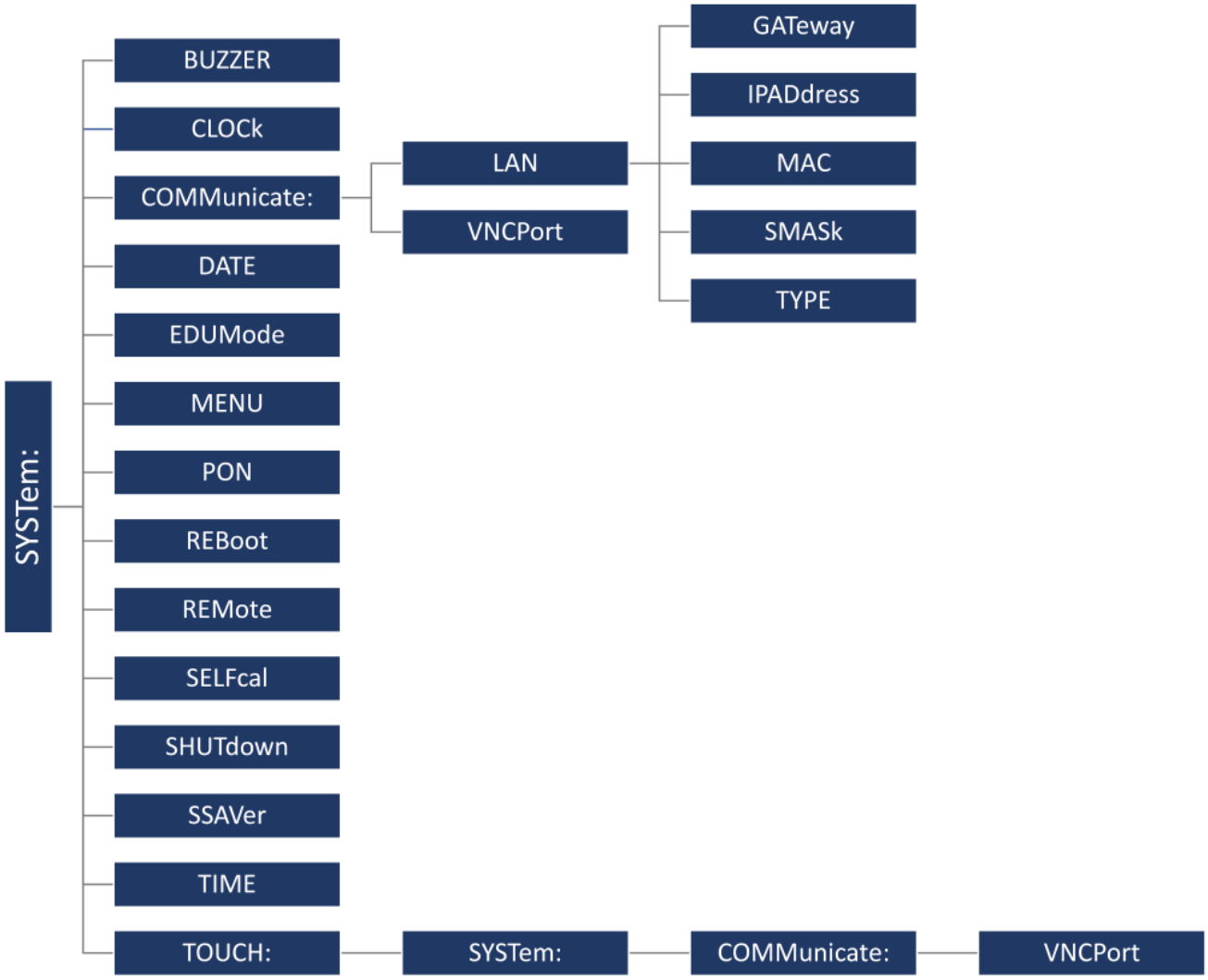
The file format is not automatically determined by the file name extension. Choose a file name with an extension which is consistent with the selected file format.

Example SAVE:SET INT,1

Related Commands **SAVE:DEFault**
RECall:SETup

SYSTem Commands

The **SYSTem** subsystem commands control the basic system functions of the oscilloscope.



25.1 SYSTem:BUZZer

Description Write or read the status of lthe buzzer.

Command Syntax SYSTem:BUZZer <state>
<state>:= {ON | OFF}

Query Syntax SYSTem:BUZZer?

Example SYST:BUZZ ON
SYST:BUZZ?

Query Respond Returns: ON

25.2 SYSTem:CLOCk

Description Write or read the oscilloscope clock source and the state of the 10 MHz clock output.

Command Syntax SYSTem:CLOCk <source>
<source>:= {EXT | IN_ON | IN_OFF}

- EXT selects the external clock source. The 10 MHz output will be automatically disabled.
- IN_ON selects the internal clock source and enables the 10 MHz output.
- IN_OFF selects the internal clock source and disables the 10M output.

Query Syntax SYSTem:CLOCk?

Example SYST:CLOC IN_ON
SYST:CLOC?

Query Respond Returns: IN_ON

25.3 SYSTem:COMMunicate:LAN:GATeway

Description Write or read the gateway of the internal network of the oscilloscope.

Command Syntax SYSTem:COMMunicate:LAN:GATeway <string>
<string>:=quoted string of ASCII text.

Query Syntax SYSTem:COMMunicate:LAN:GATeway?

Example SYST:COMM:LAN:GAT "10.0.0.1"
SYST:COMM:LAN:GAT?

Query Respond Returns: 10.0.0.1"

Related Commands **SYSTem:COMMunicate:LAN:IPADdress**
SYSTem:COMMunicate:LAN:SMASk
SYSTem:COMMunicate:LAN:TYPE

25.4 SYSTem:COMMunicate:LAN:IPADdress

Description Write or read the IP address of the oscilloscope's internal network interface.

Command Syntax SYSTem:COMMunicate:LAN:IPADdress <string>
<string>:=quoted string of ASCII text.

Query Syntax SYSTem:COMMunicate:LAN:IPADdress?

Example SYST:COMM:LAN:IPAD "10.0.0.229"

Query Respond Returns: "10.0.0.229"

Related Commands **SYSTem:COMMunicate:LAN:GATeway**
SYSTem:COMMunicate:LAN:SMASk
SYSTem:COMMunicate:LAN:TYPE

25.5 SYSTem:COMMunicate:LAN:MAC

Description Return the MAC address of the oscilloscope.

Query Syntax SYSTem:COMMunicate:LAN:MAC?

Example SYST:COMM:LAN:MAC?

Query Respond Returns:00:01:D2:0C:00:A0

25.6 SYSTem:COMMunicate:LAN:SMASk

Description Write or read the subnet mask of the oscilloscope's internal network interface.

Command Syntax SYSTem:COMMunicate:LAN:SMASK <string>
<string>:=quoted string of ASCII text.

Query Syntax SYSTem:COMMunicate:LAN:SMASK?

Example SYST:COMM:LAN:SMAS "255.255.0.0" SYST:COMM:LAN:SMAS?

Query Respond Returns: "255.255.0.0"

Related Commands **SYSTem:COMMunicate:LAN:GATeway**
SYSTem:COMMunicate:LAN:IPADdress
SYSTem:COMMunicate:LAN:TYPE

25.7 SYSTem:COMMunicate:LAN:TYPE

Description Write or read the type of LAN configuration settings.

Command Syntax SYSTem:COMMunicate:LAN:TYPE <state>
<state>:= {STATIC | DHCP}

- STATIC means that the Ethernet settings will be configured manually, using commands **SYSTem:COMMunicate:LAN:IPADdress**, S YSTem:COMMunicate:LAN:SMASK, and **SYSTem:COMMunicate:LAN:GATeway**
- DHCP means that the oscilloscope's IP address, subnet mask and gateway settings will be received from a DHCP server on the local network.

Query Syntax SYSTem:COMMunicate:LAN:TYPE?

Example SYST:COMM:LAN:TYPE DHCP
SYST:COMM:LAN:TYPE?

Query Respond Returns: DHCP

Related Commands **SYSTem:COMMunicate:LAN:GATeway**
SYSTem:COMMunicate:LAN:IPADdress
SYSTem:COMMunicate:LAN:SMASk

25.8 SYSTem:COMMunicate:VNCPort

Description Write or read the VNC port of the oscilloscope.

Command Syntax SYSTem:COMMunicate:VNCPort <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [5900, 5999].

Query Syntax SYSTem:COMMunicate:VNCPort?

Example SYST:COMM:VNCP 5903
SYST:COMM:VNCP?

Query Respond Returns: 5903

25.9 SYSTem:DATE

Description Write or read the system date of the oscilloscope.

Command Syntax SYSTem:DATE <date>
<date>:= 8-digit NR1 format, from high to low, is expressed as a 4-digit year, 2-digit month, and 2-digit day.

Query Syntax SYSTem:DATE?

Example SYST:DATE 20190819
SYST:DATE?

Query Respond Returns: 20190819

Related Commands **SYSTem:TIME**

25.10 SYSTem:EDUMode

Description Write or read the education mode(locks the AutoSetup, measure and cursors functions) of the oscilloscope.

Command Syntax SYSTem:EDUMode <func>, <lock>
<func>:= {AUTOSet | MEASure | CURSor}
<lock>:= {ON | OFF}

- ON means the enable the function.
- OFF means disable the function.

Query Syntax SYSTem:EDUMode? <func>
SYSTem:EDUMode?

Note:

The query without parameters will return the lock status of all functions.

Example SYST:EDUM AUTOS,OFF
SYST:EDUM AUTOS?
SYST:EDUM?

Query Respond Returns: OFF

25.11 SYSTem:LANGuage

Description Write or read the oscilloscope's language display.

Command Syntax SYSTem:LANGuage <language>
<language>:= {SCHinese | TCHinese | ENGLish | FRENch | JAPanese | KOREan | DEUTsch | ESPan | RUSSian | ITALiana | PORTuguese}

Query Syntax SYSTem:LANGuage?

Example SYST:LANG ENGL
SYST:LANG?

Query Respond Returns: ENGLish

25.12 SYSTem:PON

Description Write or read the state of the Power-On-Line function. When enabled, the instrument will reboot automatically if the power is removed and re-established.

Command Syntax SYSTem:PON <state>
<state>:= {ON | OFF}

Query Syntax SYSTem:PON?

Example SYST:PON ON
SYST:PON?

Query Respond Returns: ON

25.13 SYSTem:REBoot

Description Restarts the oscilloscope.

Command Syntax SYSTem:REBoot

Example SYST:REB

Related Commands **SYSTem:SHUTdown**

25.14 SYSTem:REMote

Description Write or read the status of the remote control. When the remote control is turned on, the touch screen, the front panel and the touch sccreen, front panel and perphereal will be locked and there will be prompt on the screen.

Command Syntax SYSTem:REMote <state>
<state>:= {ON | OFF}

Query Syntax SYSTem:REMote?

Example SYST:REM ON
SYST:REM?

Query Respond Returns: ON

25.15 SYSTem:SELFCal

Description Write or read the the state of the self-calibration function.

Command Syntax SYSTem:SELFCal

Query Syntax SYSTem:SELFCal?
<state>:= {DOING | DONE}

Example SYST:SELFC
SYST:SELFC?

Query Respond Returns: DONE

25.16 SYSTem:SHUTdown

Description Shuts down the oscilloscope.

Command Syntax SYSTem:SHUTdown

Example SYST:SHUT

Related Commands **SYSTem:REBoot**

25.17 SYSTem:SSAVer

Description Write or read the state of the automatic screensaver function. The automatic screensaver function shuts down the internal color monitor after a preset time.

Command Syntax SYSTem:SSAVer <time>
<time>:= {OFF | 1MIN | 5MIN | 10MIN | 30MIN | 60MIN}

Query Syntax SYSTem:SSAVer?

Example SYST:SSAV 10MIN
SYST:SSAV?

Query Respond Returns: 10MIN

25.18 SYSTem:TIME

Description Write or read the current time using a 24-hour format.

Command Syntax SYSTem:TIME <time>
<time>:= 8-digit NR1 format, from high to low, is expressed as 2-digit hour, 2-digit minute, and 2-digit second.

Query Syntax SYSTem:TIME?

Example SYST:TIME 081040
SYST:TIME?

Query Respond Returns: 081043

Related Commands **SYSTem:DATE**

25.19 SYSTem:TOUCh

Description Write or read the status of the touch screen.

Command Syntax SYSTem:TOUCh <state>
<state>:= {ON | OFF}

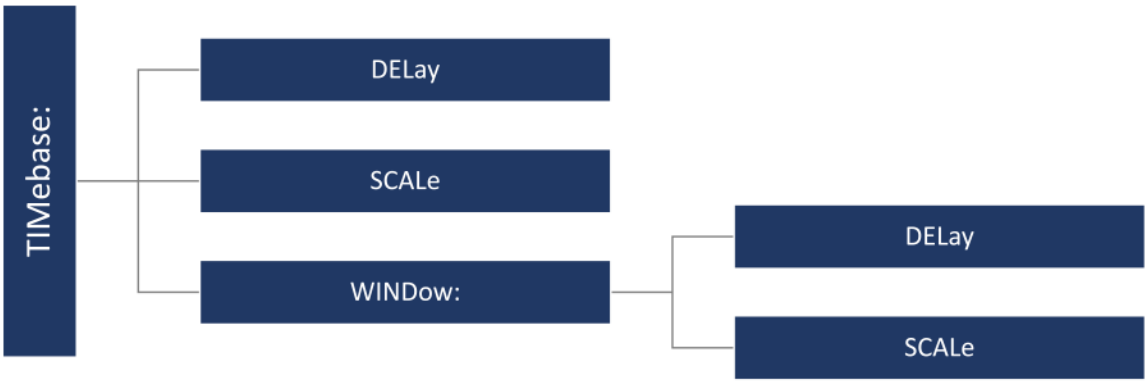
Query Syntax SYSTem:TOUCh?

Example SYST:TOUC ON
SYST:TOUC?

Query Respond Returns: ON

TIMebase Commands

The **TIMEBASE** subsystem commands control the horizontal (X-axis) functions. The time per division, delay, and reference can be controlled for the main and window (zoomed) time bases.



26.1 TIMebase:DELay

Description Write or read the main timebase delay. The main timebase delay is the time between the trigger event and the delay reference point on the screen.

Command Syntax TIMebase:DELay <delay_value>
<delay_value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-5000div*timebase, 5div*timebase].

Query Syntax TIMebase:DELay?

Example TIM:DEL 1.00E-05
TIM:DEL?

Query Respond Returns: 1.00E-05

Related Commands **TIMebase:SCALe**

26.2 TIMebase:SCALe

Description Write or read the horizontal scale per division for the main window.

Note:

Due to the limitation of the expansion strategy, when the time base is set from large to small, it will automatically adjust to the minimum time base that can be set currently.

Command Syntax TIMebase:SCALe <value>
<value>:= Value in NR3 format, including a decimal point and exponent.

Note:

The range of value varies from the models. See the datasheet for details.

Query Syntax TIMebase:SCALe?

Example TIM:SCAL 1.00E-07
TIM:SCAL?

Query Respond Returns: 1.00E-07

Related Commands **TIMebase:DELay**

26.3 TIMebase:WINDow

Description Write or read the state of the zommed window.

Command Syntax TIMebase:WINDow <state>
<state>:= {ON | OFF}

Query Syntax TIMebase:WINDow?

Example TIM:WIND ON
TIM:WIND?

Query Respond Returns: ON

Related Commands **TIMebase:WINDow:DELay** **TIMebase:WINDow:SCALe**

26.4 TIMebase:WINDow:DELay

Description Write or read the horizontal position in the zoomed view of the main sweep.

Command Syntax TIMebase:WINDow:DELay <delay_value>
<delay_value>:= Value in NR3 format, including a decimal point and exponent.

Note:

The main sweep range and the main sweep horizontal position determine the range for the delay value of the zoomed window. It must keep the zoomed view window within the main sweep range. If the delay value is set outside of the legal range, the delay value is automatically set to the nearest legal value.

Query Syntax TIMebase:WINDow:DELay?

Example TIM:WIND:DEL 1.00E-03
TIM:WIND:DEL?

Query Respond Returns: 1.00E-03

Related Commands **TIMebase:WINDow:SCALe**
TIMebase:SCALe
TIMebase:DELay

26.5 TIMebase:WINDow:SCALe

Description Write or read the zoomed window horizontal scale(seconds/division).

Command Syntax TIMebase:WINDow:SCALe <scale_value>
<scale_value>:= Value in NR3 format, including a decimal point and exponent.

Note:

The scale of the zoomed window cannot be greater than that of the main window. If the value greater than, it will automatically be set to the same value as the main window.

Query Syntax TIMebase:WINDow:SCALe?

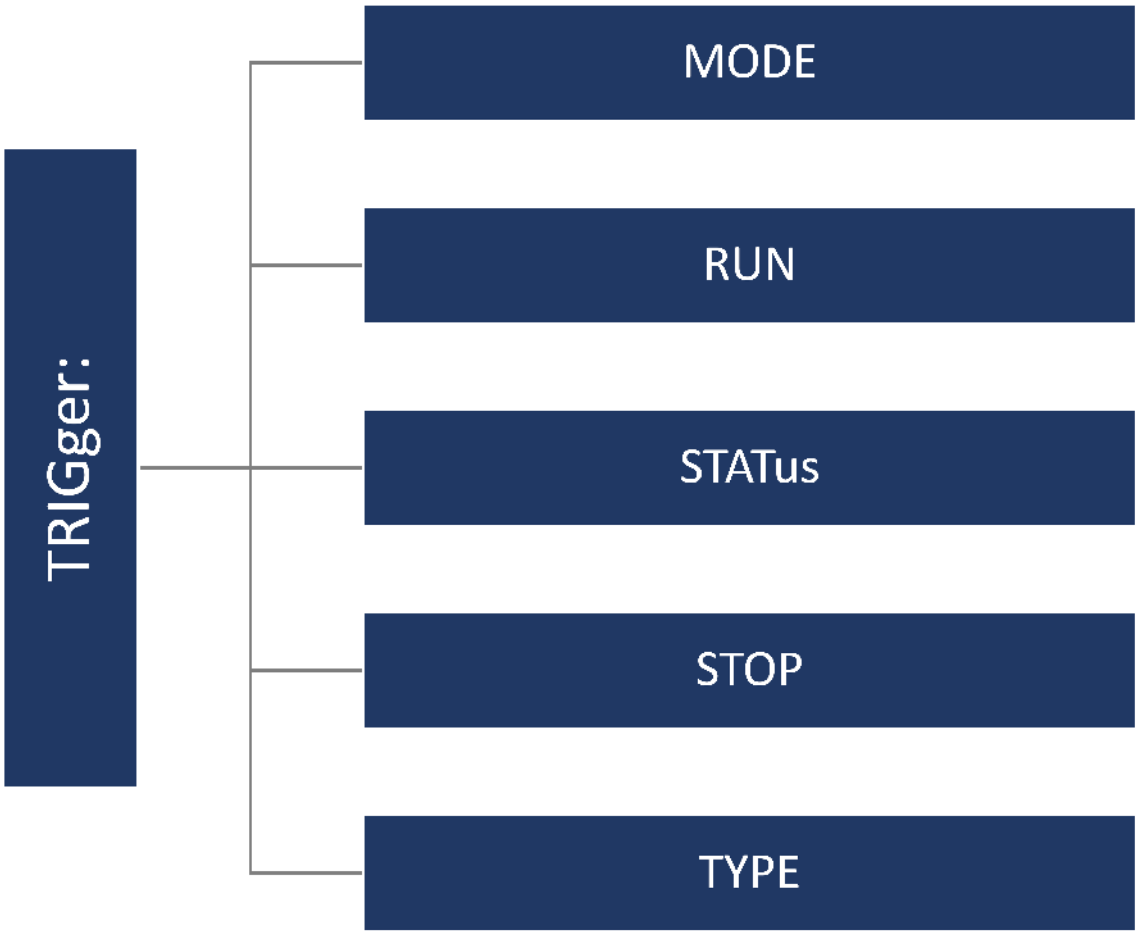
Example TIM:WIND:SCAL 1.00E-03
TIM:WIND:SCAL?

Query Respond Returns: 1.00E-03

Related Commands **TIMebase:WINDow:DELay**
TIMebase:SCALe
TIMebase:DELay

Trigger Commands

The **TRIGger** subsystem commands control the trigger modes and parameters for each trigger type.



27.1 TRIGger:MODE

Description Write or read the mode of the trigger.

Command Syntax TRIGger:MODE <mode>
<mode>:= {SINGle | NORMal | AUTO}

- AUTO: The oscilloscope begins to search for the trigger signal that meets the conditions. If the trigger signal is satisfied, the running state on the top left corner of the user interface shows Trig'd, and the interface shows stable waveform. Otherwise, the running state always shows Auto, and the interface shows unstable waveform.
- NORMal: The oscilloscope enters the wait trigger state and begins to search for trigger signals that meet the conditions. If the trigger signal is satisfied, the running state shows Trig'd, and the interface shows stable waveform. Otherwise, the running state shows Ready, and the interface displays the last triggered waveform (previous trigger) or does not display the waveform (no previous trigger).
- SINGle: The backlight of SINGLE key lights up, the oscilloscope enters the waiting trigger state and begins to search for the trigger signal that meets the conditions. If the trigger signal is satisfied, the running state shows Trig'd, and the interface shows stable waveform. Then, the oscilloscope stops scanning, the RUN/STOP key becomes red, and the running status shows Stop Otherwise, the running state shows Ready, and the interface does not display the waveform.

Query Syntax TRIGger:MODE?

Example
```
TRIG:MODE SING
TRIG:MODE?
```

Query Respond Returns: SINGle

27.2 TRIGger:RUN

Description Sets the oscilloscope to run.

Command Syntax TRIGger:RUN

Example TRIG:RUN

Related Commands **TRIGger:STOP**

27.3 TRIGger:STATus

Description Returns the current state of the trigger.

Query Syntax TRIGger:STATus?

Example TRIG:STAT?

Query Respond Returns: Stop

Related Commands **TRIGger:MODE**

27.4 TRIGger:STOP

Description Sets the oscilloscope from run to stop.

Command Syntax TRIGger:STOP

Example TRIG:STOP

Related Commands TRIGger:RUN

27.5 TRIGger:TYPE

Description Write or read the type of trigger.

Command Syntax TRIGger:TYPE <type>
<type>:= {EDGE | PULSe | SLOPe | INTerval | PATTern | RUNT | QUALified | WINDow | DROPout | VIDeo | IIC | SPI | UART | LIN | CAN | FLEXray | CANFd | IIS}

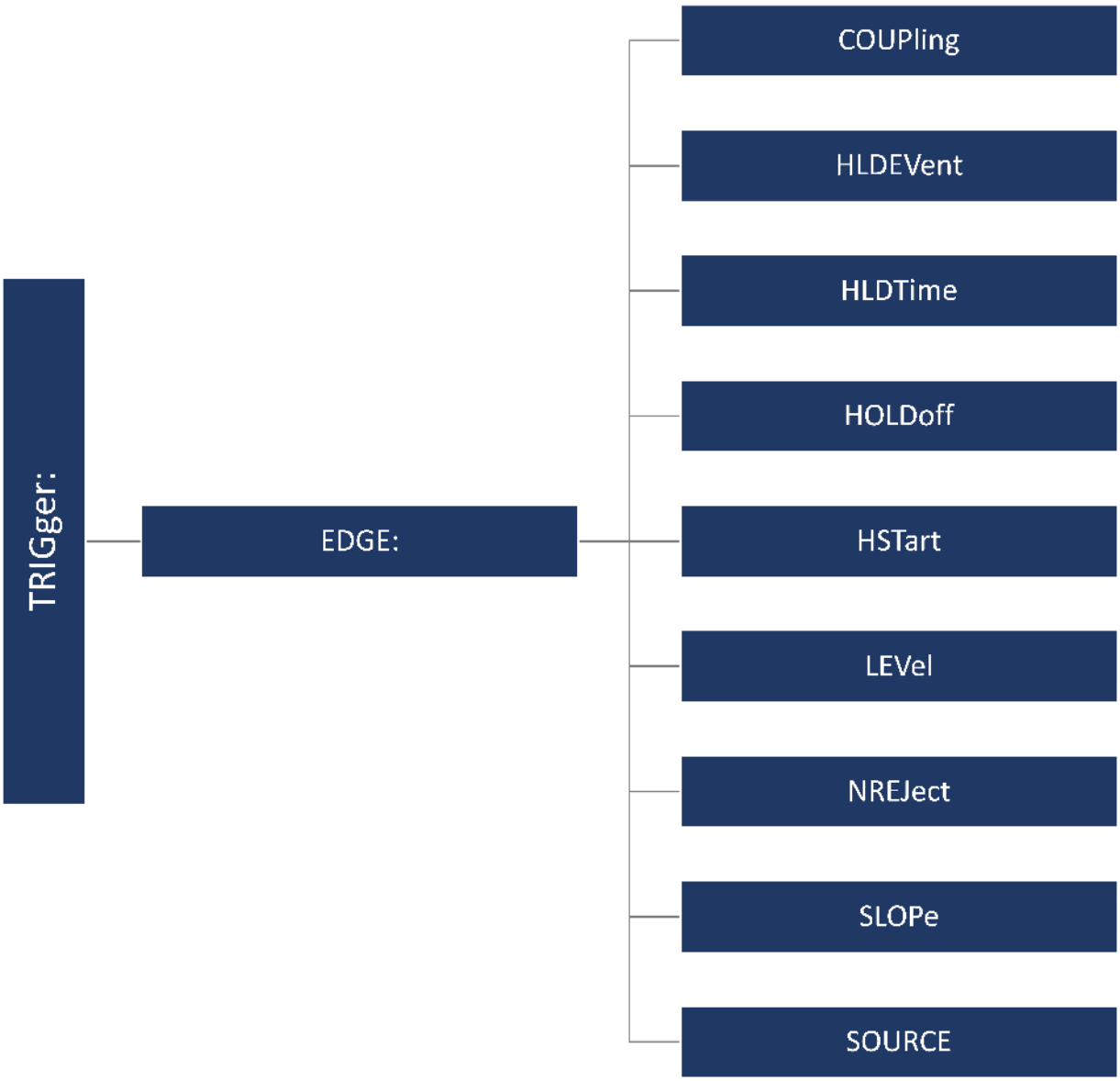
Query Syntax TRIGger:TYPE?

Example TRIG:TYPE EDGE
TRIG:TYPE?

Query Respond Returns: EDGE

Trigger Edge Commands

The **TRIGger:EDGE** subsystem commands control the edge trigger parameters.



28.1 TRIGger:EDGE:COUPling

Description Write or read the coupling mode of the edge trigger.

