



RIGOL

VSA Mode

For RSA800 Series Spectrum

Programming Guide
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Guaranty and Declaration

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Contents

Guaranty and Declaration	1
Document Overview	5
Command System	6
:CALCulate Commands.....	6
:CALCulate:DDEMod[:SEGment1]:FILTer:COEFFicient:MEASure[:DATA].....	6
:CALCulate:DDEMod[:SEGment1]:FILTer:COEFFicient:REFerence[:DATA]	6
:CALCulate:DDEMod:MARKer<n>:MODE	7
:CALCulate:DDEMod:MARKer<n>:X.....	7
:CALCulate:DDEMod:MARKer<n>:Y[:REAL]	8
:CALCulate:DDEMod:MARKer<n>:Y:IMAGinary	8
:CALCulate:DDEMod:MARKer<n>:WINDow	9
:CALCulate:DDEMod:MARKer<n>:REFerence	9
:CALCulate:DDEMod:MARKer<n>:FUNCTion	10
:CALCulate:DDEMod:MARKer<n>:FUNCTion:BAND:LEFT	11
:CALCulate:DDEMod:MARKer<n>:FUNCTion:BAND:RIGHT	11
:CALCulate:DDEMod:MARKer<n>:FUNCTion:BAND:SPAN	12
:CALCulate:DDEMod:MARKer<n>[:SET]:CENTer	12
:CALCulate:DDEMod:MARKer<n>[:SET]:DELTa:CENTer	13
:CALCulate:DDEMod:MARKer<n>[:SET]:RLEVel	13
:CALCulate:DDEMod:MARKer<n>[:SET]:STEP	13
:CALCulate:DDEMod:MARKer<n>:MAXimum	14
:CALCulate:DDEMod:MARKer<n>:MAXimum:LEFT	14
:CALCulate:DDEMod:MARKer<n>:MAXimum:NEXT	15
:CALCulate:DDEMod:MARKer<n>:MAXimum:PREVious	15
:CALCulate:DDEMod:MARKer<n>:MAXimum:RIGHT	15
:CALCulate:DDEMod:MARKer<n>:MINimum.....	16
:CALCulate:DDEMod:MARKer<n>:CPSearch[:STATe]	16
:CALCulate:DDEMod:MARKer:AOFF	16
:CALCulate:DDEMod:MARKer:COUPLe[:STATe]	17
:CALCulate:DDEMod:MARKer:SElect	17
:CALCulate:DDEMod:MARKer:NEXT	18
:CALibration Commands	19
:CALibration[:ALL].....	19
:CALibration:AUTO	19
:CONFigure Commands.....	20
:CONFigure?	20
:CONFigure:CATalog?.....	20
:DISPlay Commands.....	21
:DISPlay:WINDow<n>:SWITCh	21
:DISPlay:DDEMod:VIEW[:SElect]	21
:DISPlay:DDEMod:<n> X[:SCALe]:COUPLe	22
:DISPlay:DDEMod:WINDow<n>:X[:SCALe]:RLEVel	22
:DISPlay:DDEMod:WINDow<n>:X[:SCALe]:RPOSition	23
:DISPlay:DDEMod:WINDow<n>:X[:SCALe]:WIDTh	24
:DISPlay:DDEMod:WINDow<n>:X[:SCALe]:LAST	24
:DISPlay:DDEMod:WINDow<n>:X[:SCALe]:COPY	25
:DISPlay:DDEMod:WINDow<n>:Y[:SCALe]:AUTO:ONCE.....	25
:DISPlay:DDEMod:WINDow<n>:Y[:SCALe]:RLEVel	25
:DISPlay:DDEMod:WINDow<n>:Y[:SCALe]:RPOSition	26
:DISPlay:DDEMod:WINDow<n>:Y[:SCALe]:PDIVision	27
:DISPlay:DDEMod:WINDow<n>:Y:UNIT:PREFerence.....	27
:DISPlay:DDEMod:WINDow<n>:Y[:SCALe]:LAST	28
:DISPlay:DDEMod:WINDow<n>:Y[:SCALe]:COPY	28