Command Syntax TRIGger:EDGE:COUPling <mode>
<mode>:= {DC | AC | LFREJect | HFREJect}

- DC coupling allows dc and ac signals into the trigger path.
- AC coupling places a high-pass filter in the trigger path, removing dc offset voltage from the trigger waveform. Use AC coupling to get a stable edge trigger when your waveform has a large dc offset.
- HFREJect which is a high-frequency rejection filter that adds a low-pass filter in the trigger path to remove high-frequency components from the trigger waveform. Use the high-frequency rejection filter to remove high-frequency noise, such as AM or FM broadcast stations, from the trigger path.
- LFREJect which is a low frequency rejection filter adds a high-pass filter in series with the trigger waveform to remove any unwanted low-frequency components from a trigger waveform, such as power line frequencies, that can interfere with proper triggering.

Query Syntax TRIGger:EDGE:COUPling?

Example TRIG:EDGE:COUP DC
TRIG:EDGE:COUP?

Query Respond Returns: DC

28.2 TRIGger:EDGE:HLDEVent

Description Write or read the number of holdoff events of the edge trigger.

Command Syntax TRIGger:EDGE:HLDEVent <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1 to 100000000].

Query Syntax TRIGger:EDGE:HLDEVent?

Example TRIG:EDGE:HLDEV 3
TRIG:EDGE:HLDEV?

Query Respond Returns: 3

Related Commands **TRIGger:EDGE:HOLDoff**

28.3 TRIGger:EDGE:HLDTime

Description Write or read the holdoff time of the ede trigger.

Command Syntax TRIGger:EDGE:HLDTime <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of this value is [8.00E-09, 3.00E+01]

Query Syntax TRIGger:EDGE:HLDTime?

Example TRIG:EDGE:HLDT 1.50E-08
TRIG:EDGE:HLDT?

Query Respond Returns: 1.50E-08

Related Commands **TRIGger:DROPout:HOLDoff**

28.4 TRIGger:EDGE:HOLDoff

Description Write or read the holdoff type of the edge trigger.

Command Syntax TRIGger:EDGE:HOLDoff <holdoff_type>
<holdoff_type>:= {OFF | EVENts |TIME}

- OFF means to turn off the holdoff.
- EVENts means the number of trigger events that the oscilloscope counts before re-arming the trigger circuitry.
- TIME means the amount of time that the oscilloscope waits before re-arming the trigger circuitry.

Query Syntax TRIGger:EDGE:HOLDoff?

Example TRIG:EDGE:HOLD OFF
TRIG:EDGE:HOLD?

Query Respond Returns: OFF

Related Commands **TRIGger:EDGE:HLDEVent**
TRIGger:EDGE:HLDTime
TRIGger:EDGE:HSTart

28.5 TRIGger:EDGE:HSTart

Description Write or read the initial position of the edge trigger holdoff.

Command Syntax TRIGger:EDGE:HSTart <start_holdoff>
<start_holdoff>:= {LAST_TRIG| ACQ_START}

- LAST_TRIG means the initial position of holdoff is the first time point satisfying the trigger condition.
- ACQ_START means the initial position of holdoff is the time of the last trigger.

Query Syntax TRIGger:EDGE:HSTart?

Example TRIG:EDGE:HST LAST_TRIG
TRIG:EDGE:HST?

Query Respond Returns: LAST_TRIG

Related Commands **TRIGger:EDGE:HOLDoff**

28.6 TRIGger:EDGE:LEVel

Description Write or read the trigger level of the edge trigger.

Command Syntax TRIGger:EDGE:LEVel <level_value>
<level_value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset]

Query Syntax TRIGger:EDGE:LEVel?

Example TRIG:EDGE:LEV 5.00E-01
TRIG:EDGE:LEV?

Query Respond Returns: 5.00E-01

Related Commands **TRIGger:EDGE:SOURce**

28.7 TRIGger:EDGE:NREJect

Description Write or read the state of the noise rejection.

Command Syntax TRIGger:EDGE:NREJect <state>
<state>:= {OFF | ON}

Query Syntax TRIGger:EDGE:NREJect?

Example TRIG:EDGE:NREJ ON
TRIG:EDGE:NREJ?

Query Respond Returns: ON

28.8 TRIGger:EDGE:SLOPe

Description Write or read the slope of the edge trigger.

Command Syntax TRIGger:EDGE:SLOPe <slope_type>
<slope_type>:= {RISing | FALLing | ALTernate}

Query Syntax TRIGger:EDGE:SLOPe?

Example TRIG:EDGE:SLOP RIS
TRIG:EDGE:SLOP?

Query Respond Returns: RISing

28.9 TRIGger:EDGE:SOURce

Description Write or read the trigger source of the edge trigger.

Command Syntax TRIGger:EDGE:SOURce <source>
<source>:= {C<x> | D<n> | EX | EX5 | LINE}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point

Query Syntax TRIGger:EDGE:SOURce?

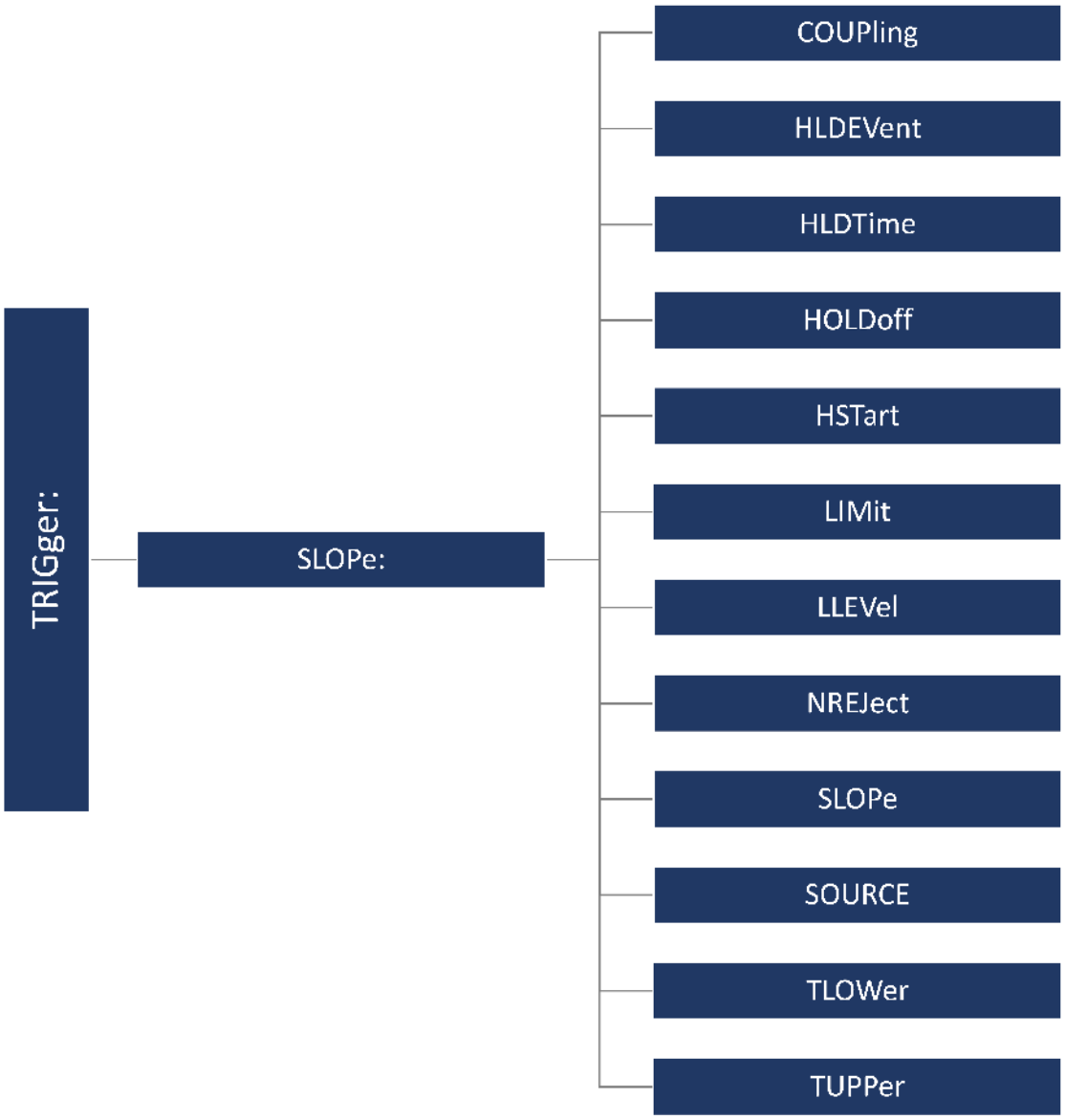
Example TRIG:EDGE:SOUR C1
TRIG:EDGE:SOUR?

Query Respond Returns: C1

Related Commands **TRIGger:EDGE:LEVel**

Trigger Slope Commands

The **TRIGGER:SLOPe** subsystem commands control the slope trigger parameters.



29.1 TRIGger:SLOPe:COUPling

Description Write or read the coupling mode of the slope trigger.

Command Syntax TRIGger:SLOPe:COUPling <mode>
<mode>:= {DC | AC | LFREJect | HFREJect}

- DC coupling allows dc and ac signals into the trigger path.
- AC coupling places a high-pass filter in the trigger path, removing dc offset voltage from the trigger waveform. Use AC coupling to get a stable slope trigger when your waveform has a large dc offset.
- HFREJect which is a high-frequency rejection filter that adds a low-pass filter in the trigger path to remove high-frequency components from the trigger waveform. Use the high-frequency rejection filter to remove high-frequency noise, such as AM or FM broadcast stations, from the trigger path.
- LFREJect which is a low frequency rejection filter adds a high-pass filter in series with the trigger waveform to remove any unwanted low-frequency components from a trigger waveform, such as power line frequencies, that can interfere with proper triggering.

Query Syntax TRIGger:SLOPe:COUPling?

Example TRIG:SLOP:COUP DC
TRIG:SLOP:COUP?

Query Respond Returns: DC

29.2 TRIGger:SLOPe:HLDEVent

Description Write or read the number of holdoff events of the slope trigger.

Command Syntax TRIGger:SLOPe:HLDEVent <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1 to 100000000].

Query Syntax TRIGger:SLOPe:HLDEVent?

Example TRIG:SLOP:HLDEV 3
TRIG:SLOP:HLDEV?

Query Respond Returns: 3

Related Commands **TRIGger:SLOPe:HOLDoff**

29.3 TRIGger:SLOPe:HLDTime

Description Write or read the holdoff time of the slope trigger.

Command Syntax TRIGger:SLOPe:HLDTime <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of this value is [8.00E-09, 3.00E+01]

Query Syntax TRIGger:SLOPe:HLDTime?

Example TRIG:SLOP:HLDT 1.50E-08
TRIG:SLOP:HLDT?

Query Respond Returns: 1.50E-08

Related Commands **TRIGger:DROPout:HOLDoff**

29.4 TRIGger:SLOPe:HOLDoff

Description Write or read the holdoff type of the slope trigger.

Command Syntax TRIGger:SLOPe:HOLDoff <holdoff_type>
<holdoff_type>:= {OFF | EVENts |TIME}
- OFF means to turn off the holdoff.
- EVENts means the number of trigger events that the oscilloscope counts before re-arming the trigger circuitry.
- TIME means the amount of time that the oscilloscope waits before re-arming the trigger circuitry.

Query Syntax TRIGger:SLOPe:HOLDoff?

Example TRIG:SLOP:HOLD OFF
TRIG:SLOP:HOLD?

Query Respond Returns: OFF

Related Commands **TRIGger:SLOPe:HLDEVent**
TRIGger:SLOPe:HLDTime
TRIGger:SLOPe:HSTart

29.5 TRIGger:SLOPe:HSTart

Description Write or read the initial position of the slope trigger holdoff.

Command Syntax TRIGger:SLOPe:HSTart <start_holdoff>
<start_holdoff>:= {LAST_TRIG| ACQ_START}
- LAST_TRIG means the initial position of holdoff is the first time point satisfying the trigger condition.
- ACQ_START means the initial position of holdoff is the time of the last trigger.

Query Syntax TRIGger:SLOPe:HSTart?

Example TRIG:SLOP:HST LAST_TRIG
TRIG:SLOP:HST?

Query Respond Returns: LAST_TRIG

Related Commands **TRIGger:SLOPe:HOLDoff**

29.6 TRIGger:SLOPe:LIMit

Description Write or read the limit range type of the slope trigger.

Command Syntax TRIGger:SLOPe:LIMit <type>
<type>:= {LESSthan | GREATerthan | INNer | OUTer}

Query Syntax TRIGger:SLOPe:LIMit?

Example TRIG:SIOP:LIM LESS
TRIG:SIOP:LIM?

Query Respond Returns: LESSthan

Related Commands **TRIGger:SLOPe:TLOWer**
TRIGger:SLOPe:TUPPer

29.7 TRIGger:SLOPe:LLEVel

Description Write or read the trigger level of the slope trigger.

Command Syntax TRIGger:SLOPe:LLEVel <level_value>
<level_value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:SLOPe:LLEVel?

Example TRIG:SLOP:LLEV 5.00E-01
TRIG:SLOP:LLEV?

Query Respond Returns: 5.00E-01

Related Commands **TRIGger:SLOPe:SOURce**

29.8 TRIGger:SLOPe:NREJect

Description Write or read the state of the noise rejection.

Command Syntax TRIGger:SLOPe:NREJect <state>
<state>:= {OFF | ON}

Query Syntax TRIGger:SLOPe:NREJect?

Example TRIG:SLOP:NREJ ON
TRIG:SLOP:NREJ?

Query Respond Returns: ON

29.9 TRIGger:SLOPe:SLOPe

Description Write or read the slope of the slope trigger.

Command Syntax TRIGger:SLOPe:SLOPe <slope_type>
<slope_type>:= {RISing | FALLing | ALTernate}

Query Syntax TRIGger:SLOPe:SLOPe?

Example TRIG:SLOP:SLOP RIS
TRIG:SLOP:SLOP?

Query Respond Returns: RISing

29.10 TRIGger:SLOPe:SOURce

Description Write or read the trigger source of the slope trigger.

Command Syntax TRIGger:SLOPe:SOURce <source>
<source>:= {C<x> | D<n> | EX | EX5 | LINE}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:SLOPe:SOURce?

Example TRIG:SLOP:SOUR C1
TRIG:SLOP:SOUR?

Query Respond Returns: C1

Related Commands **TRIGger:SLOPe:LLEVel**

29.11 TRIGger:SLOPe:TLOWer

Description Write or read the lower value of the slope trigger limit type.

Command Syntax TRIGger:SLOPe:TLOWer <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [2.00E-09, 2.00E+01].

Note:

The lower value cannot be greater than the upper value using by the command **TRIGger:SLOPe:TUPPer**. The command is not valid when the limit range type is LESSthan.

Query Syntax TRIGger:SLOPe:TLOWer?

Example TRIG:SLOP:TLOW 1.00E-08
TRIG:SLOP:TLOW?

Query Respond Returns: 1.00E-08

Related Commands **TRIGger:SLOPe:LIMit**
TRIGger:SLOPe:TUPPer

29.12 TRIGger:SLOPe:TUPPer

Description Write or read the upper value of the slope trigger limit type.

Command Syntax TRIGger:SLOPe:TUPPer <value> <value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [3.00E-09, 2.00E+01].

Note:

The upper value cannot be less than the lower value using by the command **TRIGger:SLOPe:TLOWer**. The command is not valid when the limit range type is GREATerthan.

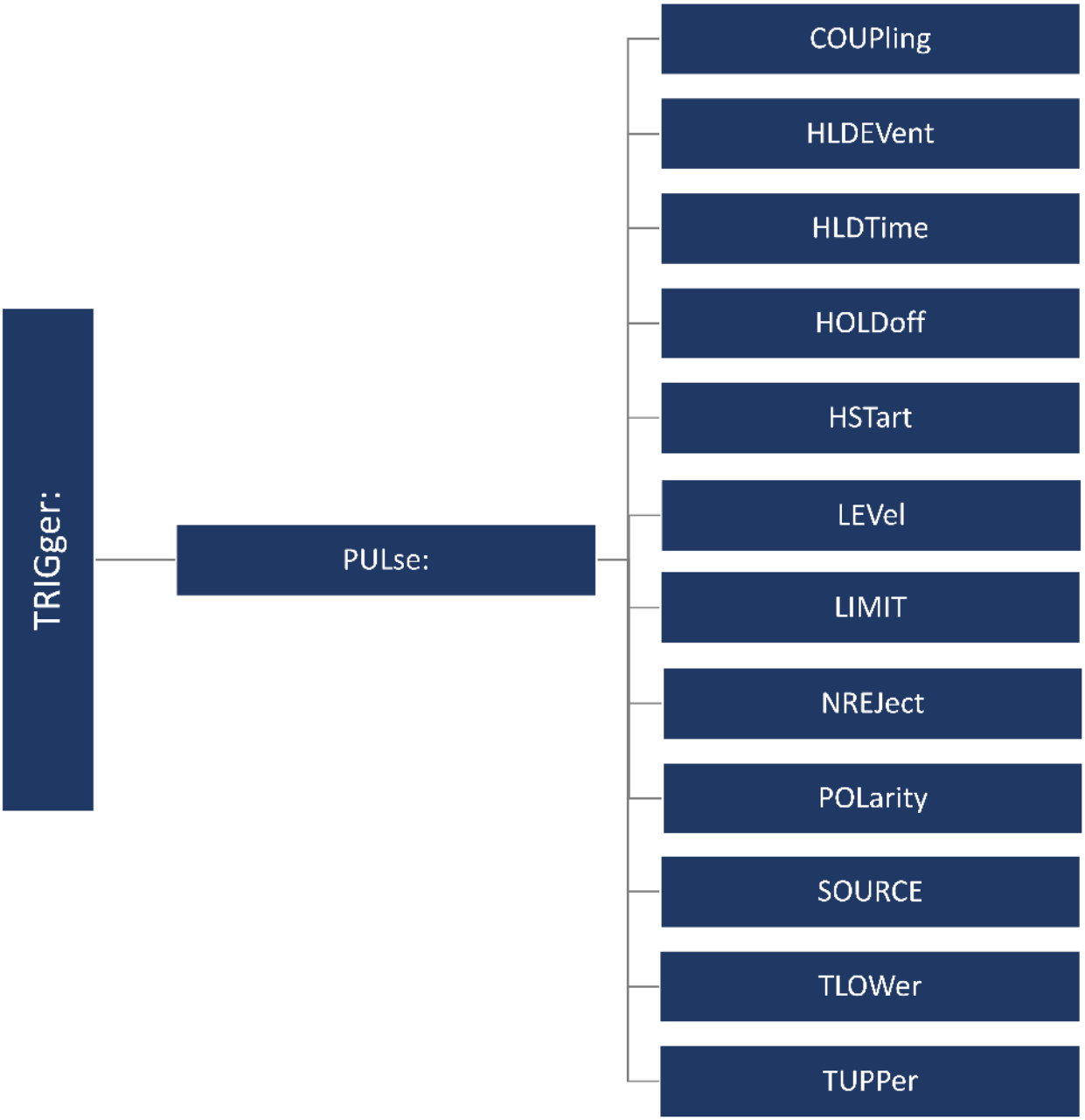
Query Syntax TRIGger:SLOPe:TUPPer?

Example TRIG:SLOP:TUPP 3.00E-08
TRIG:SLOP:TUPP?

Query Respond Returns: **TRIGger:SLOPe:LIMit**
TRIGger:SLOPe:TLOWer

Trigger Pulse Commands

The **TRIGGER:PULSe** subsystem commands control the pulse trigger parameters.



30.1 TRIGger:PULSe:COUPling

Description Write or read the coupling mode of the pulse trigger.

Command Syntax TRIGger:PULSe:COUPling <mode>
<mode>:= {DC | AC | LFREJect | HFREJect}

- DC coupling allows dc and ac signals into the trigger path.
- AC coupling places a high-pass filter in the trigger path, removing dc offset voltage from the trigger waveform. Use AC coupling to get a stable pulse trigger when your waveform has a large dc offset.
- HFREJect which is a high-frequency rejection filter that adds a low-pass filter in the trigger path to remove high-frequency components from the trigger waveform. Use the high-frequency rejection filter to remove high-frequency noise, such as AM or FM broadcast stations, from the trigger path.
- LFREJect which is a low frequency rejection filter adds a high-pass filter in series with the trigger waveform to remove any unwanted low-frequency components from a trigger waveform, such as power line frequencies, that can interfere with proper triggering.

Query Syntax TRIGger:PULSe:COUPling?

Example TRIG:PULS:COUP DC
TRIG:PULS:COUP?

Query Respond Returns: DC

30.2 TRIGger:PULSe:HLDEVent

Description Write or read the number of holdoff events of the pulse trigger.

Command Syntax TRIGger:PULSe:HLDEVent <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1 to 100000000].

Query Syntax TRIGger:PULSe:HLDEVent?

Example TRIG:PULS:HLDEV 3
TRIG:PULS:HLDEV?

Query Respond Returns: 3

Related Commands **TRIGger:PULSe:HOLDoff**

30.3 TRIGger:PULSe:HLDTime

Description Write or read the holdoff time of the pulse trigger.

Command Syntax TRIGger:PULSe:HLDTime <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of this value is [8.00E-09, 3.00E+01]

Query Syntax TRIGger:PULSe:HLDTime?

Example TRIG:PULS:HLDT 1.50E-08
TRIG:PULS:HLDT?

Query Respond Returns: 1.50E-08

Related Commands **TRIGger:DROPout:HOLDoff**

30.4 TRIGger:PULSe:HOLDoff

Description Write or read the holdoff type of the pulse trigger.

Command Syntax TRIGger:PULSe:HOLDoff <holdoff_type>
<holdoff_type>:= {OFF | EVENts |TIME}
- OFF means to turn off the holdoff.
- EVENts means the number of trigger events that the oscilloscope counts before re-arming the trigger circuitry.
- TIME means the amount of time that the oscilloscope waits before re-arming the trigger circuitry.

Query Syntax TRIGger:PULSe:HOLDoff?

Example TRIG:PULS:HOLD OFF
TRIG:PULS:HOLD?

Query Respond Returns: OFF

Related Commands **TRIGger:PULSe:HLDEVent**
TRIGger:PULSe:HLDTime
TRIGger:PULSe:HSTart

30.5 TRIGger:PULSe:HSTart

Description Write or read the initial position of the pulse trigger holdoff.

Command Syntax TRIGger:PULSe:HSTart <start_holdoff>
<start_holdoff>:= {LAST_TRIG| ACQ_START}
- LAST_TRIG means the initial position of holdoff is the first time point satisfying the trigger condition.
- ACQ_START means the initial position of holdoff is the time of the last trigger.

Query Syntax TRIGger:PULSe:HSTart?

Example TRIG:PULS:HST LAST_TRIG
TRIG:PULS:HST?

Query Respond Returns: LAST_TRIG

Related Commands **TRIGger:PULSe:HOLDoff**

30.6 TRIGger:PULSe:LIMit

Description Write or read the limit range type of the pulse trigger.

Command Syntax TRIGger:PULSe:LIMit <type>
<type>:= {LESSthan | GREATerthan | INNer | OUTer}

Query Syntax TRIGger:PULSe:LIMit?

Example TRIG:SIOP:LIM LESS
TRIG:SIOP:LIM?

Query Respond Returns: LESSthan

Related Commands **TRIGger:PULSe:TLOWer**
TRIGger:PULSe:TUPPer

30.7 TRIGger:PULSe:LEVel

Description Write or read the trigger level of the pulse trigger.

Command Syntax TRIGger:PULSe:LEVel <level_value>
<level_value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:PULSe:LEVel?

Example TRIG:PULS:LEV 5.00E-01
TRIG:PULS:LEV?

Query Respond Returns: 5.00E-01

Related Commands **TRIGger:PULSe:SOURce**

30.8 TRIGger:PULSe:NREJect

Description Write or read the state of the noise rejection.

Command Syntax TRIGger:PULSe:NREJect <state>
<state>:= {OFF | ON}

Query Syntax TRIGger:PULSe:NREJect?

Example TRIG:PULS:NREJ ON
TRIG:PULS:NREJ?

Query Respond Returns: ON

30.9 TRIGger:PULSe:POLarity

Description Write or read the polarity of the pulse trigger.

Command Syntax TRIGger:PULSe:POLarity <polarity_type>
<polarity_type>:= {POSitive | NEGative}

Query Syntax TRIGger:PULSe:POLarity?

Example TRIG:PULS:POL POS
TRIG:PULS:POL?

Query Respond Returns: POSitive

30.10 TRIGger:PULSe:SOURce

Description Write or read the trigger source of the pulse trigger.

Command Syntax TRIGger:PULSe:SOURce <source>
<source>:= {C<x> | D<n> | EX | EX5 | LINE}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:PULSe:SOURce?

Example TRIG:PULS:SOUR C1
TRIG:PULS:SOUR?

Query Respond Returns: C1

Related Commands **TRIGger:PULSe:LEVel**

30.11 TRIGger:PULSe:TLOWer

Description Write or read the lower value of the pulse trigger limit type.

Command Syntax TRIGger:PULSe:TLOWer <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [2.00E-09, 2.00E+01].

Note:

The lower value cannot be greater than the upper value using by the command **TRIGger:PULSe:TUPPer**. The command is not valid when the limit range type is LESSthan.

Query Syntax TRIGger:PULSe:TLOWer?

Example TRIG:PULS:TLOW 1.00E-08
TRIG:PULS:TLOW?

Query Respond Returns: 1.00E-08

Related Commands **TRIGger:PULSe:LIMit**
TRIGger:PULSe:TUPPer

30.12 TRIGger:PULSe:TUPPer

Description Write or read the upper value of the pulse trigger limit type.

Command Syntax TRIGger:PULSe:TUPPer <value> <value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [3.00E-09, 2.00E+01].

Note:

The upper value cannot be less than the lower value using by the command **TRIGger:PULSe:TLOWer**. The command is not valid when the limit range type is GREATerthan.

Query Syntax TRIGger:PULSe:TUPPer?

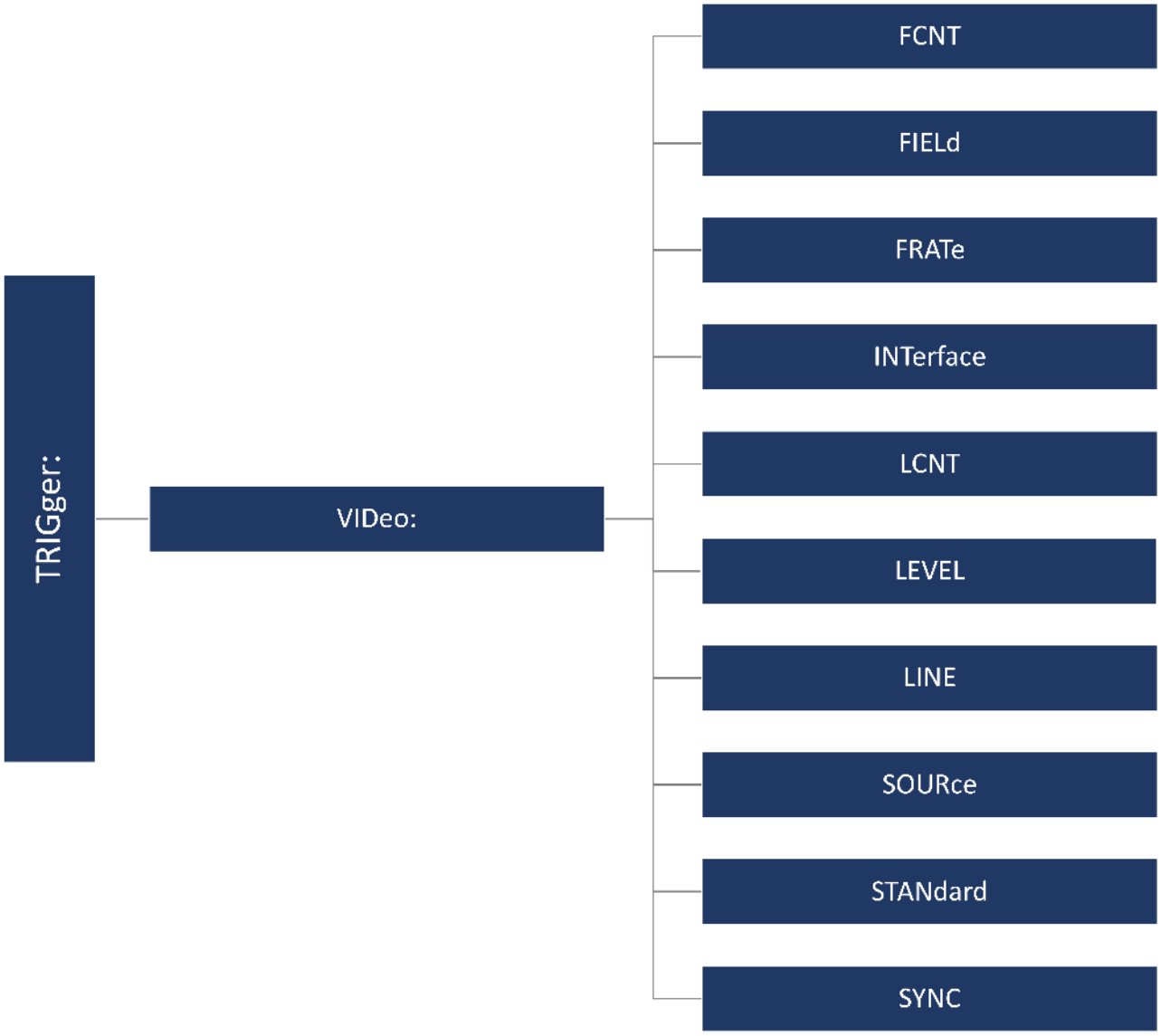
Example TRIG:PULS:TUPP 3.00E-08
TRIG:PULS:TUPP?

Query Respond Returns: 3.00E-08

Related Commands **TRIGger:PULSe:LIMit**
TRIGger:PULSe:TLOWer

Trigger Video Commands

The **TRIGGER:VIDeo** subsystem commands control the video trigger parameters.



31.1 TRIGger:VIDeo:FCNT

Description Write or read the fields of the custom video trigger.

Command Syntax TRIGger:VIDeo:FCNT <field_cnt>
<field_cnt>:= {1 | 2 | 4 | 8}

Query Syntax TRIGger:VIDeo:FCNT?

Example TRIG:VID:FCNT 8
TRIG:VID:FCNT?

Query Respond Returns: 8

Related Commands **TRIGger:VIDeo:STANdard**

31.2 TRIGger:VIDeo:FIELd

Description Write or read the synchronous trigger field when the video standard is NTSC, PAL, 1080i/50 or 1080i/60.

Command Syntax TRIGger:VIDeo:FIELd <field>
<field>:= {1 | 2}

Query Syntax TRIGger:VIDeo:FIELd?

Example TRIG:VID:FIEL 2
TRIG:VID:FIEL?

Query Respond Returns: 2

Related Commands **TRIGger:VIDeo:STANdard**
TRIGger:VIDeo:SYNC

31.3 TRIGger:VIDeo:FRATe

Description Write or read the frame rate of the custom video trigger.

Command Syntax TRIGger:VIDeo:FRATe <frate>
<frate>:= {25Hz | 30Hz | 50Hz | 60Hz}

Query Syntax TRIGger:VIDeo:FRATe?

Example TRIG:VID:FRAT 50Hz
TRIG:VID:FRAT?

Query Respond Returns: 50Hz

Related Commands **TRIGger:VIDeo:STANdard**

31.4 TRIGger:VIDeo:INTerlace

Description Write or read the interlace of the custom video trigger.

Command Syntax TRIGger:VIDeo:INTerlace <interlace>
<interlace>:= {1 | 2 | 4 | 8}

Query Syntax TRIGger:VIDeo:INTerlace?

Example TRIG:VID:INT 8
TRIG:VID:INT?

Query Respond Returns: 8

Related Commands **TRIGger:VIDeo:STANdard**

31.5 TRIGger:VIDeo:LCNT

Description Write or read the lines of the custom video trigger.

If the "Of Lines" is set to 800, the correct relationship between the interface, of fields, trigger line and trigger field is as follows:

Of Lines	Interface	Of Fields Trigger	Line	Trigger Field
800	1:1	1	800	1
800	2:1	1/2/4/8	400	1/1 2/1 4/1 8
800	4:1	1/2/4/8	300	1/1 2/1 4/1 8
800	8:1	1/2/4/8	100	1/1 2/1 4/1 8

Table 31.1 Parameters Relationship

Command Syntax TRIGger:VIDeo:LCNT <line_cnt>
<line_cnt>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [300, 2000].

Query Syntax TRIGger:VIDeo:LCNT?

Example TRIG:VID:LCNT 500
TRIG:VID:LCNT?

Query Respond Returns: 500

Related Commands **TRIGger:VIDeo:STANdard**

31.6 TRIGger:VIDeo:LEVel

Description Write or read the trigger level of the video trigger.

Command Syntax TRIGger:VIDeo:LEVel <level_value>
<level_value>:= Value in NR3 format. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:VIDeo:LEVel?

Example TRIG:VID:LEV 5.00E-01
TRIG:VID:LEV?

Query Respond Returns: 5.00E-01

31.7 TRIGger:VIDeo:LINE

Description Write or read the synchronous trigger line when the video standard is not custom.

Command Syntax TRIGger:VIDeo:LINE <line>
<line>:= Value in NR1 format, including an integer and no decimal point.

Table 31.2 shows the corresponding relations between line and field for all video standards(except for custom)

Standard	Field 1	Field 2
NTSC	[1, 263]	[1,262]
PAL	[1, 313]	[1, 312]
HDTV 720P/50, 720P/60	[1, 750]	
HDTV 1080P/50, 1080P/60	[1, 1125]	
HDTV 1080i/50, 1080i/60	[1, 563]	[1, 562]

Table 31.2 Line and Field Relationships

Query Syntax TRIGger:VIDeo:LINE?

Example TRIG:VID:LINE 2
TRIG:VID:LINE?

Query Respond Returns: 2

Related Commands **TRIGger:VIDeo:STANdard TRIGger:VIDeo:SYNC**

31.8 TRIGger:VIDeo:SOURce

Description Write or read the trigger source of the video trigger.

Command Syntax TRIGger:VIDeo:SOURce <source>
<source>:= {C<x>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:VIDeo:SOURce?

Example TRIG:VID:SOUR C2
TRIG:VID:SOUR?

Query Respond Returns: C2

31.9 TRIGger:VIDeo:STANdard

Description Write or read the standard of the video trigger.

Command Syntax TRIGger:VIDeo:STANdard <standard>
<standard>:= {NTSC | PAL | P720L50 | P720L60 | P1080L50 | P1080L60 | I1080L 50 | I1080L60 | CUSTom}

Query Syntax TRIGger:VIDeo:STANdard?

Example TRIG:VID:STAN NTSC
TRIG:VID:STAN?

Query Respond Returns: NTSC

31.10 TRIGger:VIDeo:SYNC

Description Write or read the sync mode of the video trigger.

Command Syntax TRIGger:VIDeo:SYNC <sync>
<sync>:= {SELect | ANY}

Query Syntax TRIGger:VIDeo:SYNC?

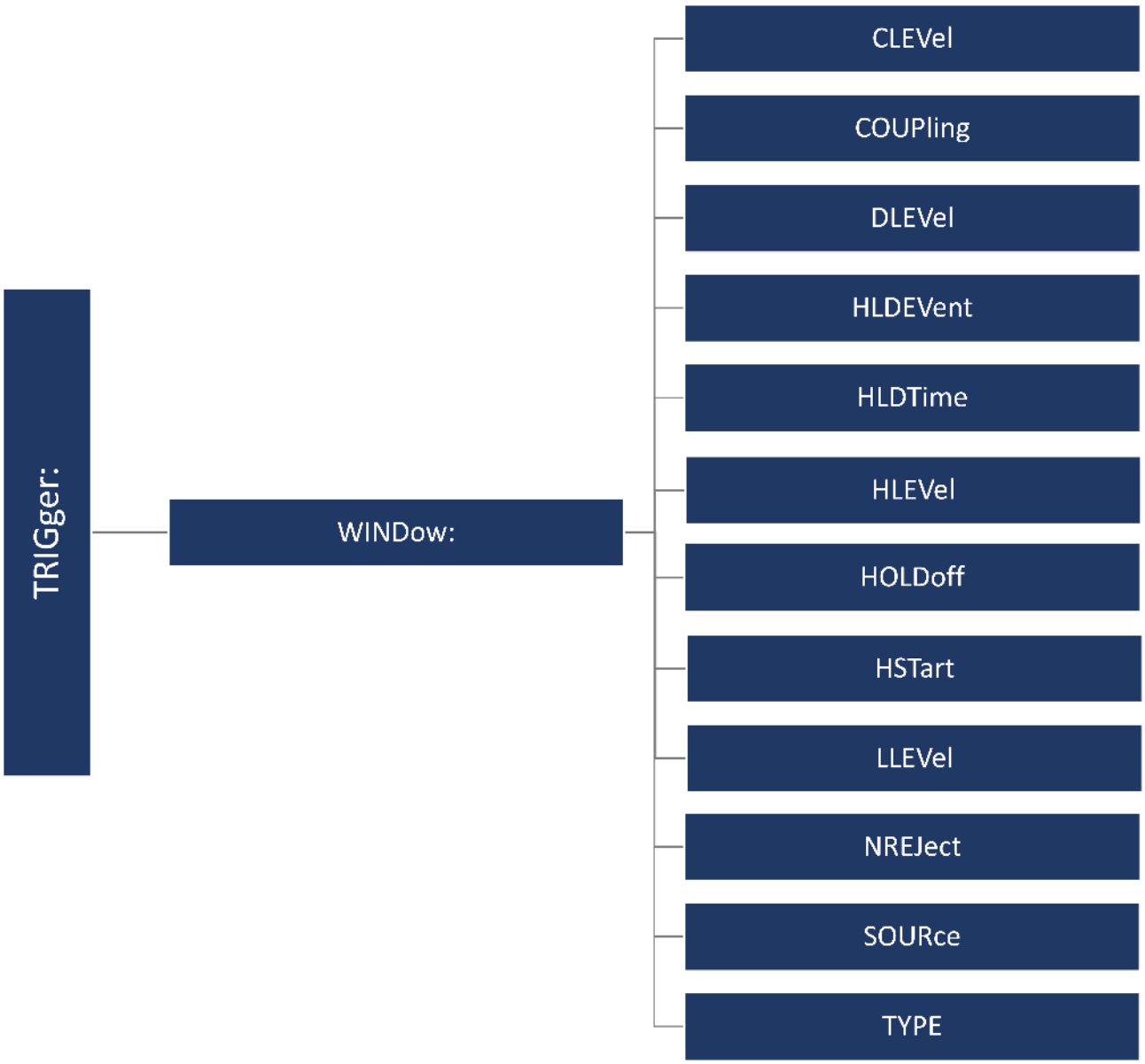
Example TRIG:VID:SYNC SEL
TRIG:VID:SYNC?

Query Respond Returns: SELect

Related Commands **TRIGger:VIDeo:STANdard**
TRIGger:VIDeo:LINE
TRIGger:VIDeo:FIELd

Trigger Window Commands

The **TRIGGER:WINDow** subsystem commands control the window trigger parameters.



32.1 TRIGger:WINDow:CLEVel

Description Write or read the center level of the window trigger.

Command Syntax TRIGger:WINDow:CLEVel <value>
<value>:= Value in NR3 format. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:WINDow:CLEVel?

Example TRIG:WIND:CLEV 5.00E-01
TRIG:WIND:CLEV?

Query Respond Returns: 5.00E-01

Related Commands **TRIGger:WINDow:DLEVel**

32.2 TRIGger:WINDow:COUPling

Description Write or read the coupling mode of the WINDow trigger.

Command Syntax TRIGger:WINDow:COUPling <mode>
<mode>:= {DC | AC | LFREJect | HFREJect}

- DC coupling allows dc and ac signals into the trigger path.
- AC coupling places a high-pass filter in the trigger path, removing dc offset voltage from the trigger waveform. Use AC coupling to get a stable WINDow trigger when your waveform has a large dc offset.
- HFREJect which is a high-frequency rejection filter that adds a low-pass filter in the trigger path to remove high-frequency components from the trigger waveform. Use the high-frequency rejection filter to remove high-frequency noise, such as AM or FM broadcast stations, from the trigger path.
- LFREJect which is a low frequency rejection filter adds a high-pass filter in series with the trigger waveform to remove any unwanted low-frequency components from a trigger waveform, such as power line frequencies, that can interfere with proper triggering.

Query Syntax TRIGger:WINDow:COUPling?

Example TRIG:WIND:COUP DC
TRIG:WIND:COUP?

Query Respond Returns: DC

32.3 TRIGger:WINDow:DLEVel

Description Write or read the delta level of the window trigger.

Command Syntax TRIGger:WINDow:DLEVel <value> <value>:= Value in NR3 format. The range of the value is [-4.1*vertical_
4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:WINDow:DLEVel?

Example TRIG:WIND:DLEV 5.00E-01
TRIG:WIND:DLEV?

Query Respond Returns: 5.00E-01

Related Commands **TRIGger:WINDow:CLEVel**

32.4 TRIGger:WINDow:HLDEVent

Description Write or read the number of holdoff events of the WINDow trigger.

Command Syntax TRIGger:WINDow:HLDEVent <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1 to 100000000].

Query Syntax TRIGger:WINDow:HLDEVent?

Example TRIG:WIND:HLDEV 3
TRIG:WIND:HLDEV?

Query Respond Returns: 3

Related Commands **TRIGger:WINDow:HOLDoff**

32.5 TRIGger:WINDow:HLDTime

Description Write or read the holdoff time of the WINDow trigger.

Command Syntax TRIGger:WINDow:HLDTime <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of this value is [8.00E-09, 3.00E+01]

Query Syntax TRIGger:WINDow:HLDTime?

Example TRIG:WIND:HLDT 1.50E-08
TRIG:WIND:HLDT?

Query Respond Returns: 1.50E-08

Related Commands **TRIGger:DROPout:HOLDoff**

32.6 TRIGger:WINDow:HLEVel

Description Write or read teh hgih trigger level of the window trigger.

Command Syntax TRIGger:WINDow:HLEVel <value>
<value>:= Value in NR3 format. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:WINDow:HLEVel?

Example TRIG:WIND:HLEV 5.00E-01
TRIG:WIND:HLEV?

Query Respond Returns: 5.00E-01

Reltated Commands **TRIGger:WINDow:LEVel**

32.7 TRIGger:WINDow:HOLDoff

Description Write or read the holdoff type of the WINDow trigger.

Command Syntax TRIGger:WINDow:HOLDoff <holdoff_type>
<holdoff_type>:= {OFF | EVENts |TIME}
- OFF means to turn off the holdoff.
- EVENts means the number of trigger events that the oscilloscope counts before re-arming the trigger circuitry.
- TIME means the amount of time that the oscilloscope waits before re-arming the trigger circuitry.

Query Syntax TRIGger:WINDow:HOLDoff?

Example TRIG:WIND:HOLD OFF
TRIG:WIND:HOLD?

Query Respond Returns: OFF

Related Commands **TRIGger:WINDow:HLDEVent**
TRIGger:WINDow:HLDTime
TRIGger:WINDow:HSTart

32.8 TRIGger:WINDow:HSTart

Description Write or read the initial position of the WINDow trigger holdoff.

Command Syntax TRIGger:WINDow:HSTart <start_holdoff>
<start_holdoff>:= {LAST_TRIG| ACQ_START}
- LAST_TRIG means the initial position of holdoff is the first time point satisfying the trigger condition.
- ACQ_START means the initial position of holdoff is the time of the last trigger.

Query Syntax TRIGger:WINDow:HSTart?

Example TRIG:WIND:HST LAST_TRIG
TRIG:WIND:HST?

Query Respond Returns: LAST_TRIG

Related Commands **TRIGger:WINDow:HOLDoff**

32.9 TRIGger:WINDow:LEVel

Description Write or read the trigger level of the WINDow trigger.

Command Syntax TRIGger:WINDow:LEVel <level_value>
<level_value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:WINDow:LEVel?

Example TRIG:WIND:LEV 5.00E-01
TRIG:WIND:LEV?

Query Respond Returns: 5.00E-01

Related Commands **TRIGger:WINDow:SOURce**

32.10 TRIGger:WINDow:NREJect

Description Write or read the state of the noise rejection.

Command Syntax TRIGger:WINDow:NREJect <state>
<state>:= {OFF | ON}

Query Syntax TRIGger:WINDow:NREJect?

Example TRIG:WIND:NREJ ON
TRIG:WIND:NREJ?

Query Respond Returns: ON

32.11 TRIGger:WINDow:SOURce

Description Write or read the trigger source of the WINDow trigger.

Command Syntax TRIGger:WINDow:SOURce <source>
<source>:= {C<x> | D<n> | EX | EX5 | LINE}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:WINDow:SOURce?

Example TRIG:WIND:SOUR C1
TRIG:WIND:SOUR?

Query Respond Returns: C1

Related Commands **TRIGger:WINDow:LEVel**

32.12 TRIGger:WINDow:TYPE

Description Write or read the window type of the window trigger.

Command Syntax TRIGger:WINDow:TYPE <type>
<type>:= {ABSolute | RELative}

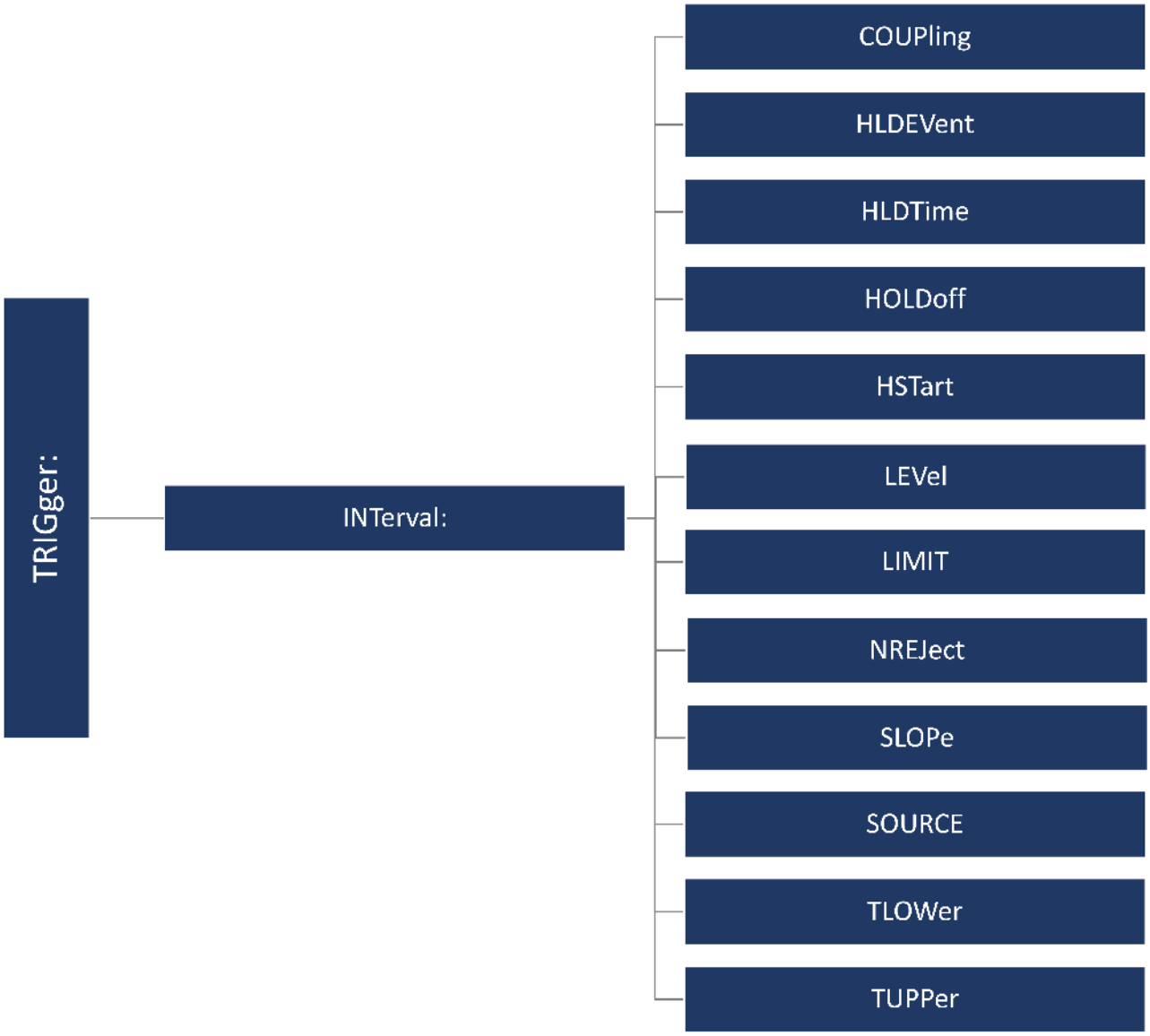
Query Syntax TRIGger:WINDow:TYPE?

Example TRIG:WIND:TYPE ABS
TRIG:WIND:TYPE?

Query Respond Returns: ABSolute

Trigger Interval Commands

The **TRIGGER:INTerval** subsystem commands control the interval trigger parameters.



33.1 TRIGger:INTerval:COUPling

Description Write or read the coupling mode of the interval trigger.

Command Syntax TRIGger:INTerval:COUPling <mode>
<mode>:= {DC | AC | LFREJect | HFREJect}

- DC coupling allows dc and ac signals into the trigger path.
- AC coupling places a high-pass filter in the trigger path, removing dc offset voltage from the trigger waveform. Use AC coupling to get a stable interval trigger when your waveform has a large dc offset.
- HFREJect which is a high-frequency rejection filter that adds a low-pass filter in the trigger path to remove high-frequency components from the trigger waveform. Use the high-frequency rejection filter to remove high-frequency noise, such as AM or FM broadcast stations, from the trigger path.
- LFREJect which is a low frequency rejection filter adds a high-pass filter in series with the trigger waveform to remove any unwanted low-frequency components from a trigger waveform, such as power line frequencies, that can interfere with proper triggering.

Query Syntax TRIGger:INTerval:COUPling?

Example TRIG:INT:COUP DC
TRIG:INT:COUP?

Query Respond Returns: DC

33.2 TRIGger:INTerval:HLDEVent

Description Write or read the number of holdoff events of the interval trigger.

Command Syntax TRIGger:INTerval:HLDEVent <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1 to 100000000].

Query Syntax TRIGger:INTerval:HLDEVent?

Example TRIG:INT:HLDEV 3
TRIG:INT:HLDEV?

Query Respond Returns: 3

Related Commands **TRIGger:INTerval:HOLDoff**

33.3 TRIGger:INTerval:HLDTime

Description Write or read the holdoff time of the interval trigger.

Command Syntax TRIGger:INTerval:HLDTime <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of this value is [8.00E-09, 3.00E+01]

Query Syntax TRIGger:INTerval:HLDTime?

Example TRIG:INT:HLDT 1.50E-08
TRIG:INT:HLDT?

Query Respond Returns: 1.50E-08

Related Commands **TRIGger:DROPout:HOLDoff**

33.4 TRIGger:INTerval:HOLDoff

Description Write or read the holdoff type of the interval trigger.

Command Syntax TRIGger:INTerval:HOLDoff <holdoff_type>
<holdoff_type>:= {OFF | EVENts |TIME}

- OFF means to turn off the holdoff.
- EVENts means the number of trigger events that the oscilloscope counts before re-arming the trigger circuitry.
- TIME means the amount of time that the oscilloscope waits before re-arming the trigger circuitry.

Query Syntax TRIGger:INTerval:HOLDoff?

Example
```
TRIG:INT:HOLD OFF
TRIG:INT:HOLD?
```

Query Respond Returns: OFF

Related Commands **TRIGger:INTerval:HLDEVent**
TRIGger:INTerval:HLDTime
TRIGger:INTerval:HSTart

33.5 TRIGger:INTerval:HSTart

Description Write or read the initial position of the interval trigger holdoff.

Command Syntax TRIGger:INTerval:HSTart <start_holdoff>
<start_holdoff>:= {LAST_TRIG| ACQ_START}

- LAST_TRIG means the initial position of holdoff is the first time point satisfying the trigger condition.
- ACQ_START means the initial position of holdoff is the time of the last trigger.

Query Syntax TRIGger:INTerval:HSTart?

Example
```
TRIG:INT:HST LAST_TRIG
TRIG:INT:HST?
```

Query Respond Returns: LAST_TRIG

Related Commands **TRIGger:INTerval:HOLDoff**

33.6 TRIGger:INTerval:LIMit

Description Write or read the limit range type of the interval trigger.

Command Syntax TRIGger:INTerval:LIMit <type>
<type>:= {LESSthan | GREATerthan | INNer | OUTer}

Query Syntax TRIGger:INTerval:LIMit?

Example TRIG:SIOP:LIM LESS
TRIG:SIOP:LIM?