:DISPlay:DDEMod:WINDOW<n>:EYE:INTERval	28
:DISPlay:DDEMod:BITS:FORMat	29
:DISPlay:DDEMod:TXBit:PATtern.....	29
:FETCh Commands	31
:FETCh:DDEMod<n>?	31
IEEE 488.2 Common Commands	32
*CLS	32
*ESE	32
*ESR?	32
*IDN?	33
*OPC	33
*RCL	33
*RST	34
*SAV	34
*SRE	34
*STB?	35
*TST?	35
*WAI	35
:INITiate Commands	35
:INITiate:CONTInuous	35
:INITiate[:IMMEdiate]	36
:INITiate:REStart.....	36
:INPut Commands	37
:INPut:IF:OVERload?	37
:INSTrument Commands	38
:INSTrument:COUPle:FREQuency:CENTer	38
:INSTrument:SCReen:CATalog?	38
:INSTrument:SCReen:CREate.....	38
:INSTrument:SCReen:DELeTe	38
:INSTrument:SCReen:DELeTe:ALL	39
:INSTrument:SCReen:REName	39
:INSTrument:SCReen:SELeCt.....	39
:INSTrument[:SELeCt]	40
:MMEMory Commands	41
:MMEMory:DELeTe	41
:MMEMory:LOAD:STATe	41
:MMEMory:LOAD:RESults	41
:MMEMory:MOVE	42
:MMEMory:STORE:IMG:PNG	42
:MMEMory:STORE:STATe	43
:MMEMory:STORE:RESults	43
:MMEMory:STORE:RETurn?	43
:MMEMory:STORE:SCReen	44
:MMEMory:STORE:SCReen:DATA?	44
:MMEMory:USER:STORE	44
:SAVE:MEASure.....	45
[:SENSe] Commands	46
[:SENSe]:POWer[:RF]:RANGe	46
[:SENSe]:DDEMod[:SEGment1]:FFT:WINDow[:TYPE]	46
[:SENSe]:DDEMod[:SEGment1]:MODulation	46
[:SENSe]:DDEMod[:SEGment1]:SRATe	47
[:SENSe]:DDEMod[:SEGment1]:PPSYmbol	47
[:SENSe]:DDEMod[:SEGment1]:SWEep:POINts	48
[:SENSe]:DDEMod[:SEGment1]:FILTer:MEASurement.....	48
[:SENSe]:DDEMod[:SEGment1]:FILTer:REFerence	49
[:SENSe]:DDEMod[:SEGment1]:FILTer:ALPHa.....	50

[:SENSe]:DDEMod[:SEGMENT1]:FSK:DEVIation:REFeRence	50
[:SENSe]:DDEMod[:SEGMENT1]:FSK:DEVIation:REFeRence:AUTO	51
[:SENSe]:DDEMod[:SEGMENT1]:BER:STATe	51
[:SENSe]:DDEMod[:SEGMENT1]:BER:COUNT:BITS	52
[:SENSe]:DDEMod:SYNC:SLENGth	52
[:SENSe]:DDEMod:SYNC:SLENGth:AUTO	53
[:SENSe]:DDEMod:SYNC:ALENGth	53
[:SENSe]:DDEMod:SYNC:BURSt:RUNIn	54
[:SENSe]:DDEMod:SYNC:BURSt:[STATe]	54
[:SENSe]:DDEMod:SYNC:SWORd:OFFSet	55
[:SENSe]:DDEMod:SYNC:SWORd:PATTeRn	55
[:SENSe]:DDEMod:SYNC:SWORd:[STATe]	55
[:SENSe]:DDEMod:LOAD:KNOWndata	56
[:SENSe]:RADio:STANdard:PRESet	56
[:SENSe]:FREQuency:CENTer	57
[:SENSe]:FREQuency:CENTer:STEP:AUTO	57
[:SENSe]:FREQuency:CENTer:STEP[:INCRement]	58
[:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude]	58
[:SENSe]:CORRection:SA[:RF]:GAIN	59
:SYSTem Commands	60
:SYSTem:BEEPer	60
:SYSTem:BRIGHtness	60
:SYSTem:DATE	60
:SYSTem:GPIB	61
:SYSTem:LANGUage	61
:SYSTem:LOCKed	62
:SYSTem:OPTion:INSTall	62
:SYSTem:OPTion:STATus?	63
:SYSTem:OPTion:UNINStall	63
:SYSTem:PON	63
:SYSTem:RESet	63
:SYSTem:PRESet	64
:SYSTem:PSTatus	64
:SYSTem:PWRD	64
:SYSTem:STIME	64
:SYSTem:TIME	65
:SYSTem:VERSIon?	65
:TRIGger Commands	66
:TRIGger[:SEQuence]:SOURce	66
:TRIGger[:SEQuence]:ATRigger	66
:TRIGger[:SEQuence]:ATRigger:STATe	67
:TRIGger[:SEQuence]:EXTeRnal1:DELaY	67
:TRIGger[:SEQuence]:EXTeRnal1:DELaY:STATe	68
:TRIGger[:SEQuence]:EXTeRnal1:SLOPe	68
:TRIGger[:SEQuence]:IF:DELaY	69
:TRIGger[:SEQuence]:IF:DELaY:STATe	69
:TRIGger[:SEQuence]:IF:LEVeL	69
:TRIGger[:SEQuence]:HOLDoff	70
:TRIGger[:SEQuence]:HOLDoff:STATe	70
:TRIGger[:SEQuence]:PORT[:MODE]	71