Query Respond Returns: LESSthan

Related Commands **TRIGger:INTerval:TLOWer**
TRIGger:INTerval:TUPPer

33.7 TRIGger:INTerval:LEVel

Description Write or read the trigger level of the interval trigger.

Command Syntax TRIGger:INTerval:LEVel <level_value>
<level_value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:INTerval:LEVel?

Example TRIG:INT:LEV 5.00E-01
TRIG:INT:LEV?

Query Respond Returns: 5.00E-01

Related Commands **TRIGger:INTerval:SOURce**

33.8 TRIGger:INTerval:NREJect

Description Write or read the state of the noise rejection.

Command Syntax TRIGger:INTerval:NREJect <state>
<state>:= {OFF | ON}

Query Syntax TRIGger:INTerval:NREJect?

Example TRIG:INT:NREJ ON
TRIG:INT:NREJ?

Query Respond Returns: ON

33.9 TRIGger:INTerval:SLOPel

Description Write or read the interval of the interval trigger.

Command Syntax TRIGger:INTerval:SLOPel <interval_type>
<interval_type>:= {RISing | FALLing | ALTernate}

Query Syntax TRIGger:INTerval:SLOPel?

Example TRIG:INT:SLOP RIS
TRIG:INT:SLOP?

Query Respond Returns: RISing

33.10 TRIGger:INTerval:SOURce

Description Write or read the trigger source of the interval trigger.

Command Syntax TRIGger:INTerval:SOURce <source>
<source>:= {C<x> | D<n> | EX | EX5 | LINE}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:INTerval:SOURce?

Example TRIG:INT:SOUR C1
TRIG:INT:SOUR?

Query Respond Returns: C1

Related Commands **TRIGger:INTerval:LEVel**

33.11 TRIGger:INTerval:TLOWer

Description Write or read the lower value of the interval trigger limit type.

Command Syntax TRIGger:INTerval:TLOWer <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [2.00E-09, 2.00E+01].

Note:

The lower value cannot be greater than the upper value using by the command **TRIGger:INTerval:TUPPer**. The command is not valid when the limit range type is LESSthan.

Query Syntax TRIGger:INTerval:TLOWer?

Example TRIG:INT:TLOW 1.00E-08
TRIG:INT:TLOW?

Query Respond Returns: 1.00E-08

Related Commands **TRIGger:INTerval:LIMit**
TRIGger:INTerval:TUPPer

33.12 TRIGger:INTerval:TUPPer

Description Write or read the upper value of the interval trigger limit type.

Command Syntax TRIGger:INTerval:TUPPer <value> <value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [3.00E-09, 2.00E+01].

Note:

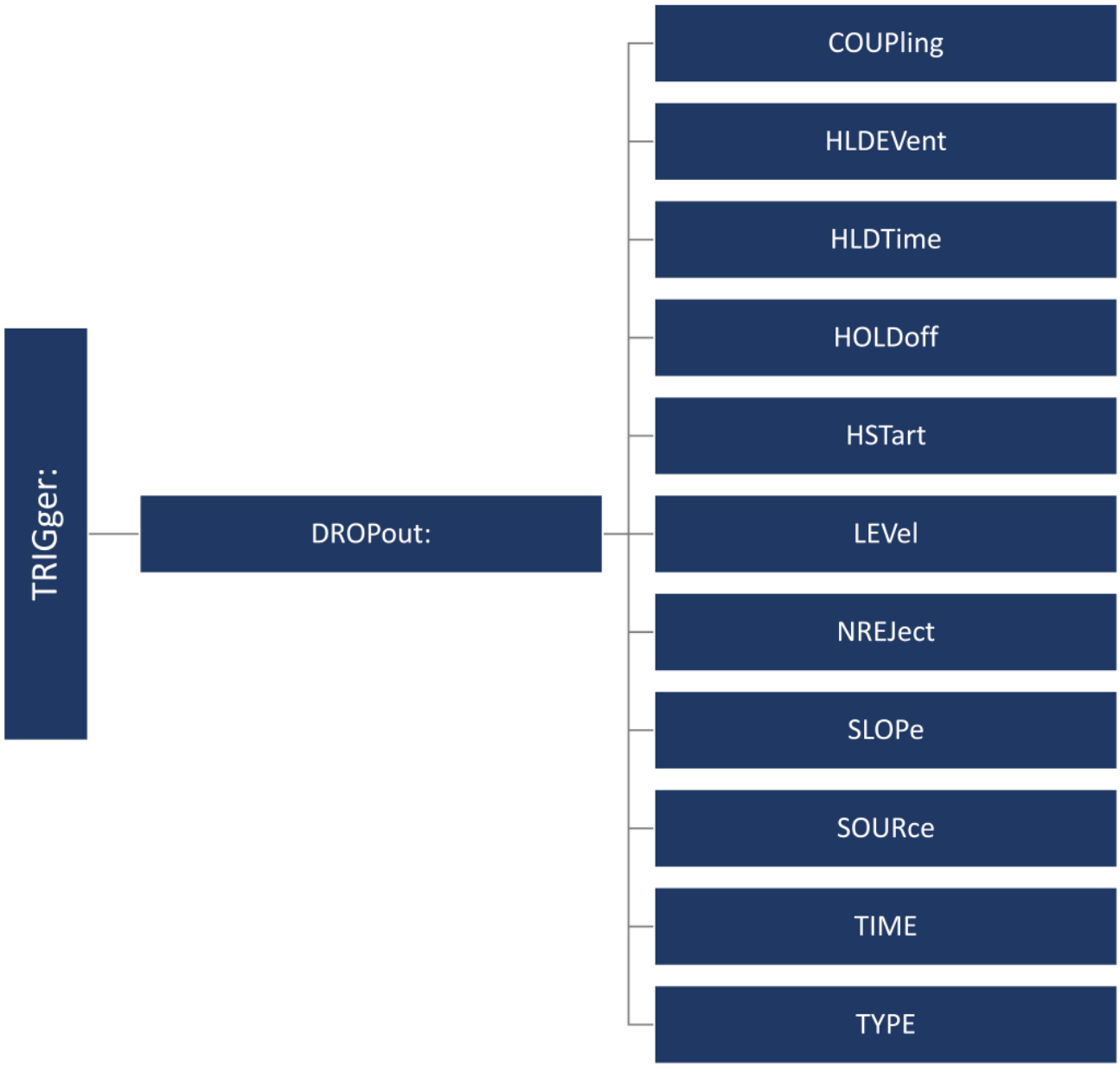
The upper value cannot be less than the lower value using by the command **TRIGger:INTerval:TLOWer**. The command is not valid when the limit range type is GREATerthan.

Query Syntax TRIGger:INTerval:TUPPer?

Example TRIG:INT:TUPP 3.00E-08
TRIG:INT:TUPP?

Query Respond Returns: **TRIGger:INTerval:LIMit**
TRIGger:INTerval:TLOWer

Trigger Dropout Commands



34.1 TRIGger:DROPout:COUPling

Description Write or read the coupling mode of the dropout trigger.

Command Syntax TRIGger:DROPout:COUPling <mode>
<mode>:= {DC | AC | LFREJect | HFREJect}

- DC coupling allows dc and ac signals into the trigger path.
- AC coupling places a high-pass filter in the trigger path, removing dc offset voltage from the trigger waveform. Use AC coupling to get a stable dropout trigger when your waveform has a large dc offset.
- HFREJect which is a high-frequency rejection filter that adds a low-pass filter in the trigger path to remove high-frequency components from the trigger waveform. Use the high-frequency rejection filter to remove high-frequency noise, such as AM or FM broadcast stations, from the trigger path.
- LFREJect which is a low frequency rejection filter adds a high-pass filter in series with the trigger waveform to remove any unwanted low-frequency components from a trigger waveform, such as power line frequencies, that can interfere with proper triggering.

Query Syntax TRIGger:DROPout:COUPling?

Example
```
TRIG:DROP:COUP DC
TRIG:DROP:COUP?
```

Query Respond Returns: DC

34.2 TRIGger:DROPout:HLDEVent

Description Write or read the number of holdoff events of the dropout trigger.

Command Syntax TRIGger:DROPout:HLDEVent <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1 to 100000000].

Query Syntax TRIGger:DROPout:HLDEVent?

Example
```
TRIG:DROP:HLDEV 3
TRIG:DROP:HLDEV?
```

Query Respond Returns: 3

Related Commands **TRIGger:DROPout:HOLDoff**

34.3 TRIGger:DROPout:HLDTime

Description Write or read the holdoff time of the dropout trigger.

Command Syntax TRIGger:DROPout:HLDTime <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of this value is [8.00E-09, 3.00E+01]

Query Syntax TRIGger:DROPout:HLDTime?

Example
```
TRIG:DROP:HLDT 1.50E-08
TRIG:DROP:HLDT?
```

Query Respond Returns: 1.50E-08

Related Commands **TRIGger:DROPout:HOLDoff**

34.4 TRIGger:DROPout:HOLDoff

Description Write or read the holdoff type of the dropout trigger.

Command Syntax TRIGger:DROPout:HOLDoff <holdoff_type>
<holdoff_type>:= {OFF | EVENts |TIME}
- OFF means to turn off the holdoff.
- EVENts means the number of trigger events that the oscilloscope counts before re-arming the trigger circuitry.
- TIME means the amount of time that the oscilloscope waits before re-arming the trigger circuitry.

Query Syntax TRIGger:DROPout:HOLDoff?

Example TRIG:DROP:HOLD OFF
TRIG:DROP:HOLD?

Query Respond Returns: OFF

Related Commands **TRIGger:DROPout:HLDEVent**
TRIGger:DROPout:HLDTime
TRIGger:DROPout:HSTart

34.5 TRIGger:DROPout:HSTart

Description Write or read the initial position of the dropout trigger holdoff.

Command Syntax TRIGger:DROPout:HSTart <start_holdoff>
<start_holdoff>:= {LAST_TRIG| ACQ_START}
- LAST_TRIG means the initial position of holdoff is the first time point satisfying the trigger condition.
- ACQ_START means the initial position of holdoff is the time of the last trigger.

Query Syntax TRIGger:DROPout:HSTart?

Example TRIG:DROP:HST LAST_TRIG
TRIG:DROP:HST?

Query Respond Returns: LAST_TRIG

Related Commands **TRIGger:DROPout:HOLDoff**

34.6 TRIGger:DROPout:LEVel

Description Write or read the trigger level of the dropout trigger.

Command Syntax TRIGger:DROPout:LEVel <level_value>
<level_value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:DROPout:LEVel?

Example TRIG:DROP:LEV 5.00E-01
TRIG:DROP:LEV?

Query Respond Returns: 5.00E-01

Related Commands **TRIGger:DROPout:SOURce**

34.7 TRIGger:DROPout:NREJect

Description Write or read the state of the noise rejection.

Command Syntax TRIGger:DROPout:NREJect <state>
<state>:= {OFF | ON}

Query Syntax TRIGger:DROPout:NREJect?

Example TRIG:DROP:NREJ ON
TRIG:DROP:NREJ?

Query Respond Returns: ON

34.8 TRIGger:DROPout:SLOPe

Description Write or read the dropout of the dropout trigger.

Command Syntax TRIGger:DROPout:SLOPe <dropout_type>
<dropout_type>:= {RISing | FALLing | ALTernate}

Query Syntax TRIGger:DROPout:SLOPe?

Example TRIG:DROP:DROP RIS
TRIG:DROP:DROP?

Query Respond Returns: RISing

34.9 TRIGger:DROPout:SOURce

Description Write or read the trigger source of the dropout trigger.

Command Syntax TRIGger:DROPout:SOURce <source>
<source>:= {C<x> | D<n> | EX | EX5 | LINE}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:DROPout:SOURce?

Example TRIG:DROP:SOUR C1
TRIG:DROP:SOUR?

Query Respond Returns: C1

Related Commands **TRIGger:DROPout:LEVel**

34.10 TRIGger:DROPout:TIME

Description Write or read teh dropout time of the dropout trigger.

Command Syntax TRIGger:DROPout:TIME <time>
<time>:= Value in NR3 format. The range of the value is [2.00E-09, 2.00E+01].

Query Syntax TRIGger:DROPout:TIME?

Example TRIG:DROP:TIME 1.00E-08
TRIG:DROP:TIME?

Query Respond Returns: 1.00E-08

34.11 TRIGger:DROPout:TYPE

Description Write or read the over time type of the dropout trigger.

Command Syntax TRIGger:DROPout:TYPE <type>
<type>:= {EDGE | STATe}

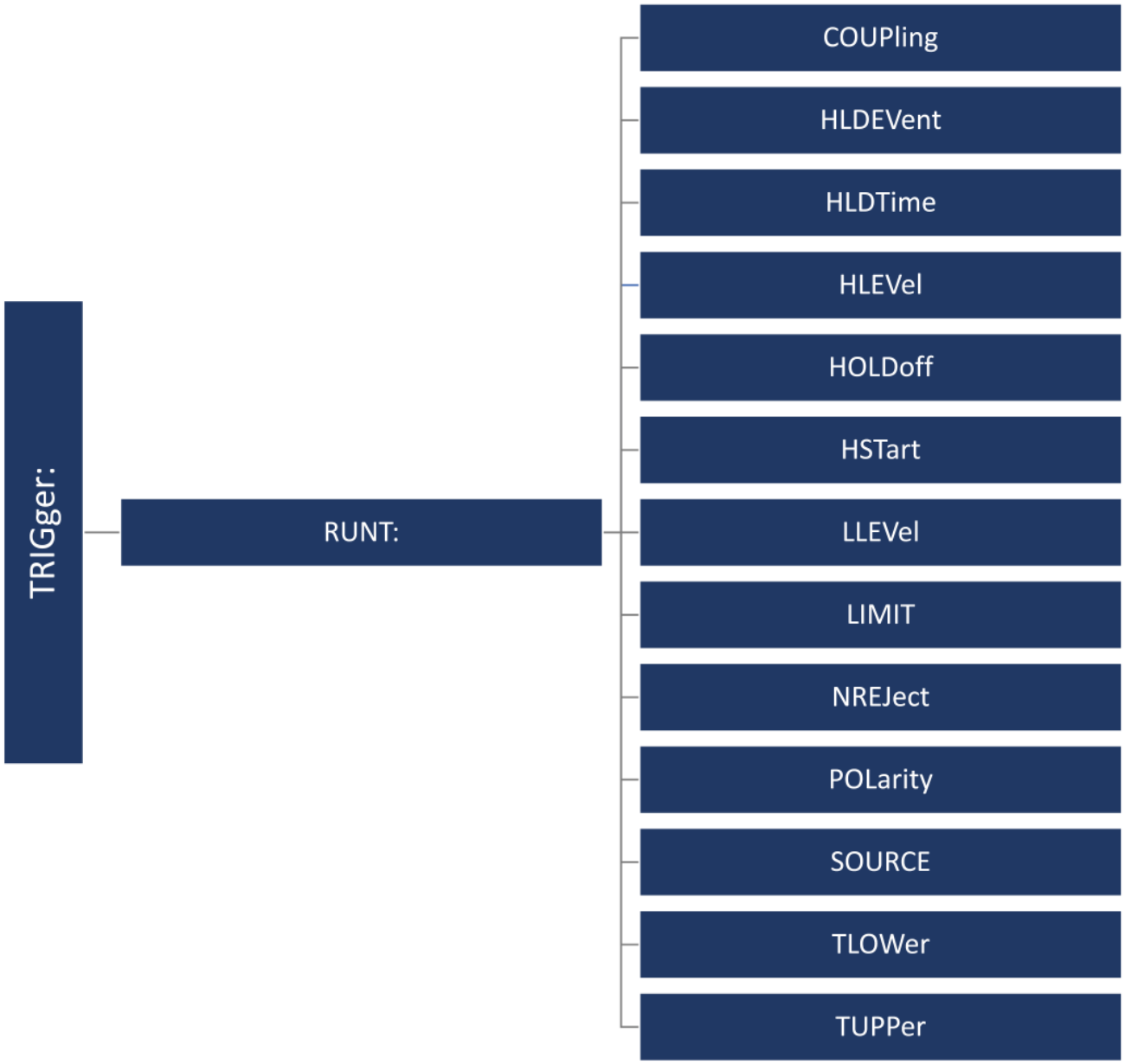
Query Syntax TRIGger:DROPout:TYPE?

Example TRIG:DROP:TYPE EDGE
TRIG:DROP:TYPE?

Query Respond Returns: EDGE

Trigger Runt Commands

The **TRIGGER:RUNT** subsystem commands control the runt trigger parameters.



35.1 TRIGger:RUNT:COUPling

Description Write or read the coupling mode of the runt trigger.

Command Syntax TRIGger:RUNT:COUPling <mode>
<mode>:= {DC | AC | LFREJect | HFREJect}

- DC coupling allows dc and ac signals into the trigger path.
- AC coupling places a high-pass filter in the trigger path, removing dc offset voltage from the trigger waveform. Use AC coupling to get a stable runt trigger when your waveform has a large dc offset.
- HFREJect which is a high-frequency rejection filter that adds a low-pass filter in the trigger path to remove high-frequency components from the trigger waveform. Use the high-frequency rejection filter to remove high-frequency noise, such as AM or FM broadcast stations, from the trigger path.
- LFREJect which is a low frequency rejection filter adds a high-pass filter in series with the trigger waveform to remove any unwanted low-frequency components from a trigger waveform, such as power line frequencies, that can interfere with proper triggering.

Query Syntax TRIGger:RUNT:COUPling?

Example TRIG:RUNT:COUP DC
TRIG:RUNT:COUP?

Query Respond Returns: DC

35.2 TRIGger:RUNT:HLDEVent

Description Write or read the number of holdoff events of the runt trigger.

Command Syntax TRIGger:RUNT:HLDEVent <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1 to 100000000].

Query Syntax TRIGger:RUNT:HLDEVent?

Example TRIG:RUNT:HLDEV 3
TRIG:RUNT:HLDEV?

Query Respond Returns: 3

Related Commands **TRIGger:RUNT:HOLDoff**

35.3 TRIGger:RUNT:HLDTime

Description Write or read the holdoff time of the runt trigger.

Command Syntax TRIGger:RUNT:HLDTime <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of this value is [8.00E-09, 3.00E+01]

Query Syntax TRIGger:RUNT:HLDTime?

Example TRIG:RUNT:HLDT 1.50E-08
TRIG:RUNT:HLDT?

Query Respond Returns: 1.50E-08

Related Commands **TRIGger:DROPout:HOLDoff**

35.4 TRIGger:RUNT:HOLDoff

Description Write or read the holdoff type of the runt trigger.

Command Syntax TRIGger:RUNT:HOLDoff <holdoff_type>
<holdoff_type>:= {OFF | EVENts |TIME}

- OFF means to turn off the holdoff.
- EVENts means the number of trigger events that the oscilloscope counts before re-arming the trigger circuitry.
- TIME means the amount of time that the oscilloscope waits before re-arming the trigger circuitry.

Query Syntax TRIGger:RUNT:HOLDoff?

Example TRIG:RUNT:HOLD OFF
TRIG:RUNT:HOLD?

Query Respond Returns: OFF

Related Commands **TRIGger:RUNT:HLDEVent**
TRIGger:RUNT:HLDTime
TRIGger:RUNT:HSTart

35.5 TRIGger:RUNT:HSTart

Description Write or read the initial position of the runt trigger holdoff.

Command Syntax TRIGger:RUNT:HSTart <start_holdoff>
<start_holdoff>:= {LAST_TRIG| ACQ_START}

- LAST_TRIG means the initial position of holdoff is the first time point satisfying the trigger condition.
- ACQ_START means the initial position of holdoff is the time of the last trigger.

Query Syntax TRIGger:RUNT:HSTart?

Example TRIG:RUNT:HST LAST_TRIG
TRIG:RUNT:HST?

Query Respond Returns: LAST_TRIG

Related Commands **TRIGger:RUNT:HOLDoff**

35.6 TRIGger:RUNT:LIMit

Description Write or read the limit range type of the runt trigger.

Command Syntax TRIGger:RUNT:LIMit <type>
<type>:= {LESSthan | GREATerthan | INNer | OUTer}

Query Syntax TRIGger:RUNT:LIMit?

Example TRIG:SIOP:LIM LESS
TRIG:SIOP:LIM?

Query Respond Returns: LESSthan

Related Commands **TRIGger:RUNT:TLOWer**
TRIGger:RUNT:TUPPer

35.7 TRIGger:RUNT:LLEVel

Description Write or read the trigger level of the runt trigger.

Command Syntax TRIGger:RUNT:LLEVel <level_value>
<level_value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:RUNT:LLEVel?

Example TRIG:RUNT:LLEV 5.00E-01
TRIG:RUNT:LLEV?

Query Respond Returns: 5.00E-01

Related Commands **TRIGger:RUNT:SOURce**

35.8 TRIGger:RUNT:NREJect

Description Write or read the state of the noise rejection.

Command Syntax TRIGger:RUNT:NREJect <state>
<state>:= {OFF | ON}

Query Syntax TRIGger:RUNT:NREJect?

Example TRIG:RUNT:NREJ ON
TRIG:RUNT:NREJ?

Query Respond Returns: ON

35.9 TRIGger:RUNT:POLarity

Description Write or read the polarity of the runt trigger.

Command Syntax TRIGger:RUNT:POLarity <polarity_type>
<polarity_type>:= {POSitive | NEGative}

Query Syntax TRIGger:RUNT:POLarity?

Example TRIG:RUNT:POL POS
TRIG:RUNT:POL?

Query Respond Returns: POSitive

35.10 TRIGger:RUNT:SOURce

Description Write or read the trigger source of the runt trigger.

Command Syntax TRIGger:RUNT:SOURce <source>
<source>:= {C<x> | D<n> | EX | EX5 | LINE}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:RUNT:SOURce?

Example TRIG:RUNT:SOUR C1
TRIG:RUNT:SOUR?

Query Respond Returns: C1

Related Commands **TRIGger:RUNT:LLEVel**

35.11 TRIGger:RUNT:TLOWer

Description Write or read the lower value of the runt trigger limit type.

Command Syntax TRIGger:RUNT:TLOWer <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [2.00E-09, 2.00E+01].

Note:

The lower value cannot be greater than the upper value using by the command **TRIGger:RUNT:TUPPer**. The command is not valid when the limit range type is LESSthan.

Query Syntax TRIGger:RUNT:TLOWer?

Example TRIG:RUNT:TLOW 1.00E-08
TRIG:RUNT:TLOW?

Query Respond Returns: 1.00E-08

Related Commands **TRIGger:RUNT:LIMit**
TRIGger:RUNT:TUPPer

35.12 TRIGger:RUNT:TUPPer

Description Write or read the upper value of the runt trigger limit type.

Command Syntax TRIGger:RUNT:TUPPer <value> <value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [3.00E-09, 2.00E+01].

Note:

The upper value cannot be less than the lower value using by the command **TRIGger:RUNT:TLOWer**. The command is not valid when the limit range type is GREATerthan.

Query Syntax TRIGger:RUNT:TUPPer?

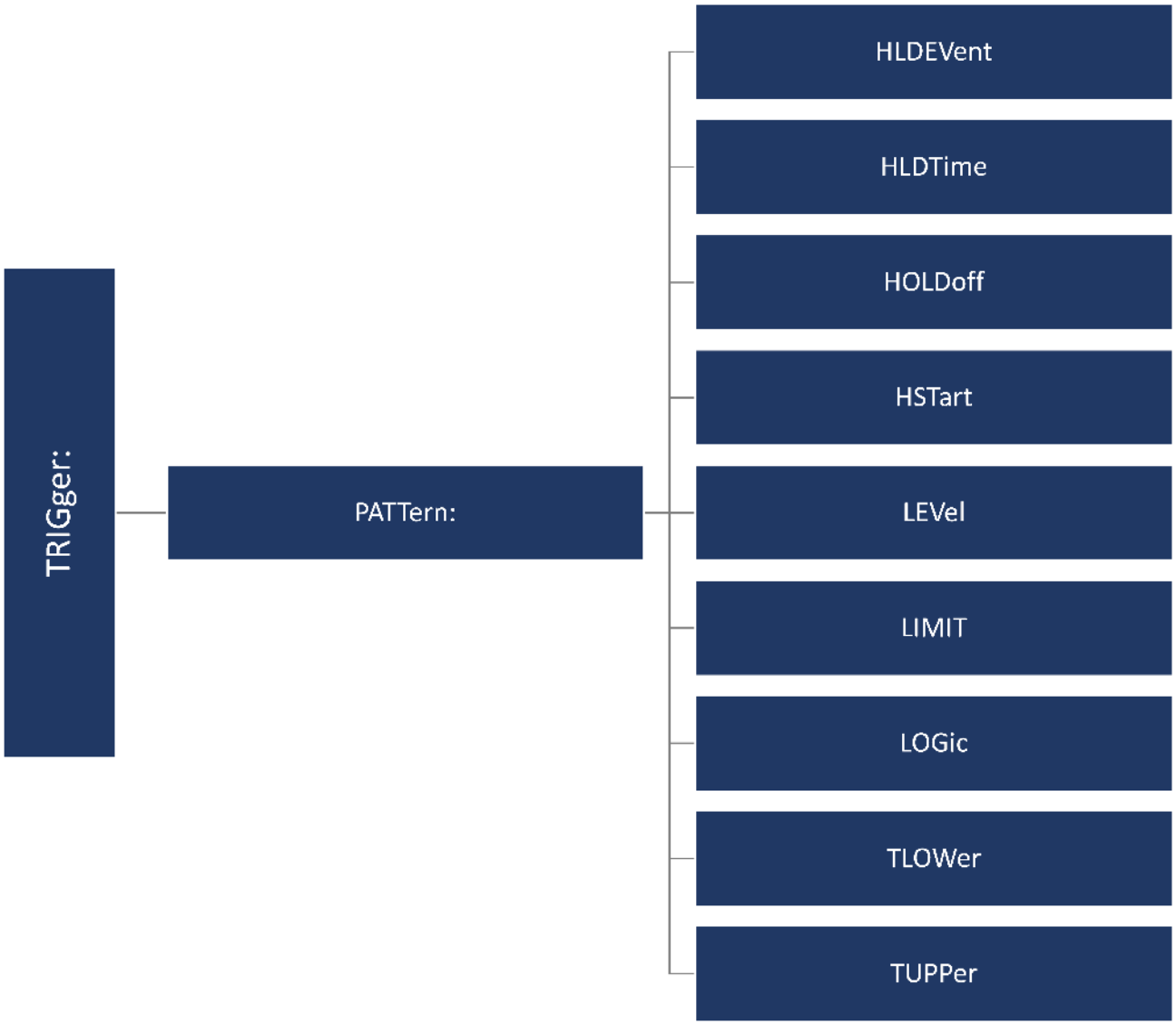
Example TRIG:RUNT:TUPP 3.00E-08
TRIG:RUNT:TUPP?

Query Respond Returns: 3.00E-08

Related Commands **TRIGger:RUNT:LIMit**
TRIGger:RUNT:TLOWer

Trigger Pattern Commands

The **TRIGGER:PATTern** subsystem commands control the pattern trigger parameters.



36.1 TRIGger:PATTern:HLDEVent

Description Write or read the number of holdoff events of the pattern trigger.

Command Syntax TRIGger:PATTern:HLDEVent <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1 to 100000000].

Query Syntax TRIGger:PATTern:HLDEVent?

Example
```
TRIG:PATT:HLDEV 3
TRIG:PATT:HLDEV?
```

Query Respond Returns: 3

Related Commands **TRIGger:PATTern:HOLDoff**

36.2 TRIGger:PATTern:HLDTime

Description Write or read the holdoff time of the pattern trigger.

Command Syntax TRIGger:PATTern:HLDTime <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of this value is [8.00E-09, 3.00E+01]

Query Syntax TRIGger:PATTern:HLDTime?

Example
```
TRIG:PATT:HLDT 1.50E-08
TRIG:PATT:HLDT?
```

Query Respond Returns: 1.50E-08

Related Commands **TRIGger:DROPout:HOLDoff**

36.3 TRIGger:PATTern:HOLDoff

Description Write or read the holdoff type of the pattern trigger.

Command Syntax TRIGger:PATTern:HOLDoff <holdoff_type>
<holdoff_type>:= {OFF | EVENts |TIME}

- OFF means to turn off the holdoff.
- EVENts means the number of trigger events that the oscilloscope counts before re-arming the trigger circuitry.
- TIME means the amount of time that the oscilloscope waits before re-arming the trigger circuitry.

Query Syntax TRIGger:PATTern:HOLDoff?

Example
```
TRIG:PATT:HOLD OFF
TRIG:PATT:HOLD?
```

Query Respond Returns: OFF

Related Commands **TRIGger:PATTern:HLDEVent**
TRIGger:PATTern:HLDTime
TRIGger:PATTern:HSTart

36.4 TRIGger:PATTern:HSTart

Description Write or read the initial position of the pattern trigger holdoff.

Command Syntax TRIGger:PATTern:HSTart <start_holdoff>
<start_holdoff>:= {LAST_TRIG| ACQ_START}

- LAST_TRIG means the initial position of holdoff is the first time point satisfying the trigger condition.
- ACQ_START means the initial position of holdoff is the time of the last trigger.

Query Syntax TRIGger:PATTern:HSTart?

Example
TRIG:PATT:HST LAST_TRIG
TRIG:PATT:HST?

Query Respond Returns: LAST_TRIG

Related Commands **TRIGger:PATTern:HOLDoff**

36.5 TRIGger:PATTern:INPut

Description Write or read the logical input condition for the channel (C1-C4) and digital channel (d0-d15) of the pattern trigger.

Command Syntax TRIGger:PATTern:INPut <logic>[...[,<logic>]]
<logic>:= {X | L | H}

- X means the "don't care" state.
- H means the logic high state.
- L means the logic low state.

Note:

Parameters are configured to corresponding sources in the order of C1-C4, d0-d15.

Query Syntax

Example
TRIG:PATT:INP H,H,L,X,X,X,X,X,X,X,X,X,X,X,X,X,X,X,X,X
TRIG:PATT:INP?

Query Respond Returns: H,H,L,X,X,X,X,X,X,X,X,X,X,X,X,X,X,X,X,X

36.6 TRIGger:PATTern:LEVel

Description Write or read the trigger level of the pattern trigger.

Command Syntax TRIGger:PATTern:LEVel <level_value>
<level_value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:PATTern:LEVel?

Example
TRIG:PATT:LEV 5.00E-01
TRIG:PATT:LEV?

Query Respond Returns: 5.00E-01

Related Commands **TRIGger:PATTern:IPut**

36.7 TRIGger:PATTern:LIMit

Description Write or read the limit range type of the pattern trigger when the logic combination is AND or NOR.

Command Syntax TRIGger:PATTern:LIMit <type>
<type>:= {LESSthan | GREATerthan | INNer | OUTer}

Query Syntax TRIGger:PATTern:LIMit?

Example TRIG:PATT:LIM LESS
TRIG:PATT:LIM?

Query Respond Returns: LESS

Related Commands **TRIGger:PATTern:TLOWer**
TRIGger:PATTern:TUPPer

36.8 TRIGger:PATTern:LOGic

Description Write or read the logical combination of the input channesl for the pattern trigger.

Command Syntax TRIGger:PATTern:LOGic <type>
<type>:= {AND | OR | NAND | NOR}

Query Syntax TRIGger:PATTern:LOGic?

Example TRIG:PATT:LOG AND
TRIG:PATT:LOG?

Query Respond Returns: AND

36.9 TRIGger:PATTern:TLOWer

Description Write or read the lower value of the pattern trigger limit type.

Command Syntax TRIGger:PATTern:TLOWer <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [2.00E-09, 2.00E+01].

Note:

The lower value cannot be greater than the upper value using by the command **TRIGger:PATTern:TUPPer**. The command is not valid when the limit range type is LESSthan.

Query Syntax TRIGger:PATTern:TLOWer?

Example TRIG:PATT:TLOW 1.00E-08
TRIG:PATT:TLOW?

Query Respond Returns: 1.00E-08

Related Commands **TRIGger:PATTern:LIMit**
TRIGger:PATTern:TUPPer

36.10 TRIGger:PATTern:TUPPer

Description Write or read the upper value of the pattern trigger limit type.

Command Syntax TRIGger:PATTern:TUPPer <value> <value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [3.00E-09, 2.00E+01].

Note:

The upper value cannot be less than the lower value using by the command **TRIGger:PATTern:TLOWer**. The command is not valid when the limit range type is GREATerthan.

Query Syntax TRIGger:PATTern:TUPPer?

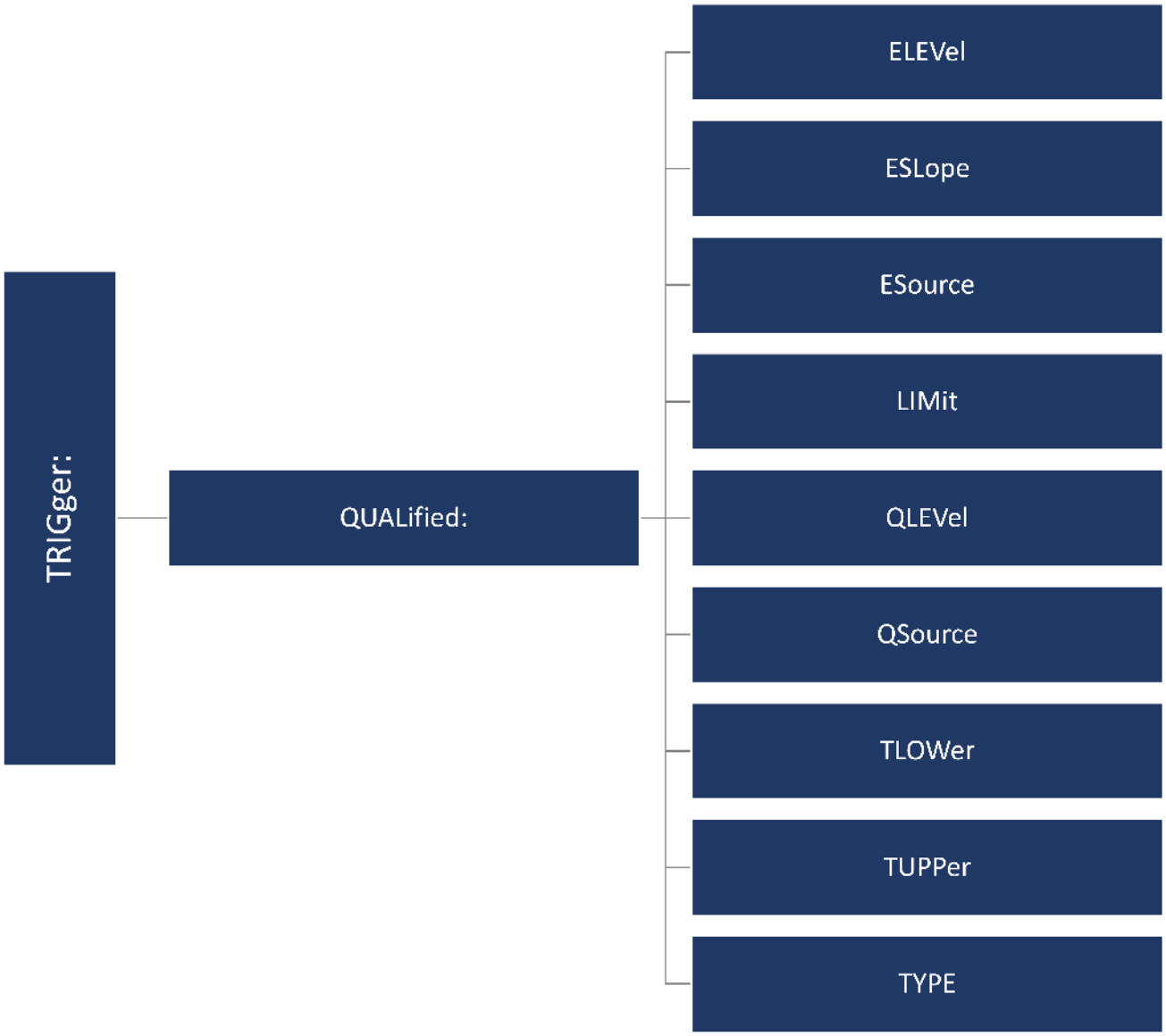
Example TRIG:PATT:TUPP 3.00E-08
TRIG:PATT:TUPP?

Query Respond Returns: 3.00E-08

Related Commands **TRIGger:PATTern:LIMit**
TRIGger:PATTern:TLOWer

Trigger Qualified Commands

The **TRIGGER:QUALified** subsystem commands control the qualified trigger parameters.



37.1 TRIGger:QUALified:ELEVel

Description Write or read the edge trigger level value in the qualified trigger.

Command Syntax TRIGger:QUALified:ELEVel <value> <value>:= Value in NR3 format, including a decimal point and exponent.The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:QUALified:ELEVel?

Example
TRIG:QUAL:ELEV 5.00E-01
TRIG:QUAL:ELEV?

Query Respond Returns: 5.00E-01

Related Commands **TRIGger:QUALified:QLEVel**

37.2 TRIGger:QUALified:ESLope

Description Write or read the edge trigger slope in the qualified trigger.

Command Syntax TRIGger:QUALified:ESLope <type>
<type>:= {RISing | FALLing}

Query Syntax TRIGger:QUALified:ESLope?

Example
TRIG:QUAL:ESL RIS
TRIG:QUAL:ESL?

Query Respond Returns: **TRIGger:QUALified:TYPE**

37.3 TRIGger:QUALified:ESource

Description Write or reaad the edge trigger source in the qualified trigger.

Command Syntax TRIGger:QUALified:ESource <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point. <n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:QUALified:ESource?

Example
TRIG:QUAL:ES C1
TRIG:QUAL:ES?

Query Respond Returns: C1

Related Commands **TRIGger:QUALified:QSource**

37.4 TRIGger:QUALified:LIMit

Description Write or read the limit range type when the qualified type is State with Delay or Edge with Delay in the qualified trigger.

Command Syntax TRIGger:QUALified:LIMit <type>
<type>:= {LESSthan | GREATerthan | INNer | OUTer}

Query Syntax TRIGger:QUALified:LIMit?

Example TRIG:QUAL:LIM LESS
TRIG:QUAL:LIM?

Query Respond Returns: LESSthan

Related Commands **TRIGger:QUALified:TLOWer** **TRIGger:QUALified:TUPPer**

37.5 TRIGger:QUALified:QLEVel

Description Write or read the level of the qualify soruce level in the qualified trigger.

Command Syntax TRIGger:QUALified:QLEVel <level> <level>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset]

Query Syntax TRIGger:QUALified:QLEVel?

Example TRIG:QUAL:QLEV 5.00E-01
TRIG:QUAL:QLEV?

Query Respond Returns: 5.00E-01

Related Commands **TRIGger:QUALified:ELEVel**

37.6 TRIGger:QUALified:QSource

Description Write or read the qualify source of the qualified trigger.

Command Syntax TRIGger:QUALified:QSource <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:QUALified:QSource?

Example TRIG:QUAL:QS C1
TRIG:QUAL:QS?

Query Respond Returns: C1

Related Commands RIGger:QUALified:ESource

37.7 TRIGger:QUALified:TLOWer

Description Write or read the lower value of the pattern trigger limit type.

Command Syntax TRIGger:QUALified:TLOWer <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [2.00E-09, 2.00E+01].

Note:

The lower value cannot be greater than the upper value using by the command **TRIGger:QUALified:TUPPer**. The command is not valid when the limit range type is LESSthan.

Query Syntax TRIGger:QUALified:TLOWer?

Example TRIG:QUAL:TLOW 1.00E-08
TRIG:QUAL:TLOW?

Query Respond Returns: 1.00E-08

Related Commands **TRIGger:QUALified:LIMit**
TRIGger:QUALified:TUPPer

37.8 TRIGger:QUALified:TUPPer

Description Write or read the upper value of the pattern trigger limit type.

Command Syntax TRIGger:QUALified:TUPPer <value> <value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [3.00E-09, 2.00E+01].

Note:

The upper value cannot be less than the lower value using by the command **TRIGger:QUALified:TLOWer**. The command is not valid when the limit range type is GREATerthan.

Query Syntax TRIGger:QUALified:TUPPer?

Example TRIG:QUAL:TUPP 3.00E-08
TRIG:QUAL:TUPP?

Query Respond Returns: 3.00E-08

Related Commands **TRIGger:QUALified:LIMit**
TRIGger:QUALified:TLOWer

37.9 TRIGger:QUALified:TYPE

Description Write or read the qualified type of the qualified trigger.

Command Syntax RIGger:QUALified:TYPE <type>[,<option>]
<type>:= {STATe | STATE_DLY | EDGE | EDGE_DLY}
<option>:= {LOW | HIGH} when <type> is STATe or STATE_DLY
<option>:= {RISing | FALLing} when <type> is EDGE or EDGE_DLY

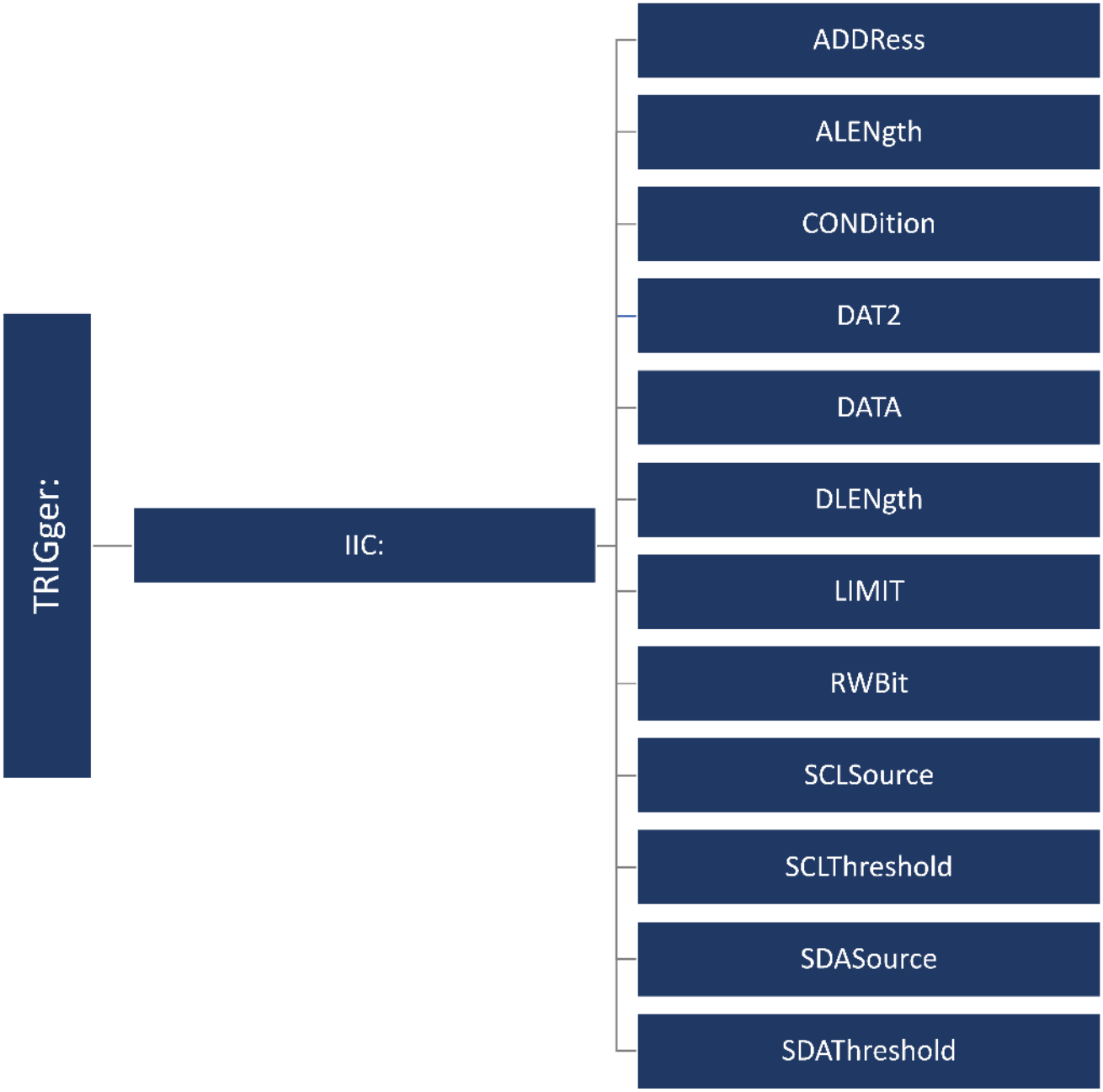
Query Syntax TRIGger:QUALified:TYPE?

Example TRIG:QUAL:TYPE EDGE
TRIG:QUAL:TYPE?

Query Respond Returns: EDGE

Trigger IIC Commands

The **TRIGGER:IIC** subsystem commands control the IIC bus trigger parameters.



38.1 TRIGger:IIC:ADDRess

Description Write or read the address of the IIC bus trigger.

Command Syntax TRIGger:IIC:ADDRess <addr>
<addr>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 127].

Query Syntax TRIGger:IIC:ADDRess?

Example TRIG:IIC:ADDR 10
TRIG:IIC:ADDR?

Query Respond Returns: 10

Related Commands **TRIGger:IIC:CONDition**

38.2 TRIGger:IIC:ALENgth

Description Write or read the length of the address of the IIC bus trigger.

Command Syntax TRIGger:IIC:ALENgth <length>
<length>:= {7BIT | 10BIT}

Query Syntax TRIGger:IIC:ALENgth?

Example TRIG:IIC:ALEN 10BIT
TRIG:IIC:ALEN?

Query Respond Returns: 10BIT

Related Commands**TRIGger:IIC:CONDition**

38.3 TRIGger:IIC:CONDition

Description Write or read the trigger condition of the IIC bus.

Command Syntax TRIGger:IIC:CONDition <condition>
<condition>:= {STARt | STOP | RESTart | NACK | EEPRom | 7ADDRess | 10ADD Ress | DLENgth}

Query Syntax TRIGger:IIC:CONDition?

Example TRIG:IIC:COND STOP
TRIG:IIC:COND?

Query Respond Returns: STOP

38.4 TRIGger:IIC:DAT2

Description Write or read the data2 of the IIC bus trigger.

Command Syntax TRIGger:IIC:DAT2 <data> <data>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 256].

Note:

Use the don't care data (256) to ignore the data2 value.

Query Syntax TRIGger:IIC:DAT2?

Example TRIG:IIC:DAT2 11
TRIG:IIC:DAT2?

Query Respond Returns: 11

Relatead Commands **TRIGger:IIC:CONDition**

38.5 TRIGger:IIC:DATA

Description Write or read the data of the IIC bus trigger.

Command Syntax TRIGger:IIC:DATA <data> <data>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 256].

Note:

Use the don't care data (256) to ignore the data value.

Query Syntax TRIGger:IIC:DATA?

Example TRIG:IIC:DATA 42
TRIG:IIC:DATA?

Query Respond Returns: 42

Related Commands **TRIGger:IIC:CONDition**
TRIGger:IIC:DAT2

38.6 TRIGger:IIC:DLENgth

Description Write or read the data length of the IIC bus trigger.

Command Syntax TRIGger:IIC:DLENgth <length> <length>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1, 12]

Query Syntax TRIGger:IIC:DLENgth?

Example TRIG:IIC:DLEN 10
TRIG:IIC:DLEN?

Query Respond Returns: 10

Related Commands **TRIGger:IIC:CONDition**

38.7 TRIGger:IIC:LIMit

Description Write or read the data comparison type when the trigger condition is EEPROM on the IIC bus trigger.

Command Syntax TRIGger:IIC:LIMit <limit_type>
<limit_type>:= {EQUal | GREaterthan |LESSthan}

Query Syntax TRIGger:IIC:LIMit?

Example TRIG:IIC:LIM LESS
TRIG:IIC:LIM?

Query Respond Returns: LESS

Related Commands **TRIGger:IIC:CONDition**

38.8 TRIGger:IIC:RWBit

Description Sets whether the trigger frame is read address or write address when the IIC trigger condition is 7 or 10 ADDR&DATA.

Command Syntax TRIGger:IIC:RWBit <type>
<type>:= {WRITe | READ | ANY}

Query Syntax TRIGger:IIC:RWBit?

Example TRIG:IIC:RWB READ
TRIG:IIC:RWB?

Query Respond Returns: READ

Related Commands **TRIGger:IIC:CONDition**

38.9 TRIGger:IIC:SCLSource

Description Write or read teh SCL source of the IIC bus trigger.

Command Syntax TRIGger:IIC:SCLSource <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point. <n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:IIC:SCLSource?

Example TRIG:IIC:SCLS C2
TRIG:IIC:SCLS?

Query Respond Returns: C2

Related Commands **TRIGger:IIC:SCLThreshold**
TRIGger:IIC:SDASource

38.10 TRIGger:IIC:SCLThreshold

Description Write or read the threshold of the SCL on IIC bus trigger.

Command Syntax TRIGger:IIC:SCLThreshold <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:IIC:SCLThreshold?

Example TRIG:IIC:SCLT 1.50E+00
TRIG:IIC:SCLT?

Query Respond Returns: 1.50E+00

Relatead Commands **TRIGger:IIC:SCLSource**

38.11 TRIGger:IIC:SDASource

Description Write or read the SDA source of the IIC bus trigger.

Command Syntax TRIGger:IIC:SDASource <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point. <n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:IIC:SDASource?

Example TRIG:IIC:SDAS C2
TRIG:IIC:SDAS?

Query Respond Returns: C2

Related Commands **TRIGger:IIC:SCLSource**
TRIGger:IIC:SDAThreshold

38.12 TRIGger:IIC:SDAThreshold

Description Write or read the threshold of the SDA on IIC bus trigger.

Command Syntax TRIGger:IIC:SDAThreshold <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:IIC:SDAThreshold?

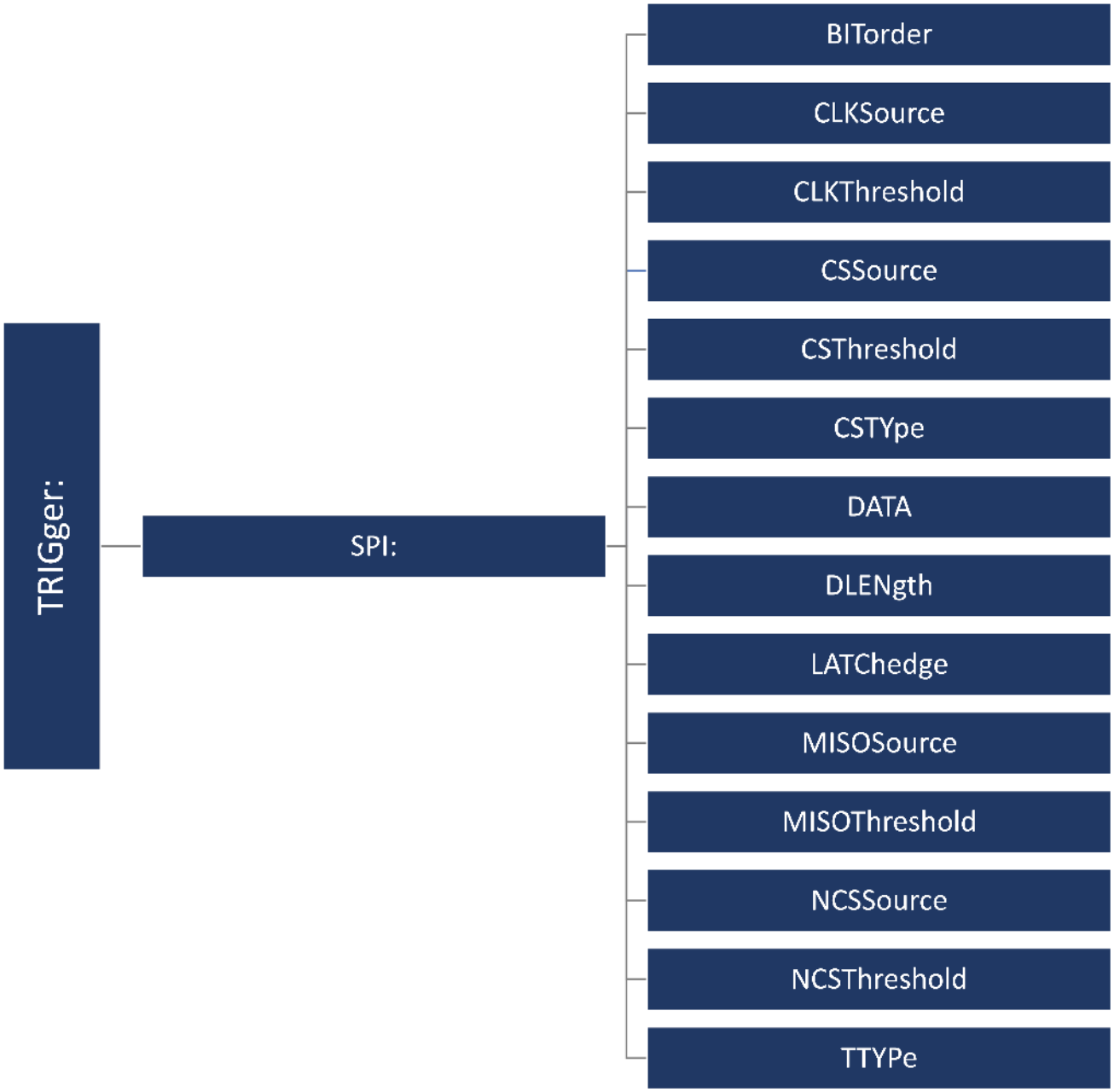
Example TRIG:IIC:SDAT 1.50E+00
TRIG:IIC:SDAT?