Document Overview

This document is intended to guide users in programmatically controlling the RSA800 Series Spectrum Analyzers (VSA modes) with SCPI commands via remote interfaces.

The spectrum analyzer can communicate with a computer over USB and LAN interfaces.

Tip

For the latest version of this manual, download it from the official website of RIGOL (<http://www.rigol.com>).

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00.01.00

Software upgrade might change or add product features. Please acquire the latest version of the manual from RIGOL website or contact RIGOL to upgrade the software.

Format Conventions in this Manual

1. Key

The front panel key is denoted by the menu key icon. For example,  indicates the "System" key.

2. Menu

The menu item is denoted by the format of "Menu Name (Bold) + Character Shading" in the manual. For example, Setup indicates clicking or tapping the "Setup" sub-menu under the "System" menu to view the basic system settings.

3. Operation Procedures

The next step of the operation is denoted by ">" in the manual. For example,  > **Save** indicates that first clicking or tapping the icon , then clicking or tapping Save.

Content Conventions in this Manual

The RSA800 series spectrum analyzers consist of the following models. Unless otherwise specified, this manual uses the RSA814 as an example to describe the SCPI commands supported by the RSA800 series under VSA mode.

Model	Frequency	RF Input Port	TG Output Port
RSA804	5 kHz ~ 4.5 GHz	1, Type-N (F)	1, Type-N (F)
RSA808	5 kHz ~ 8.5 GHz	1, Type-N (F)	1, Type-N (F)
RSA814	5 kHz ~ 14 GHz	1, Type-N (F)	1, Type-N (F)

Command System

This chapter introduces the commands of the RSA800 series spectrum analyzer in VSA mode.

:CALCulate Commands

:CALCulate:DDEMod[:SEGment1]:FILTer:COEFficient:MEASure[:DATA]

Syntax

```
:CALCulate:DDEMod[:SEGment1]:FILTer:COEFficient:MEASure[:DATA] <string>
:CALCulate:DDEMod[:SEGment1]:FILTer:COEFficient:MEASure[:DATA]?
```

Description

Sets the coefficient of the user-defined measurement filter.
Queries the coefficient of the user-defined measurement filter.

Parameter

Name	Type	Range	Default
<string>	ASCII String	--	--

Remarks

N/A

Return Format

The query returns the coefficient of the user-defined measurement filter in strings.

Example

The following command sets the coefficient of the user-defined measurement filter to 12111 024.

```
:CALCulate:DDEMod:SEGment1:FILTer:COEFficient:MEASure 12111 024
```

The following query returns 12111 024.

```
:CALCulate:DDEMod:SEGment1:FILTer:COEFficient:MEASure?
```

:CALCulate:DDEMod[:SEGment1]:FILTer:COEFficient:REFerence[:DATA]

Syntax

```
:CALCulate:DDEMod[:SEGment1]:FILTer:COEFficient:REFerence[:DATA] <string>
:CALCulate:DDEMod[:SEGment1]:FILTer:COEFficient:REFerence[:DATA]?
```

Description

Sets the coefficient of the user-defined reference filter.
Queries the coefficient of the user-defined reference filter.

Parameter

Name	Type	Range	Default
<string>	ASCII String	--	--

Remarks

N/A

Return Format

The query returns the coefficient of the user-defined reference filter in strings.

Example

The following command sets coefficient of the user-defined reference filter to 12000012.

:CALCulate:DDEMod:SEGment1:FILTer:COEFFicient:REFerence 12000012
 The following query returns 12000012.
 :CALCulate:DDEMod:SEGment1:FILTer:COEFFicient:REFerence?