Query Respond Returns: 1.50E+00

Related Commands **TRIGger:IIC:SDASource**

Trigger SPI Commands

The **TRIGGER:SPI** subsystem commands control the SPI bus trigger modes and parameters.



39.1 TRIGger:SPI:BITorder

Description Write or read the bit order of the SPI bus trigger.

Command Syntax :TRIGger:SPI:BITorder <bit_order>
<bit_order>:= {LSM | MSB}

Query Syntax TRIGger:SPI:BITorder?

Example RIG:SPI:BIT LSB
RIG:SPI:BIT?

Query Respond Returns: LSB

39.2 TRIGger:SPI:CLKSource

Description Write or read the CLK source of the SPI bus trigger.

Command Syntax TRIGger:SPI:CLKSource <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:SPI:CLKSource <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Example TRIG:SPI:CLKS C2
TRIG:SPI:CLKS?

Query Respond Returns: C2

Related Commands **TRIGger:SPI:CLKThreshold**

39.3 TRIGger:SPI:CLKThreshold

Description Write or read the threshold of the CLK on SPI bus trigger.

Command Syntax TRIGger:SPI:CLKThreshold <clk_threshold>
<clk_threshold>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:SPI:CLKThreshold?

Example TRIG:SPI:CLKT 1.50E+00
TRIG:SPI:CLKT?

Query Respond Returns: 1.50E+00

Related Commands **TRIGger:SPI:CLKSource**

39.4 TRIGger:SPI:CSSource

Description Write or read the CS source of the SPI bus trigger.

Command Syntax TRIGger:SPI:CSSource <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:SPI:CSSource?

Example TRIG:SPI:CSS C2
TRIG:SPI:CSS?

Query Respond Returns: C2

39.5 TRIGger:SPI:CSThreshold

Description Write or read the threshold of the CS on SPI bus trigger.

Command Syntax TRIGger:SPI:CSThreshold <threshold>
<threshold>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:SPI:CSThreshold?

Example TRIG:SPI:CST 1.50E+00
TRIG:SPI:CST?

Query Respond Returns: 1.50E+00

Related Commands **TRIGger:SPI:CSSource**

39.6 TRIGger:SPI:CSTYpe

Description Write or read the chip selection type of the SPI bus trigger.

Command Syntax TRIGger:SPI:CSTYpe <type>
<type>:= {NCS | CS | TIMeout[,<time>]}

- CS means set to chip select state
- NCS means set to non-chip select state
- TIMeout indicates set to clock timeout status

<time>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [1.00E-07, 5.00E-03].

Query Syntax TRIGger:SPI:CSTYpe?

Example TRIG:SPI:CSTY CS
TRIG:SPI:CSTY?

Query Respond Returns: CS

39.7 TRIGger:SPI:DATA

Description Set the data of the SPI bus trigger.

Command Syntax TRIGger:SPI:DATA <data>[,<data>[...[,<data>]]]
<data>:= {0 | 1 | X}

Note:

The number of parameters should be consistent with the data length using by the command **TRIGger:SPI:DLENgth**. Parameters are assigned to each bit in order from high to low.

Example TRIG:SPI:DATA 1,0,0,0,0,0,1,0

Related Commands **TRIGger:SPI:DLENgth**

39.8 TRIGger:SPI:DLENgth

Description Write or read the data length of the SPI bus trigger.

Command Syntax TRIGger:SPI:DLENgth <data_length>
<data_length>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [4, 96].

Query Syntax TRIGger:SPI:DLENgth?

Example TRIG:SPI:DLEN 10
TRIG:SPI:DLEN?

Query Respond Returns: 10

39.9 TRIGger:SPI:LATChedge

Description Write or read the sampling edge of CLK on SPI bus trigger.

Command Syntax TRIGger:SPI:CLK:LATChedge <slope>
<slope>:= {RISing | FALLing}

Query Syntax TRIGger:SPI:LATC?

Example TRIG:SPI:LATC RIS
TRIG:SPI:LATC?

Query Respond Returns: RISing

39.10 TRIGger:SPI:MISOSource

Description Write or read the MISO source of the SPI bus trigger.

Command Syntax TRIGger:SPI:MISOSource <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:SPI:MISOSource?

Example TRIG:SPI:MISOS C2
TRIG:SPI:MISOS?

Query Respond Returns: C2

Related Commands **TRIGger:SPI:MISOThreshold**

39.11 TRIGger:SPI:MISOThreshold

Description Write or read the threshold of the MISO on SPI bus trigger.

Command Syntax TRIGger:SPI:MISOThreshold <value> <value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:SPI:MISOThreshold?

Example TRIG:SPI:MISOT 1.50E+00
TRIG:SPI:MISOT?

Query Respond Returns: 1.50E+00

Related Commands **TRIGger:SPI:MISOSource**

39.12 TRIGger:SPI:MOSISource

Description Write or read the MOSI source of the SPI bus trigger.

Command Syntax TRIGger:SPI:MOSISource <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:SPI:MOSISource?

Example RIG:SPI:MOSIS C2
RIG:SPI:MOSIS?

Query Respond Returns: C2

Related Commands **TRIGger:SPI:MOSIThreshold**

39.13 TRIGger:SPI:MOSIThreshold

Description Write or read the threshold of the MOSI on SPI bus trigger.

Command Syntax TRIGger:SPI:MOSIThreshold <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:SPI:MOSIThreshold?

Example TRIG:SPI:MOSIT 1.50E+00
TRIG:SPI:MOSIT?

Query Respond Returns: 1.50E+00

Related Commands **TRIGger:SPI:MOSISource**

39.14 TRIGger:SPI:NCSSource

Description Write or read the NCS source of the SPI bus trigger.

Command Syntax TRIGger:SPI:NCSSource <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:SPI:NCSSource?

Example TRIG:SPI:NCSS D0
TRIG:SPI:NCSS?

Query Respond Returns: D0

Related Commands **TRIGger:SPI:NCSThreshold**

39.15 TRIGger:SPI:NCSThreshold

Description Write or read the threshold of the NCS on SPI bus trigger.

Command Syntax TRIGger:SPI:NCSThreshold <value> <value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:SPI:NCSThreshold?

Example TRIG:SPI:NCST 1.50E+00
TRIG:SPI:NCST?

Query Respond Returns: 1.50E+00

Related Commands **TRIGger:SPI:NCSSource**

39.16 TRIGger:SPI:TTYPe

Description Write or read the trigger type of the SPI bus trigger.

Command Syntax TRIGger:SPI:TTYPe <trigger_type>
<trigger_type>:= {MISO | MOSI}

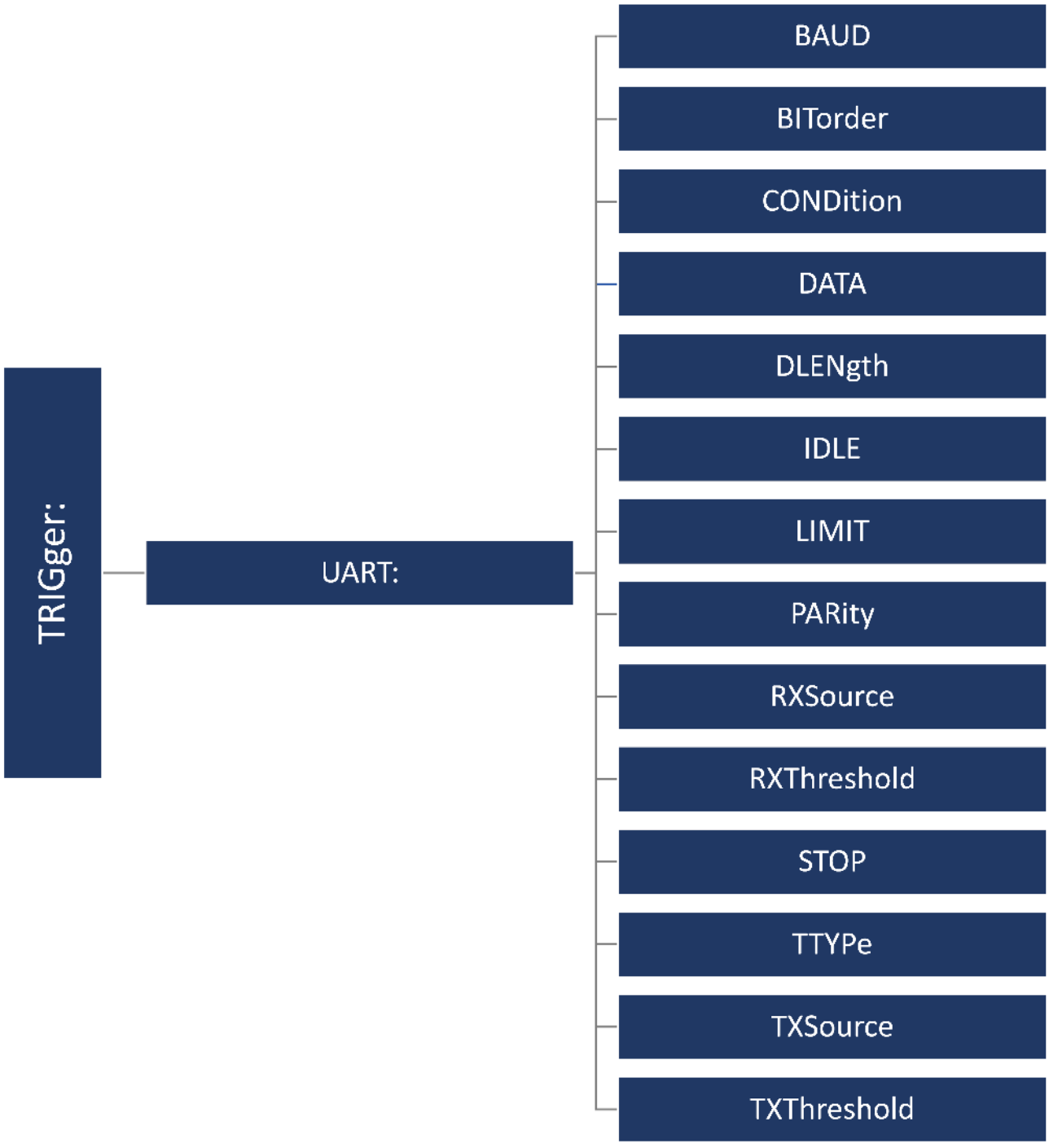
Query Syntax TRIGger:SPI:TTYPe?

Example TRIG:SPI:TTYP MOSI
TRIG:SPI:TTYP?

Query Respond Returns: MOSI

Trigger UART Commands

The **TRIGGER:UART** subsystem commands control the UART bus trigger parameters.



40.1 TRIGger:UART:BAUD

Description Write or read the baud rate of the UART bus trigger.

Command Syntax TRIGger:UART:BAUD <baud>
<baud>:= {600bps | 1200bps | 2400bps | 4800bps | 9600bps | 19200bps | 384 00bps | 57600bps | 115200bps | CUSTom[,<value>]}
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [300, 20000000].

Query Syntax TRIGger:UART:BAUD?

Example TRIG:UART:BAUD 9600bps
TRIG:UART:BAUD?

Query Respond Returns: 9600bps

40.2 TRIGger:UART:BITorder

Description Write or read the bit order of the UART trigger.

Command Syntax TRIGger:UART:BITorder <order>
<order>:= {LSM | MSB}

Query Syntax TRIGger:UART:BITorder?

Example TRIG:UART:BIT LSB
TRIG:UART:BIT?

Query Respond Returns: LSB

40.3 TRIGger:UART:CONDition

Description Write or read the condition of the UART bus trigger.

Command Syntax TRIGger:UART:CONDition <condition>
<condition>:= {STARt | STOP | DATA | ERRor}

Query Syntax TRIGger:UART:CONDition?

Example TRIG:UART:COND STOP
TRIG:UART:COND?

Query Respond Returns: STOP

40.4 TRIGger:UART:DATA

Description Write or read the data of the UART bus trigger.

Command Syntax TRIGger:UART:DATA <data>
<data>:= Value in NR1 format, including an integer and no decimal point.

Note:

The range of the value is related to data length by using the command :TRIGger:UART:DLENgth. Use the don't care data (256, data length is 8) to ignore the data value.

Query Syntax TRIGger:UART:DATA?

Example
TRIG:UART:DATA 83
TRIG:UART:DATA?

Query Respond Returns: 83

Related Commands **TRIGger:UART:CONDition**
TRIGger:UART:DLENgth

40.5 TRIGger:UART:DLENgth

Description Write or read the length of the UART bus trigger.

Command Syntax TRIGger:UART:DLENgth <value>
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [5, 8].

Query Syntax TRIGger:UART:DLENgth?

Example
TRIG:UART:DLEN 8
TRIG:UART:DLEN?

Query Respond Returns: 8

40.6 TRIGger:UART:IDLE

Description Write or read the idle level of the UART bus trigger.

Command Syntax TRIGger:UART:IDLE <idle>
<idle>:= {LOW | HIGH}

Query Syntax TRIGger:UART:IDLE?

Example
TRIG:UART:IDLE LOW
TRIG:UART:IDLE?

Query Respond Returns: LOW

40.7 TRIGger:UART:LIMit

Description Write or read the data comparison type of the UART bus trigger when the trigger condition is Data.

Command Syntax TRIGger:UART:LIMit <limit_type>
<limit_type>:= {EQUal | GREaterthan | LESSthan}

Query Syntax TRIGger:UART:LIMit?

Example TRIG:UART:LIM LESS
TRIG:UART:LIM?

Query Respond Returns: LESS

Related Commands **TRIGger:UART:CONDition**

40.8 TRIGger:UART:PARity

Description Write or read the parity check of the UART bus trigger.

Command Syntax TRIGger:UART:PARity <parity>
<parity>:= {NONE | ODD | EVEN | MARK | SPACe}

Query Syntax TRIGger:UART:PARity?

Example TRIG:UART:PAR ODD
TRIG:UART:PAR?

Query Respond Returns: ODD

40.9 TRIGger:UART:RXSource

Description Write or read the RX source of the UART bus trigger.

Command Syntax TRIGger:UART:RXSource <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:UART:RXSource?

Example TRIG:UART:RXS C2
TRIG:UART:RXS?

Query Respond Returns: C2

Related Commands **TRIGger:UART:RXThreshold**

40.10 TRIGger:UART:RXThreshold

Description Write or read the threshold of RX on UART bus trigger.

Command Syntax TRIGger:UART:RXThreshold <value> <value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:UART:RXThreshold?

Example TRIG:UART:RXT 1.50E+00
TRIG:UART:RXT?

Query Respond Returns: 1.50E+00

Related Commands TRIGger:UART:RXSource

40.11 TRIGger:UART:STOP

Description Write or read the length of the stop bit on UART bus trigger.

Command Syntax TRIGger:UART:STOP <bit>
<bit>:= {1 | 1.5 | 2}

Query Syntax TRIGger:UART:STOP?

Example TRIG:UART:STOP 1
TRIG:UART:STOP?

Query Respond Returns: 1

40.12 TRIGger:UART:TTYPe

Description Write or read the trigger type of the UART bus trigger.

Command Syntax TRIGger:UART:TTYPe <trigger_type>
<trigger_type>:= {RX | TX}

Query Syntax TRIGger:UART:TTYPe?

Example TRIG:UART:TTYP RX
TRIG:UART:TTYP?

Query Respond Returns: RX

40.13 TRIGger:UART:TXSource

Description Write or read the TX source of the UART bus trigger.

Command Syntax TRIGger:UART:TXSource <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point

Query Syntax TRIGger:UART:TXSource?

Example TRIG:UART:TXS C2
TRIG:UART:TXS?

Query Respond Returns: C2

Related Commands **TRIGger:UART:TXThreshold**

40.14 TRIGger:UART:TXThreshold

Description Write or read the threshold of TX on the UART bus trigger.

Command Syntax TRIGger:UART:TXThreshold <value> <value>:= Value in NR3 format, including a decimal point and exponent. The range of the calue is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:UART:TXThreshold?

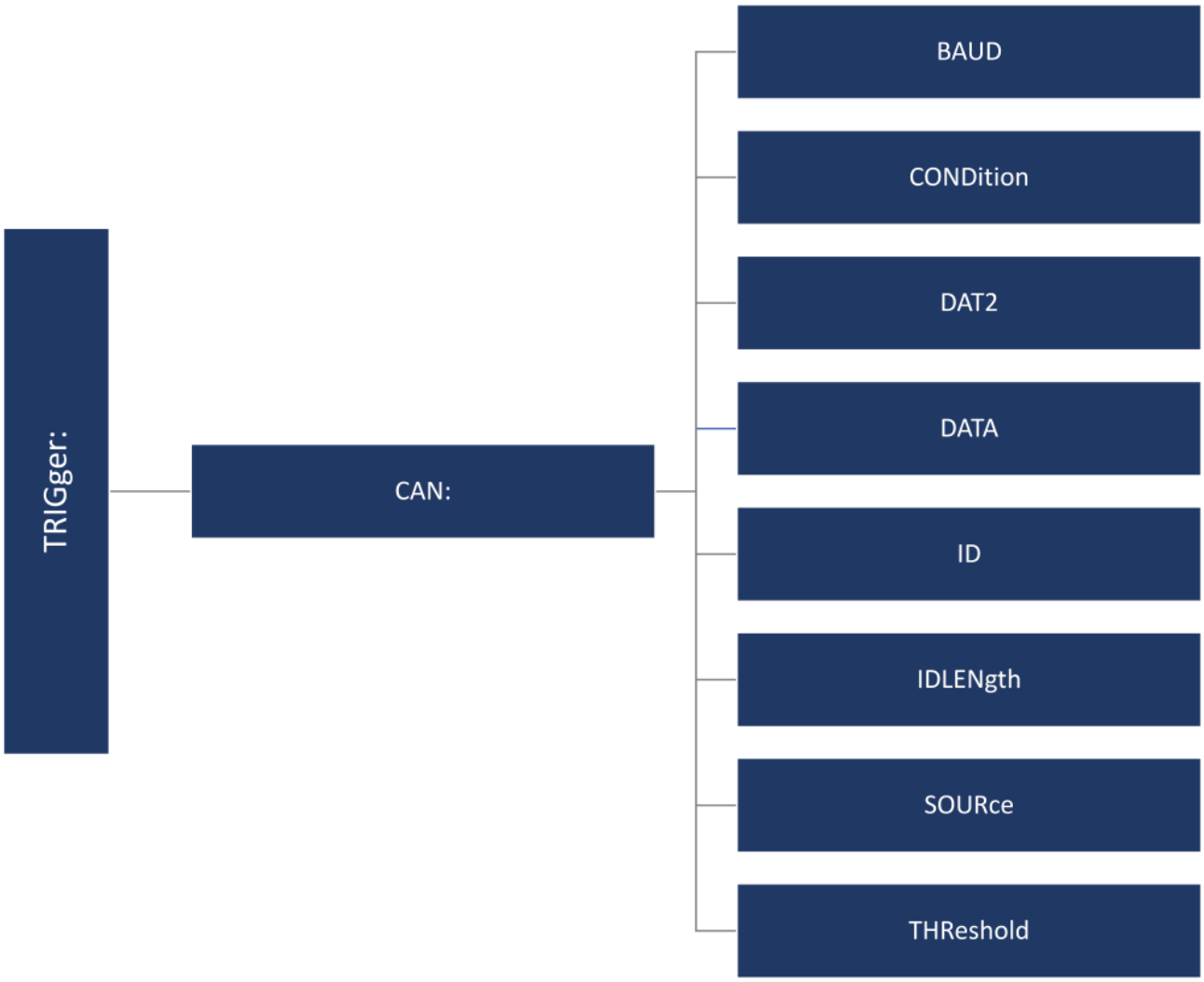
Example TRIG:UART:TXT 1.50E+00
TRIG:UART:TXT?

Query Respond Returns: 1.50E+00

Related Commands **TRIGger:UART:TXSource**

Trigger CAN Commands

The **TRIGGER:CAN** subsystem commands control the CAN bus trigger parameters.



41.1 TRIGger:CAN:BAUD

Description Write or read the baud rate of the CAN bus trigger.

Command Syntax TRIGger:CAN:BAUD <baud>
<baud>:= {5kbps | 10kbps | 20kbps | 50kbps | 100kbps | 125kbps | 250kbps | 50 0kbps | 800kbps | 1Mbps | CUSTom[,<value>]}
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [5000, 1000000].

Query Syntax TRIGger:CAN:BAUD?

Example TRIG:CAN:BAUD 20kbps
TRIG:CAN:BAUD?

Query Respond Returns: 20kbps

41.2 TRIGger:CAN:CONDition

Description Write or read the trigger condition for the CAN bus trigger.

Command Syntax TRIGger:CAN:CONDition <condition>
<condition>:= {STARt | REMote | ID | ID_AND_DATA | ERRor}

Query Syntax TRIGger:CAN:CONDition?

Example TRIG:CAN:COND STAR
TRIG:CAN:COND?

Query Respond Returns: STARt

41.3 TRIGger:CAN:DAT2

Description Write or read the data2 of the CAN bus trigger.

Command Syntax TRIGger:CAN:DAT2 <data>
<data>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 256].

Note:

Use the don't care data (256) to ignore the data2 value.

Query Syntax TRIGger:CAN:DAT2?

Example TRIG:CAN:DAT2 73
TRIG:CAN:DAT2?

Query Respond Returns: 73

Related Commands **TRIGger:CAN:CONDition**

41.4 TRIGger:CAN:DATA

Description Write or read the data of the CAN bus trigger.

Command Syntax TRIGger:CAN:DATA <data> <data>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 256].

Note:

Use the don't care data (256) to ignore the data value.

Query Syntax TRIGger:CAN:DATA?

Example
TRIG:CAN:DATA 67
TRIG:CAN:DATA?

Query Respond Returns: 67

Related Commands **TRIGger:CAN:CONDition**

41.5 TRIGger:CAN:ID

Description Write or read the ID of the CAN bus trigger.

Command Syntax TRIGger:CAN:ID <id>
<id>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 536870912] when the ID length is 29 bits. The range of the value is [0, 2048] when the ID length is 11 bits.

Note:

Use the don't care data (536870912, ID length is 29 bits) to ignore the ID value.

Query Syntax TRIGger:CAN:ID?

Example
TRIG:CAN:ID 125935441
TRIG:CAN:ID?

Query Respond Returns: 125935441

Related Commands **TRIGger:CAN:CONDition**

41.6 TRIGger:CAN:IDLength

Description Write or read the ID length of the CAN bus trigger when the trigger condtion is Remote, ID+ Data.

Command Syntax TRIGger:CAN:IDLENgth <id_length>
<id_length>:= {11BITS | 29BITS}

Query Syntax TRIGger:CAN:IDLENgth?

Example
TRIG:CAN:IDL 29BITS
TRIG:CAN:IDL?

Query Respond Returns: 29BITS

Related Commands **TRIGger:CAN:CONDition**

41.7 TRIGger:CAN:SOURce

Description Write or read the source of the CAN bus trigger.

Command Syntax TRIGger:CAN:SOURce <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:CAN:SOURce?

Example TRIG:CAN:SOUR C2
TRIG:CAN:SOUR?

Query Respond Returns: C2

Related Commands **TRIGger:CAN:THReshold**

41.8 TRIGger:CAN:THReshold

Description Write or read the threshold of the source on CAN bus trigger.

Command Syntax TRIGger:CAN:THReshold <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:CAN:THReshold?

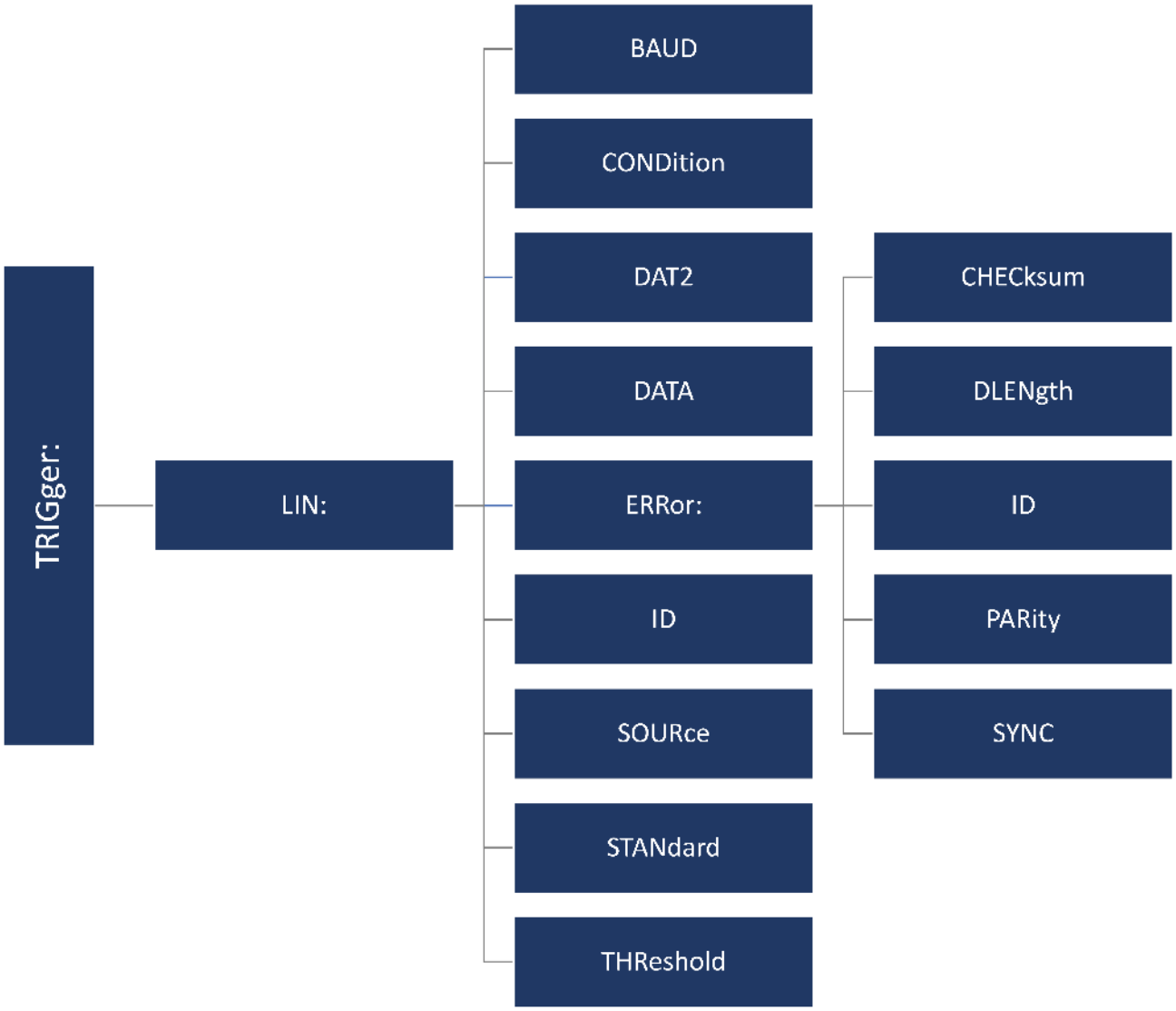
Example TRIG:CAN:THR 1.50E+00
TRIG:CAN:THR?

Query Respond Returns: 1.50E+00

Related Commands **TRIGger:CAN:SOURce**

Trigger LIN Commands

The **TRIGGER:LIN** subsystem commands control the LIN bus trigger parameters.



42.1 TRIGger:LIN:BAUD

Description Write or read the baud rate of the LIN bus trigger.

Command Syntax TRIGger:LIN:BAUD <baud>
<baud>:= {600bps | 1200bps | 2400bps | 4800bps | 9600bps | 19200bps | CUS Tom[,<value>]}
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [300, 20000000].

Query Syntax TRIGger:LIN:BAUD?

Example TRIG:LIN:BAUD 9600bps
TRIG:LIN:BAUD?

Query Respond Returns: 9600bps

42.2 TRIGger:LIN:CONDition

Description Write or read the trigger condition for the LIN bus trigger.

Command Syntax TRIGger:LIN:CONDition <condition>
<condition>:= {BReak | ID | ID_AND_DATA | DATA_ERROR}

Query Syntax TRIGger:LIN:CONDition?

Example TRIG:LIN:COND ID_AND_DATA
TRIG:LIN:COND?

Query Respond Returns: ID_AND_DATA

42.3 TRIGger:LIN:DAT2

Description Write or read the data2 of the LIN bus trigger.

Command Syntax TRIGger:LIN:DAT2 <data>
<data>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 256].

Note:

Use the don't care data (256) to ignore the data2 value.

Query Syntax TRIGger:LIN:DAT2?

Example TRIG:LIN:DAT2 73
TRIG:LIN:DAT2?

Query Respond Returns: 73

Related Commands **TRIGger:LIN:CONDition**

42.4 TRIGger:LIN:DATA

Description Write or read the data of the LIN bus trigger.

Command Syntax TRIGger:LIN:DATA <data> <data>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 256].

Note:

Use the don't care data (256) to ignore the data value.

Query Syntax TRIGger:LIN:DATA?

Example
TRIG:LIN:DATA 69
TRIG:LIN:DATA?

Query Respond Returns: 69

Related Commands **TRIGger:LIN:CONDition**
TRIGger:LIN:DAT2

42.5 TRIGger:LIN:ERRor:CHECksum

Description Write or read the checksum errror state of the LIN bus trigger when the trigger condition is Error.

Command Syntax TRIGger:LIN:ERRor:CHECksum <state>
<state>:= {0 |1}
- 0 means OFF
- 1 means ON

Query Syntax TRIGger:LIN:ERRor:CHECksum?

Example
TRIG:LIN:ERR:CHEC 1
TRIG:LIN:ERR:CHEC?

Query Respond Returns: 1

Related Commans **TRIGger:LIN:CONDition**

42.6 TRIGger:LIN:ERRor:DLENgth

Description Write or read the data length of the error frame when the trigger condition is Error and the checksum error state is on.

Command Syntax TRIGger:LIN:DLENgth <length>
<length>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1, 8].

Query Syntax TRIGger:LIN:DLENgth?

Example
TRIG:LIN:ERR:DLEN 4
TRIG:LIN:ERR:DLEN?

Query Respond Returns: 4

Related Commands **TRIGger:LIN:CONDition**
TRIGger:LIN:ERRor:CHECksum

42.7 TRIGger:LIN:ERRor:ID

Description Write or read the error frame ID of the LIN bus when the trigger condtion is Error and the checksum error state is on.

Command Syntax TRIGger:LIN:ERRor:ID <id>
<id>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 63].

Query Syntax TRIGger:LIN:ERRor:ID?

Example TRIG:LIN:ERR:ID 42
TRIG:LIN:ERR:ID?

Query Respond Returns: 42

Related Commands **TRIGger:LIN:CONDition**
TRIGger:LIN:ERRor:CHECksum

42.8 TRIGger:LIN:ERRor:PARity

Description Write or read the header parity error state of the LIN bus trigger when the trigger condition is Error.

Command Syntax TRIGger:LIN:ERRor:PARity <state>
<state>:= {0 | 1}
- 0 means OFF
- 1 means ON

Query Syntax TRIGger:LIN:ERRor:PARity?

Example TRIG:LIN:ERR:PAR 1
TRIG:LIN:ERR:PAR?

Query Respond Returns: 1

Related Commands **TRIGger:LIN:CONDition**

42.9 TRIGger:LIN:ERRor:SYNC

Description Write or read the sync byte error state of the LIN bus trigger.

Command Syntax TRIGger:LIN:ERRor:SYNC <state>
<state>:= {0 | 1}

Query Syntax TRIGger:LIN:ERRor:SYNC?

Example TRIG:LIN:ERR:SYNC 1
TRIG:LIN:ERR:SYNC?

Query Respond Returns: 1

Related Commands **TRIGger:LIN:CONDition**

42.10 TRIGger:LIN:ID

Description Write or read the ID of the LIN bus when the trigger condtion is ID.

Command Syntax TTRIGger:LIN:ID <id>
<id>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 64].

Note:

Use the don't care data(64) to ignore the ID value

Query Syntax TRIGger:LIN:ID?

Example TRIG:LIN:ID 43
TRIG:LIN:ID?

Query Respond Returns: 43

Related Commands **TRIGger:LIN:CONDition**

42.11 TRIGger:LIN:SOURce

Description Write or read the source of the LIN bus trigger.

Command Syntax TRIGger:LIN:SOURce <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:LIN:SOURce?

Example TRIG:LIN:SOUR C2
TRIG:LIN:SOUR?

Query Respond Returns: C2

Related Commands **TRIGger:LIN:THReshold**

42.12 TRIGger:LIN:STANdard

Description Write or read the LIN protocol standard when the trigger condtion is Error and the checksum error state is on.

Command Syntax TRIGger:LIN:STANdard <version>
<version>:= {0 | 1}
- 0 means Rev1.3
- 1 means Rev2.x

Query Syntax TRIGger:LIN:STANdard?

Example TRIG:LIN:STAN 0
TRIG:LIN:STAN?

Query Respond Returns: 0

Related Commands **TRIGger:LIN:CONDition**
TRIGger:LIN:ERRor:CHECksum

42.13 TRIGger:LIN:THReshold

Description Write or read the threshold of the source on LIN bus trigger.

Command Syntax TRIGger:LIN:THReshold <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:LIN:THReshold?

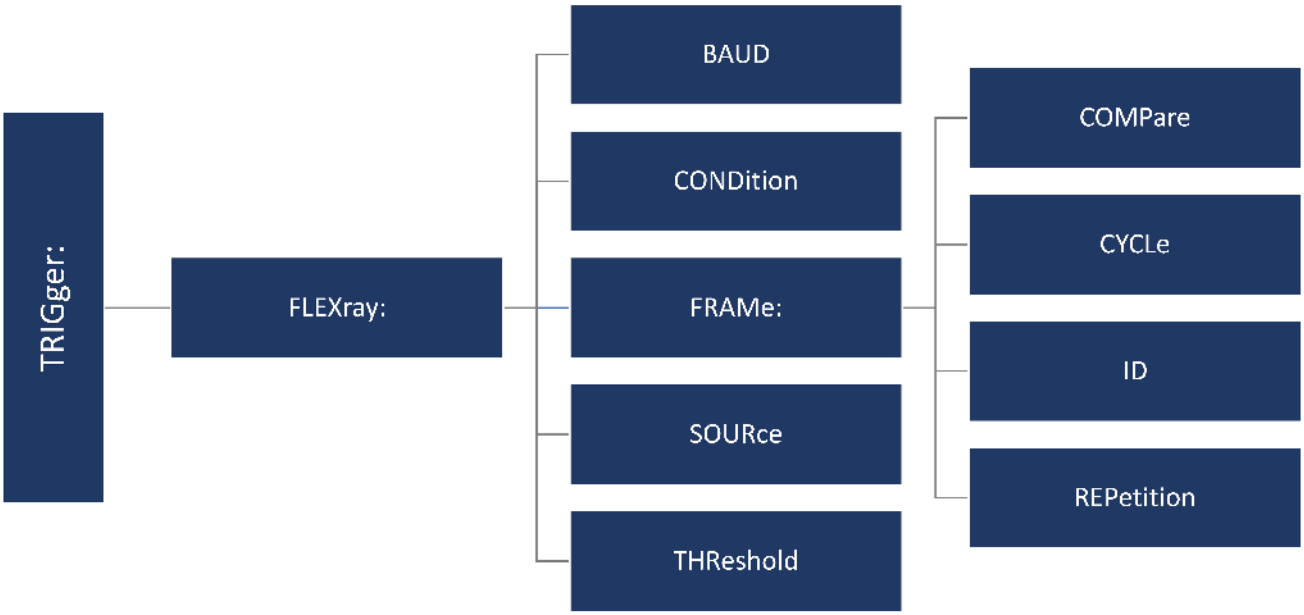
Example TRIG:LIN:THR 1.50E+00
TRIG:LIN:THR?

Query Respond Returns: 1.50E+00

Related Commands **TRIGger:LIN:SOURce**

Trigger Flexray Commands

The **TRIGGER:FLEXray** subsystem commands control the FlexRay bus trigger parameters.



43.1 TRIGger:FLEXray:BAUD

Description Write or read the baud rate of the Flexray bus trigger.

Command Syntax TRIGger:FLEXray:BAUD <baud>
<baud>:= {2500kbps | 5Mbps | 10Mbps | CUSTom[,<value>]}
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [1000000, 20000000].

Query Syntax TRIGger:FLEXray:BAUD?

Example TRIG:FLEX:BAUD 2500kbps
TRIG:FLEX:BAUD?

Query Respond Returns: 2500kbps

43.2 TRIGger:FLEXray:CONDition

Description Write or read the trigger condition of the FLEXray bus.

Command Syntax TRIGger:FLEXray:CONDition <condition>
<condition>:= {TSS | FRAMe | SYMBol | ERRor}

Query Syntax TRIGger:FLEXray:CONDition?

Example TRIG:FLEX:COND SYMB
TRIG:FLEX:COND?

Query Respond Returns: SYMB

43.3 TRIGger:FLEXray:FRAMe:COMPare

Description Write or read the frame cycle compare type of FLEXray bus trigger.

Command Syntax TRIGger:FLEXray:FRAMe:COMPare <type>
<type >:= {ANY | EQUal | GREaterthan | LESSthan}

Query Syntax TRIGger:FLEXray:FRAMe:COMPare?

Example TRIG:FLEX:FRAM:COMP LESS
TRIG:FLEX:FRAM:COMP?

Query Respond Returns: LESS

Related Commands **TRIGger:FLEXray:CONDition**

43.4 TRIGger:FLEXray:FRAMe:CYCLe

Description Write or read the frame cycle of the FLEXray bus trigger.

Command Syntax TRIGger:FLEXray:FRAMe:CYCLe <cycle>
<cycle>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 63].

Query Syntax TRIGger:FLEXray:FRAMe:CYCLe?

Example TRIG:FLEX:FRAM:CYCL 2
TRIG:FLEX:FRAM:CYCL?

Query Respond Returns: 2

Related Commands **TRIGger:FLEXray:CONDition**

43.5 TRIGger:FLEXray:FRAMe:ID

Description Write or read the frame ID of the FLEXray bus trigger.

Command Syntax TRIGger:FLEXray:FRAMe:ID <id>
<id>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 2048].

Note:

Use the don't care data (2048) to ignore the ID value.

Query Syntax TRIGger:FLEXray:FRAMe:ID?

Example TRIG:FLEX:FRAM:ID 1793
TRIG:FLEX:FRAM:ID?

Query Respond Returns: 1793

Related Commands **TRIGger:FLEXray:CONDition**

43.6 TRIGger:FLEXray:FRAMe:REPetition

Description Write or read the cycle repetition of the FLEXray bus trigger when the cycle compare type is Equal.

Command Syntax TRIGger:FLEXray:FRAMe:REPetition <times>
<times>:= {1 | 2 | 4 | 8 | 16 | 32 | 64}

Query Syntax TRIGger:FLEXray:FRAMe:REPetition?

Example TRIG:FLEX:FRAM:REP 8
TRIG:FLEX:FRAM:REP?

Query Respond Returns: 8

Related Commands **TRIGger:FLEXray:CONDition**
TRIGger:FLEXray:FRAMe:COMPare

43.7 TRIGger:FLEXray:SOURce

Description Write or read the source of the FLEXray bus trigger.

Command Syntax TRIGger:FLEXray:Source <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:FLEXray:Source?

Example TRIG:FLEX:SOUR C2
TRIG:FLEX:SOUR

Query Respond Returns: C2

Related Commands **TRIGger:FLEXray:THReshold**

43.8 TRIGger:FLEXray:THReshold

Description Write or read the threshold of the source on the FLEXray bus trigger.

Command Syntax TRIGger:FLEXray:THReshold <value> <value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:FLEXray:THReshold?

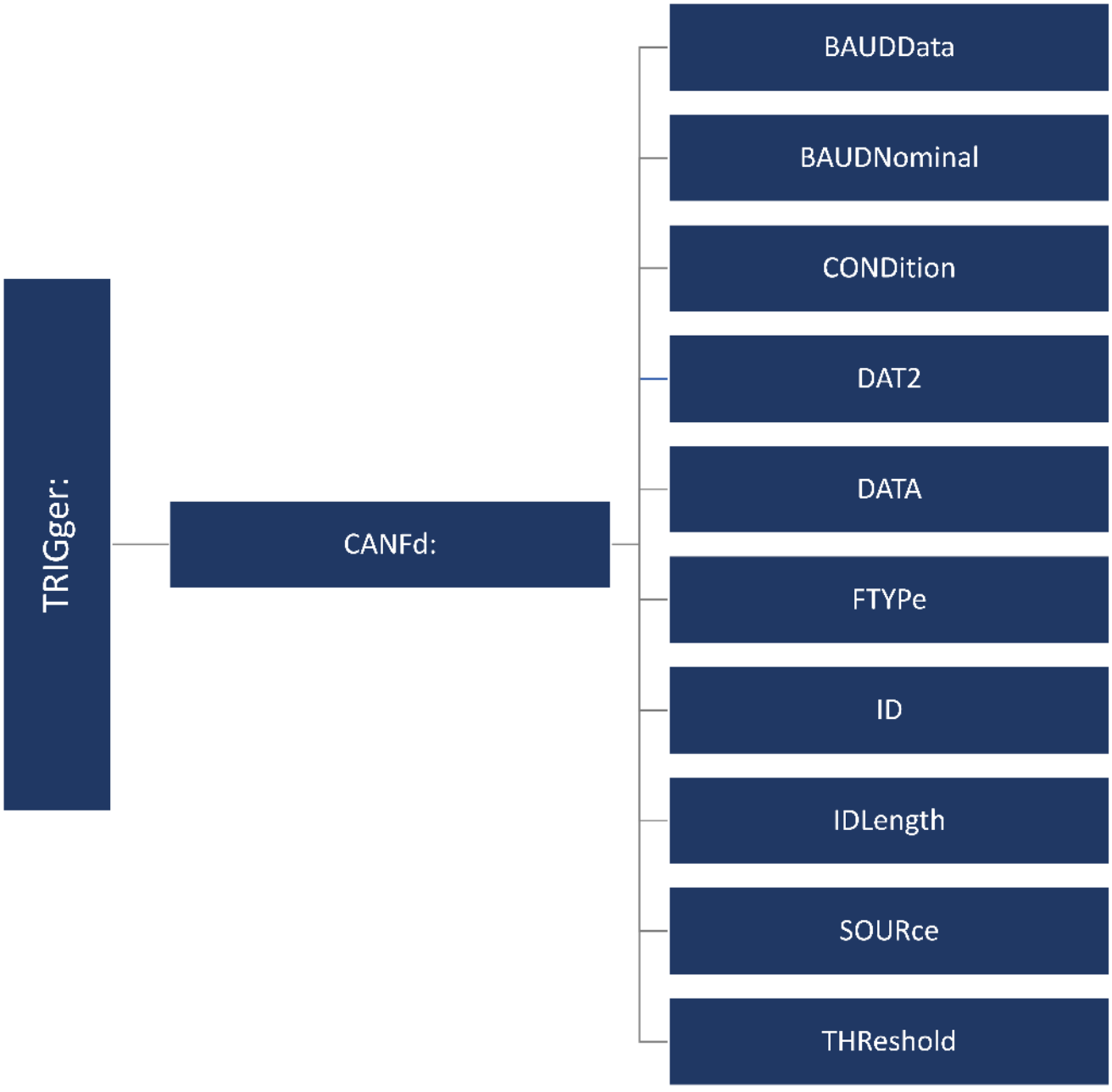
Example TRIG:FLEX:THR 1.50E+00
TRIG:FLEX:THR?

Query Respond Returns: 1.50E+00

Related Commands **TRIGger:FLEXray:SOURce**

Trigger CANFd Commands

The **TRIGGER:CANFd** subsystem commands control the CAN FD bus trigger parameters.



44.1 TRIGger:CANFd:BAUDData

Description Write or read the data baud rate of the CAN FD bus trigger when the frame type is Both or CAN FD.

Command Syntax TRIGger:CANFd:BAUDData <baud>
<baud>:= {500kbps | 1Mbps | 2Mbps | 5Mbps | 8Mbps | 10Mbps | CUSTom[,<v alue>]}
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [100000, 10000000].

Query Syntax TRIGger:CANFd:BAUDData?

Example TRIG:CANF:BAUDD 500kbps
TRIG:CANF:BAUDD?

Query Respond Returns: 500kbps

Related Commands **TRIGger:CANFd:FTYPe** **TRIGger:CANFd:BAUDNominal**

44.2 TRIGger:CANFd:BAUDNominal

Description Write or read the nominal baud rate of the CAN FD bus trigger.

Command Syntax TRIGger:CANFd:BAUDNominal <baud>
<baud>:= {10kbps | 25kbps | 50kbps | 100kbps | 250kbps | 1Mbps | CUSTom [,<value>]}
<value>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [10000, 1000000].

Query Syntax TRIGger:CANFd:BAUDNominal?

Example TRIG:CANF:BAUDN 10kbps
TRIG:CANF:BAUDN?

Query Respond Returns: 10kbps

Related Commands **TRIGger:CANFd:FTYPe**
TRIGger:CANFd:BAUDData

44.3 TRIGger:CANFd:CONDition

Description Write or read the trigger condition for the CAN FD bus trigger.

Command Syntax TRIGger:CANFd:CONDition <condition>
<condition>:= {STARt | REMote | ID | ID_AND_DATA | ERRor}

Query Syntax TRIGger:CANFd:CONDition?

Example TRIG:CANF:COND ID_AND_DATA
TRIG:CANF:COND?

Query Respond Returns: ID_AND_DATA

44.4 TRIGger:CANFD:DAT2

Description Write or read the data2 of the CANFD bus trigger.

Command Syntax TRIGger:CANFD:DAT2 <data>
<data>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 256].

Note:

Use the don't care data (256) to ignore the data2 value.

Query Syntax TRIGger:CANFD:DAT2?

Example TRIG:CANFD:DAT2 73
TRIG:CANFD:DAT2?

Query Respond Returns: 73

Related Commands TRIGger:CANFD:CONDition
TRIGger:CANFD:DATA

44.5 TRIGger:CANFD:DATA

Description Write or read the data of the CANFD bus trigger.

Command Syntax TRIGger:CANFD:DATA <data> <data>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 256].

Note:

Use the don't care data (256) to ignore the data value.

Query Syntax TRIGger:CANFD:DATA?

Example TRIG:CANFD:DATA 46
TRIG:CANFD:DATA?

Query Respond Returns:46

Related Commands TRIGger:CANFD:CONDition
TRIGger:CANFD:DAT2

44.6 TRIGger:CANFd:FTYPe

Description Write or read the frame type of the CAN FD bus trigger.

Command Syntax TRIGger:CANFd:FTYPe <frame_type>
<frame_type>:= {BOTH | CAN | CANFd}

Query Syntax TRIGger:CANFd:FTYPe?

Example TRIG:CANF:FTYP CANF
TRIG:CANF:FTYP?

Query Respond Returns: CANFd

44.7 TRIGger:CANFd:ID

Description Write or read the ID of the CAN FD bus trigger when the trigger condition is Remote, ID or ID+Data.

Command Syntax TRIGger:CANFd:ID <id>
<id>:= Value in NR1 format, including an integer and no decimal point. The range of the value is [0, 536870911] when the ID length is 29 bits. The range of the value is [0, 2047] when the ID length is 11 bits.

Note:

Use the don't care data (536870912, ID length is 29) to ignore the data value.

Query Syntax TRIGger:CANFd:ID?

Example
```
TRIG:CANF:ID 90861836
TRIG:CANF:ID?
```

Query Respond Returns: 90861836

Related Commands **TRIGger:CANFd:CONDition**
TRIGger:CANFd:IDLength

44.8 TRIGger:CANFd:IDLength

Description Write or read the ID length of the CAN FD bus trigger.

Command Syntax TRIGger:CANFd:IDLENgth <length>
<length>:= {11BITS | 29BITS}

Query Syntax TRIGger:CANFd:IDLENgth?

Example
```
TRIG:CANF:IDL 29BITS
TRIG:CANF:IDL?
```

Query Respond Returns: 29BITS

Related Commands **TRIGger:CANFd:CONDition**
TRIGger:CANFd:ID

44.9 TRIGger:CANFD:SOURce

Description Write or read the source of the CANFD bus trigger.

Command Syntax TRIGger:CANFD:SOURce <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:CANFD:SOURce?

Example
```
TRIG:CANFD:SOUR C2
TRIG:CANFD:SOUR?
```

Query Respond Returns: C2

Related Commands **TRIGger:CANFD:THReshold**

44.10 TRIGger:CANFD:THReshold

Description Write or read the threshold of the source on CANFD bus trigger.

Command Syntax TRIGger:CANFD:THReshold <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:CANFD:THReshold?

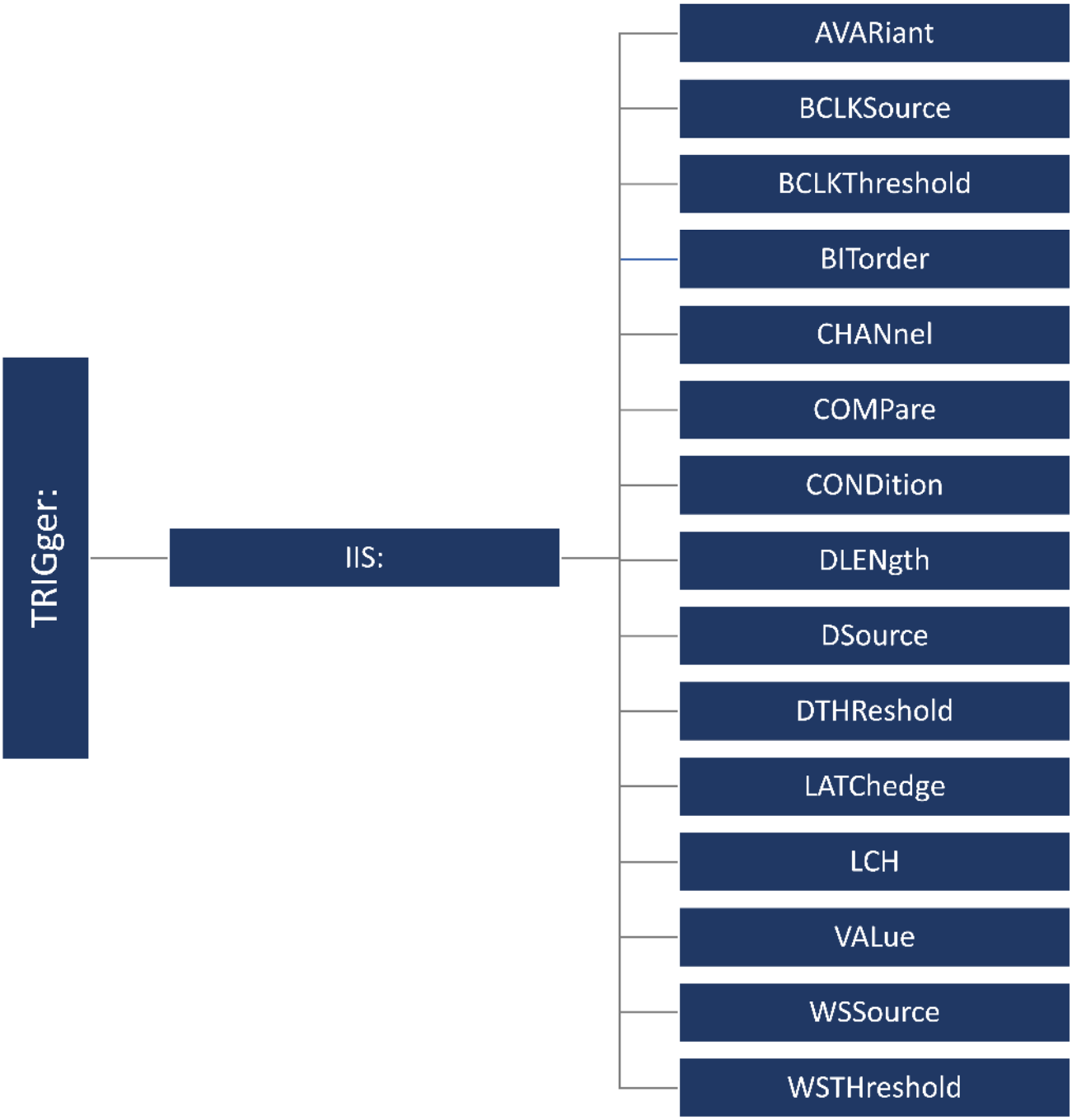
Example TRIG:CANFD:THR 1.50E+00
TRIG:CANFD:THR?

Query Respond Returns: 1.50E+00

Related Commands **TRIGger:CANFD:SOURce**

Trigger IIS Commands

The **TRIGGER:IIS** subsystem commands control the IIS bus trigger parameters.



45.1 TRIGger:IIS:AVARiant

Description Write or read the audio variant of the IIS bus trigger.

Command Syntax TRIGger:IIS:AVARiant <type>
<type>:= {IIS | LJ | RJ}

Query Syntax TRIGger:IIS:AVARiant?

Example TRIG:IIS:AVAR IIS
TRIG:IIS:AVAR?

Query Respond Returns: IIS

45.2 TRIGger:IIS:BCLKSource

Description Write or read the BCLK source of the IIS bus trigger.

Command Syntax TRIGger:IIS:BCLKSource <source>
<source>:={C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:IIS:BCLKSource?

Example TRIG:IIS:BCLKS C2
TRIG:IIS:BCLKS?

Query Respond Returns: C2

Related Commands **TRIGger:IIS:BCLKThreshold**

45.3 TRIGger:IIS:BCLKThreshold

Description Write or read the threshold of the BCLK on LIN bus trigger.

Command Syntax TRIGger:IIS:BCLKThreshold <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:IIS:BCLKThreshold?

Example TRIG:IIS:BCLKT 1.50+00
TRIG:IIS:BCLKT?

Query Respond Returns: 1.50+00

Related Commands**TRIGger:IIS:BCLKSource**

45.4 TRIGger:IIS:BITorder

Description Write or read the bit order of the IIS bus trigger.

Command Syntax TRIGger:IIS:BITorder <order>
<order>:= {LSM | MSB}

Query Syntax TRIGger:IIS:BITorder?

Example TRIG:IIS:BIT MSB
TRIG:IIS:BIT?

Query Respond Returns: MSB

45.5 TRIGger:IIS:CHANnel

Description Write or read the channel of the IIS bus trigger.

Command Syntax TRIGger:IIS:CHANnel <channel>
<channel>:= {LEFT | RIGHT}

Query Syntax TRIGger:IIS:CHANnel?

Example TRIG:IIS:CHAN RIGHT
TRIG:IIS:CHAN?

Query Respond Returns: RIGHT

45.6 TRIGger:IIS:COMPare

Description Write or read the data compare type of the IIS bus trigger.

Command Syntax TRIGger:IIS:COMPare <type>
<type>:= {EQUal | GREaterthan | LESSthan}

Query Syntax TRIGger:IIS:COMPare?

Example TRIG:IIS:COMP LESS
TRIG:IIS:COMP?

Query Respond Returns: LESSthan

Related Commands **TRIGger:IIS:CONDition**

45.7 TRIGger:IIS:CONDition

Description Write or read the trigger condition of the IIS bus.

Command Syntax TRIGger:IIS:CONDition <condition>
<condition>:= {DATA | MUTE | CLIP | GLITch | RISing | FALLing}

Query Syntax TRIGger:IIS:CONDition?

Example TRIG:IIS:COND DATA
TRIG:IIS:COND?

Query Respond Returns: DATA

45.8 TRIGger:IIS:DLENgth

Description Write or read the data bits of the IIS bus trigger.

Command Syntax TRIGger:IIS:DLENgth <value>
<value>:= Value in NR1 format, including an integer and no decimal point.

Note:

The range of the value is related to the channel bits and the start bits.
If the channel bits are 32 and the start bit is 2, the range is [1,30].

Query Syntax TRIGger:IIS:DLENgth?

Example TRIG:IIS:DLEN 10
TRIG:IIS:DLEN?

Query Respond Returns: 10

45.9 TRIGger:IIS:DSource

Description Write or read the data source of the IIS bus trigger.

Command Syntax TRIGger:IIS:DSource <source>
<source>:= {C<x> | D<n>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:IIS:DSource?

Example TRIG:IIS:DS C2
TRIG:IIS:DS?

Query Respond Returns: C2

Related Commands **TRIGger:IIS:DTHReshold**

45.10 TRIGger:IIS:DTHReshold

Description Write or read the threshold of the data source on the IIS bus trigger.

Command Syntax TRIGger:IIS:DTHReshold <value>
<value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:IIS:DTHReshold?

Example TRIG:IIS:DTHR 1.50E+00
TRIG:IIS:DTHR?

Query Respond Returns: 1.50E+00

Related Commands **TRIGger:IIS:DSource**

45.11 TRIGger:IIS:LATChedge

Description Write or read the sampling edge of BCLK on the IIS bus trigger.

Command Syntax TRIGger:IIS:BCLK:EDGE <slope>
<slope>:= {RISing | FALLing}

Query Syntax TRIGger:IIS:BCLK:EDGE?

Example TRIG:IIS:BCLK:EDGE RIS
TRIG:IIS:BCLK:EDGE?

Query Respond Returns: RISing

45.12 TRIGger:IIS:LCH

Description Write or read the level of the left channel on the IIS bus trigger.

Command Syntax TRIGger:IIS:LCH <level>
<level>:= {LOW | HIGH}

Query Syntax TRIGger:IIS:LCH?

Example TRIG:IIS:LCH HIGH
TRIG:IIS:LCH?

Query Respond Returns: HIGH

45.13 TRIGger:IIS:VALue

Description Write or read the value of the IIS bus trigger.

Command Syntax TRIGger:IIS:VALue <value>
<value>:= Value in NR1 format, including an integer and no decimal point.

Note:

The range of the value is related to data length by using the command **TRIGger:IIS:DLENgth**. Use the don't care data (256, data length is 8) to ignore the data value.

Query Syntax TRIGger:IIS:VALue?

Example TRIG:IIS:VAL 86
TRIG:IIS:VAL?

Query Respond Returns: 86

Related Commands **TRIGger:IIS:CONDition**
TRIGger:IIS:DLENgth

45.14 TRIGger:IIS:WSSource

Description Write or read the WS source of the IIS bus trigger.

Command Syntax TRIGger:IIS:WSSource <source>
<source>:= {C<x> | D<n>}

<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<n>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax TRIGger:IIS:WSSource?

Example TRIG:IIS:WSS C2
TRIG:IIS:WSS?

Query Respond Returns: C2

Related Commands **TRIGger:IIS:WSTHreshold**

45.15 TRIGger:IIS:WSTHreshold

Description Write or read the threshold of the WS on IIS bus trigger.

Command Syntax TRIGger:IIS:WSThreshold <value> <value>:= Value in NR3 format, including a decimal point and exponent. The range of the value is [-4.1*vertical_scale-vertical_offset, 4.1*vertical_scale-vertical_offset].

Query Syntax TRIGger:IIS:WSThreshold?

Example TRIG:IIS:WST 1.50E+00
TRIG:IIS:WST?

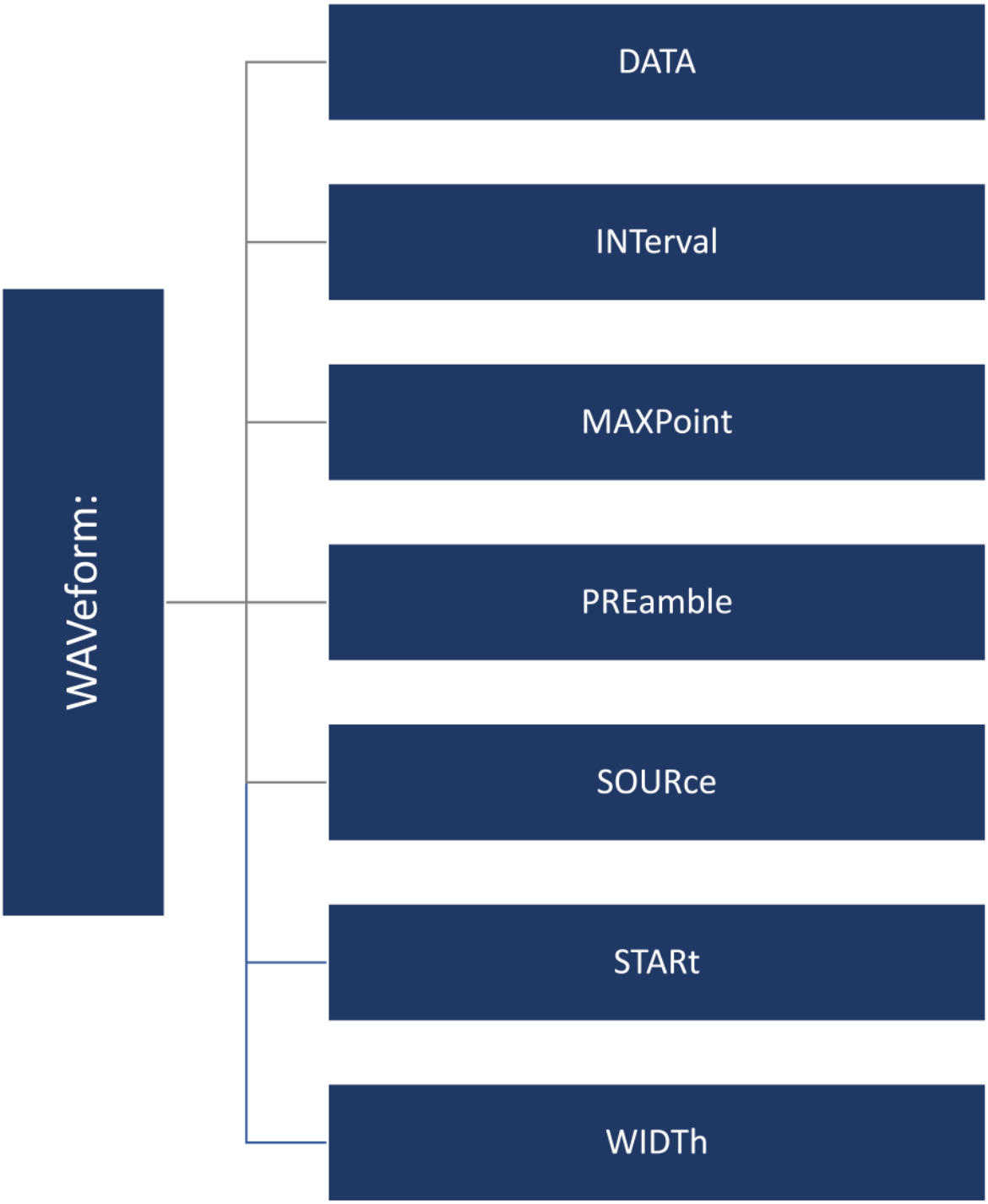
Query Respond Returns: 1.50E+00

Related Commands **TRIGger:IIS:WSSource**

Waveform Commands

The **WAVeform** subsystem is used to transfer data to a controller from the oscilloscope waveform memory.

The waveform record is contained in two portions: the preamble and waveform data. The waveform record must be read from the oscilloscope by the controller using two separate commands. The waveform data is the data acquired for each point in the specified source. The preamble contains the information for interpreting the waveform data.


WAVeform:
DATA
INTerval
MAXPoint
PREamble
SOURce
STARt
WIDTh

46.1 WAVeform:SOURc

Description Write or read the source waveform to be transferred from the oscilloscope using the query WAVeform:DATA?

Command Syntax WAVeform:SOURce <source>
<source>:= {C<x> | F<x> | D<m>}
<x>:= 1 to (# analog channels) in NR1 format, including an integer and no decimal point.
<m>:= 0 to (# digital channels - 1) in NR1 format, including an integer and no decimal point.

Query Syntax WAVeform:SOURce?

Example WAV:SOUR C2
WAV:SOUR?

Query Respond Returns: C2

Related Commands **WAVeform:DATA**
WAVeform:PREamble

46.2 WAVeform:STARt

Description Write or read the starting data point for the waveform transfer using the query WAVeform:DATA?.

Command Syntax WAVeform:STARt <value> <value>:= Value in NR1 format, including an integer and no decimal point.

Note:

The value range is related to the current waveform point and the value set by the command **WAVeform:POINt**.

Query Syntax WAVeform:STARt?

Example WAV:STAR 1000
WAV:STAR?

Query Respond Returns: 1000

Related Commands **WAVeform:POINt**

46.3 WAVeform:INTerval

Description Write or read the interval between data points for the waveform transfer using the query WAVeform:DATA?.

Command Syntax WAVeform:INTerval <value> <value>:= Value in NR1 format, including an integer and no decimal point.

Note:

The value range is related to the values set by the command **WAVeform:POINt** and **WAVeform:STARt**.

Query Syntax WAVeform:INTerval?

Example WAV:INT 200
WAV:INT?

Query Respond Returns: 200

Related Commands **WAVeform:STARt**
WAVeform:POINt

46.4 WAVeform:POINt

Description Write or read teh number of waveform points to be transferred.

Command Syntax WAVeform:POINt <value> <value>:= Value in NR1 format, including an integer and no decimal point.

Note:

The value range is related to the current waveform point.

Query Syntax WAVeform:POINt?

Example WAV:POIN 20000
WAV:POIN?

Query Respond Returns: 20000

Related Commands **ACQuire:POINts**

46.5 WAVeform:MAXPoint

Description Returns the maximum points of one piece, when it needs to read the waveform data in pieces.

Query Syntax :WAVeform:MAXPoint?

Example WAV:MAXP?

Query Respond Returns: 10000000

46.6 WAVeform:WIDTh

Description Write or read the current output format for the transfer of the waveform data.

Command Syntax WAVeform:WIDTh <type>
<type>:= {BYTE | WORD}

- WORD formatted data transfers 16-bit data as two bytes, and the upper byte is transmitted first.
- BYTE formatted data is transferred as 8-bit bytes.

Note:

When the vertical resolution is set to 10 bit or the ADC bit is more than 8bit, it must to use the command to set to BYTE before transferring waveform data.

Query Syntax WAVeform:WIDTh?

Example WAV:WIDT BYTE
WAV:WIDT?

Query Respond Returns: BYTE

46.7 WAVeform:PREamble

Description Returns the parameters of the source using the command WAVeform:SOURce

Query Syntax WAVeform:PREamble?

Example WAV:PRE?

Query Respond Returns:

Mixed ASCII and Hexadecimal

DESC,#9000000346WAVEDESC \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00WAVEACE \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00Z \ 01 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00 \ 00

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 18 00 01 00 00 00 C8 42 11 00 00 00 00 00 80 3F 00 00 00 00 00 00 0A

<bin> := see table **46.1** for more details

46.8 WAVeform:DATA

Description Returns the waveform data of the source using by the command :WAVeform:SOURce to be transferred from the oscilloscope.

Query Syntax WAVeform:DATA?

Example WAV:DATA?

Query Respond Returns: <header><waveform_data>
<header>:="DAT2,#9#<9-Digits>"
<waveform_data>:=binary block

Related Commands
WAVeform:STARt
WAVeform:INTerval
WAVeform:POINt
WAVeform:MAXPoint
WAVeform:WIDTh

Address	Type	Length	Description
0 15	char	16	Descriptor name. It is string, the first 8 chars are always "WAVEDESC"
16 31	char	16	Template name. It is string, the first 7 chars are always "WAVEACE".
32 33	short	2	COMM_TYPE. It is chosen by remote command comm_format. 0-byte, 1- word. Default value is 0.
34 35	short	2	COMM_ORDER. It is chosen by remote command comm_format. 0-LSB, 1- MSB. Default value is 0.
36 39	long	4	wave_desc_length. Length in bytes of block WAVEDESC. (346) 40 59 long 4*5 Reserved
60 63	long	4	WAVE_ARRAY_1. Length in bytes of 1st simple data array. In transmitted waveform, represent the number of transmitted bytes in accordance with the NP parameter of the WFSU remote command and the used format (see COMM_TYPE). Only for analog channel.
64 75	long	4*3	Reserved
76 91	char	16	Instrument name.
92 95	long	4	Reserved
96 111	char	16	Reserved
112 115	long	4	Reserved
116 119	long	4	Wave array count. Number of data points in the data array. Only for analog channel.
120 131	long	4*3	Reserved
132 135	long	4	First point. Indicates the offset relative to the beginning of the trace buffer. Value is the same as the FP parameter of the WFSU remote command.
136 139	long	4	Sparse factor. Indicates the sparseness into the transmitted data block. Value is the same as the SP parameter of the WFSU remote command.
140 151	long	4*3	Reserved
152 155	short	2*2	Reserved
156 159	float	4	Vertical gain. The value of vertical scale.
160 163	float	4	Vertical offset. The value of vertical offset.
164 167	float	4	Max_value. Maximum allowed value. It corresponds to the upper edge of the grid. 127
168 171	float	4	Min_value. Minimum allowed value. It corresponds to the lower edge of the grid. -128
172 175	short	2*2	Reserved
176 179	float	4	Horizontal interval. Sampling interval for time domain waveforms. Horizontal interval = 1/sampling rate.
180 187	long double	8	Horizontal offset. Trigger offset for the first sweep of the trigger, seconds between the trigger and the first data point. Unit is s.
188 195	long double	8	Reserved
196 243	char	48	Reserved
244 291	char	48	Reserved
292 295	float	4	Reserved
296 311	struct	16	Reserved

Table 46.1 Descriptor Block

Address	Type	Length	Description
312 315	float	4	Reserved
316 323	short	2*4	Reserved
324 325	short	2	Time_base. This is the enumerated time/div. see table **46.3** for more details.
326 327	short	2	Vertical coupling. 0-DC,1-AC,2-GND
328 331	float	4	Probe attenuation. This is the enumerated probe. See ?? for more details. When it's CUSTOM_A, it sets to the value.
332 333	short	2	Fixed vertical gain. This is the enumerated vertical scale. See the sheet1 for details.
334 335	short	2	Bandwidth limit. 0-OFF,1-20M,2-200M
336 343	float	4*2	Reserved
344 345	short	2	Wave source. 0-C1,1-C2,2-C3,3-C4

Table 46.2 Descriptor Block Cont.

Index	Timebase (s)	Index	Timebase(s)
0	200E-12	20	1E-3
1	500E-12	21	2E-3
2	1E-9	22	5E-3
3	2E-9	23	10E-3
4	5E-9	24	20E-3
5	10E-9	25	50E-3
6	20E-9	26	100E-3
7	50E-9	27	200E-3
8	100E-9	28	500E-3
9	200E-0	29	1
10	500E-9	30	2
11	1E-6	31	5
12	2E-6	32	10
13	5E-6	33	20
14	10E-6	34	50
15	20E-6	35	100
16	50E-6	36	200
17	100E-6	37	500
18	200E-6	38	1000
19	500E-6		

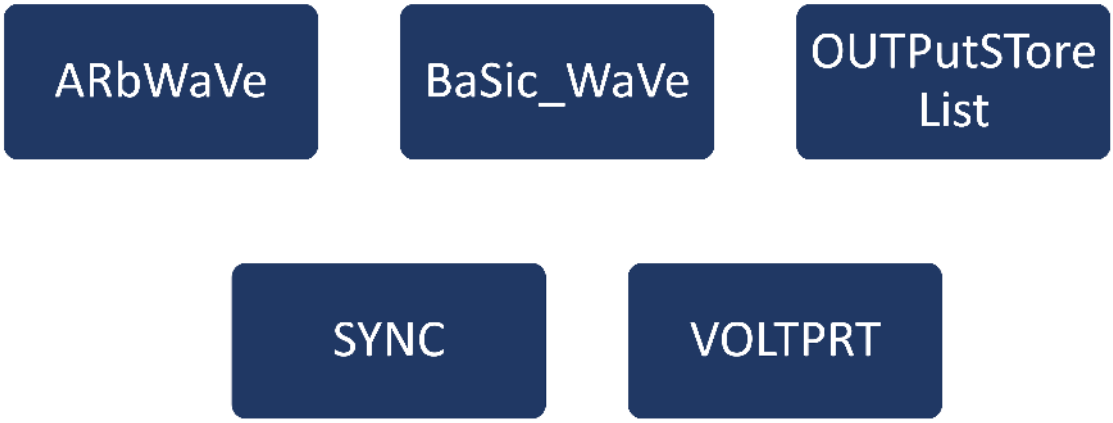
Table 46.3 Enum of Timebase

Index	Probe	Index	Probe
0	0.1X	10	200X
1	0.2X	11	500X
2	0.5X	12	1000X
3	1X	13	2000X
4	2X	14	5000X
5	5X	15	10000X
6	10X	16	CustomA
7	20X	17	CustomB
8	50X	18	CustomC
9	100X	19	CustomD

Table 46.4 Descriptor Block

WGEN Commands

The oscilloscope can output a sine, square, ramp, pulse, DC, noise, exponential rise, exponential fall, cardiac, Gaussian pulse and arbitrary waveforms. The WGEN commands are used to select the waveform function and parameters.



47.1 ARbWaVe

Description Recall or read a user defined or predifined waveform.

Command Syntax <channel>:ARbWaVe INDEX,<index>
<channel>:ARbWaVe NAME,<name>
<channel>:={C1}, SAG and the built-in waveform generator only support one output channel.
<index>:= the index of the arbitrary waveform from table **47.1**.
<name>:= the name of the arbitrary waveform from table **47.1**.

Note:

This table is just an example, the index depends on the specific model. The "STL?" query can be used to get the accurate mapping relationship between the index and name.

Index	Name	Index	Name	Index	Name	Index	Name
0	Sine	12	Logfall	24	Gmonopuls	36	Triang
1	Noise	13	Logrise	25	Tripuls	37	Harris
2	StairUp	14	Sqrt	26	Cardiac	38	Bartlett
3	StairDn	15	Root3	27	Quake	39	Tan
4	Stairud	16	X^2	28	Chirp	40	Cot
5	Ppulse	17	X^3	29	Twotone	41	Sec
6	Npulse	18	Sinc	30	Snr	42	Csc
7	Trapezia	19	Gaussian	31	Hamming	43	Asin
8	Upramp	20	Dlorentz	32	Hanning	44	Acos
9	Dnramp	21	Haversine	33	Kaiser	45	Atan
10	Exp_fall	22	Lorentz	34	Blackman	46	Acot
11	Exp_rise	23	Gauspuls	35	Gausswin	47	Square

Table 47.1 STL

Query Syntax <channel>:ARbWaVe?

Example C1:ARbW INDEX 12
C1:ARWV NAME,wave_1
C1:ARbW?

Query Respond Returns: C1:ARWV INDEX,12
C1:ARWV NAME,wave_1

Related Commands **SToreList**

47.2 BaSic_WaVe

Description Write or read the basic wave paramters

Command Syntax <channel>:BaSic_WaVe <parameter>,<value>
<channel>:={C1}, SAG and the built-in waveform generator only support one output channel.
<parameter>:= a parameter from table **47.2**.
<value>:= value of the corresponding parameter.

Parameters	Value	Description
WVTP	<type>	:= SINE, SQUARE, RAMP, PULSE, NOISE, ARB, DC, PRBS, IQ. If the command doesn't set basic waveform type, WVPT will be set to the current waveform.
FRQ	<frequency>	:= frequency. The unit is Hertz "Hz". Refer to the data sheet for the range of valid values. Not valid when WVTP is NOISE or DC.
PERI	<period>	:= period. The unit is seconds "s". Refer to the data sheet for the range of valid values. Not valid when WVTP is NOISE or DC.
AMP	<amplitude>	:= amplitude. The unit is volts, peak-to-peak "Vpp". Refer to the data sheet for the range of valid values. Not valid when WVTP is NOISE or DC.
OFST	<offset>	:= offset. The unit is volts "V". Refer to the data sheet for the range of valid values. Not valid when WVTP is NOISE.
SYM	<symmetry>	:= 0 to 100. Symmetry of RAMP. The unit is "%". Only settable when WVTP is RAMP.
DUTY	<duty>	:= 0 to 100. Duty cycle. The unit is "%". Value depends on frequency. Only settable when WVTP is SQUARE or PULSE.
STDEV	<stdev>	:= standard deviation of NOISE. The unit is volts "V". Refer to the data sheet for the range of valid values. Only settable when WVTP is NOISE.
MEAN	<mean>	:= mean of NOISE. The unit is volts "V". Refer to the data sheet for the range of valid values. Only settable when WVTP is NOISE.
WIDTH	<width>	:= positive pulse width. The unit is seconds "s". Refer to the data sheet for the range of valid values. Only settable when WVTP is PULSE.

Table 47.2 Waveform Parameters

Query Syntax <channel>: BaSic_WaVe?

Example
C1:BSWV FRQ,2000
C1:BSWV FRQ?

Query Respond Returns: WVTP,SINE,FRQ,100HZ,PERI,0.01S,AMP,2V,O FST,0V,HLEV,1V,LLEV,-1V,PHSE,0

47.3 OUTPut

Description Write or read the output port(s) at the front panel. (ON or OFF)

Command Syntax
<channel>:OUTPut <state>,LOAD,<load>
<channel>:= {C1}, SAG and the built-in waveform generator only support one output channel.
<state>:= {ON | OFF}
<load>:= {50 | HZ}. The unit is ohm.

Query Syntax <channel>:OUTPut?

Example
C1:OUTP ON
C1:OUTP?

Query Respond Returns: C1:OUTP ON,LOAD,HZ,PLRT,NOR

47.4 SToreList

Description Returns the stored waveforms list with indexes and names. If the store unit is empty, the command will return "EMPTY" string.

Query Syntax SToreList? [<location>]
<location>:= {BUILDIN | USER}

Example STL?

Query Respond Returns: STL M10, ExpFal, M11, ExpRise, M12, LogFall, M13, LogRise, M14, Sqrt, M15, Root3, M16, X^2, M17, X^3, M18, Sinc, M19, Gaussian, M2, StairUp, M20, Dlorentz, M21, Haversine, M22, Lorentz, M23, Gauspuls, M24, Gmonopuls, M25, Tripuls, M26, Cardiac, M27, Quake, M28, Chirp, M29, Twotone, M3, StairDn, M30, SNR, M31, Hamming, M32, Hanning, M33, kaiser, M34, Blackman, M35, Gausswin, M36, Triangle, M37, BlackmanH, M38, Bartlett- Hann, M39, Tan, M4, StairUD, M40, Cot, M41, Sec, M42, Csc, M43, Asin, M44, Acos, M45, Atan, M46, Acot, M5, Ppulse, M6, Npulse, M7, Trapezia, M8, Upramp, M9, Dnramp

47.5 SYNC

Description Write or read the synchronization signal.

Command Syntax <channel>:SYNC <state>
<channel>:= {C1}, SAG and the built-in waveform generator only support one output channel. <state>:= {ON | OFF}

Query Syntax <channel>:SYNC?
<channel>:= C1

Example C1:SYNC OFF
C1:SYNC?

Query Respond Returns: C1:SYNC OFF,TYPE,CH1

47.6 VOLTPRT

Description Write or read the state of over-voltage protection.

Command Syntax VOLTPRT <state>
<state>:= {ON | OFF}

Query Syntax VOLTPRT?

Example VOLTPRT ON

Query Respond Returns: VOLTPRT ON