:CALCulate:DDEMod:MARKer<n>:MODE

Syntax

:CALCulate:DDEMod:MARKer<n>:MODE <mode>
 :CALCulate:DDEMod:MARKer<n>:MODE?

Description

Sets the type of the specified marker.
 Queries the type of the specified marker.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—
<mode>	Discrete	POSition DELTA FIXed OFF	POSition

Remarks

POSition: indicates the normal marker.
 DELTA: indicates difference between two data points.
 FIXed: indicates that the marker is fixed.
 OFF: turns off the selected marker.

Return Format

The query returns POS, DELT, FIX, or OFF.

Example

The following command sets the type of Marker 1 to Position.
 :CALCulate:DDEMod:MARKer1:MODE POSition

The following query returns POS.
 :CALCulate:DDEMod:MARKer1:MODE?

:CALCulate:DDEMod:MARKer<n>:X

Syntax

:CALCulate:DDEMod:MARKer<n>:X <real>
 :CALCulate:DDEMod:MARKer<n>:X?

Description

Sets the X-axis value of the specified marker.
 Queries the X-axis value of the specified marker.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—
<real>	Real	Refer to "Remarks"	—

Remarks

<real> can be any value within the available range of the current X axis. When you select the frequency-domain data, X-axis indicates frequency; when you select the time-domain data, X-axis indicates time.

If the marker mode is set to Position or Fixed, this value sets the X value at the marker.
If the marker mode is set to Delta, this value sets the X value of the Delta marker in relative to that of the reference marker.

Return Format

The query returns the X-axis value of the specified marker in scientific notation.

Example

The following command sets the X-axis value of Marker 1 to 150 MHz.

```
:CALCulate:DDEMod:MARKer1:X 150000000
```

The following query returns 1.500000000e+08.

```
:CALCulate:DDEMod:MARKer1:X?
```

:CALCulate:DDEMod:MARKer<n>:Y[:REAL]

Syntax

```
:CALCulate:DDEMod:MARKer<n>:Y[:REAL] <real>
```

```
:CALCulate:DDEMod:MARKer<n>:Y[:REAL]?
```

Description

Sets the Y value of the specified marker.

Queries the Y value of the specified marker.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	——
<real>	Real	——	--

Remarks

This command is used to set the marker's in-phase component (real part) of the Y value.

Return Format

The query returns the Y value or the marker's in-phase component of the Y value in scientific notation.

Example

The following command sets the Y value of Marker 1 to 0.325.

```
:CALCulate:DDEMod:MARKer1:Y:REAL 0.325
```

The following query returns 3.250000000e-01.

```
:CALCulate:DDEMod:MARKer1:Y:REAL?
```

:CALCulate:DDEMod:MARKer<n>:Y:IMAGinary

Syntax

```
:CALCulate:DDEMod:MARKer<n>:Y:IMAGinary <real>
```

```
:CALCulate:DDEMod:MARKer<n>:Y:IMAGinary?
```

Description

Sets the quadrature component (imaginary) Y value of the specified marker.

Queries the quadrature component (imaginary) Y value of the specified marker.

Parameter

Name	Type	Range	Default
------	------	-------	---------

<n>	Discrete	1 2 3 4 5 6 7 8	—
<real>	Real	—	--

Remarks

Only when "Fixed" is selected for the marker mode and the marker is in the constellation or I-Q view, can these commands be valid.

Return Format

The query returns the quadrature component (imaginary) Y value of the specified marker in scientific notation.

Example

The following command sets the quadrature component Y value of Marker 1 to 0.435.

```
:CALCulate:DDEMod:MARKer1:Y:IMAGinary 0.435
```

The following query returns 4.350000000e-01.

```
:CALCulate:DDEMod:MARKer1:Y:IMAGinary?
```

:CALCulate:DDEMod:MARKer<n>:WINDow**Syntax**

```
:CALCulate:DDEMod:MARKer<n>:WINDow <enum>
```

```
:CALCulate:DDEMod:MARKer<n>:WINDow?
```

Description

Sets the marker window.

Queries the marker window.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—
<enum>	Discrete	RTIME SPECTrum MLOG MLIN MREAL MIMAg MPHase MPHUnwrap MIQ MCONs MIEYe MQEYe MSPECTrum RLOG RLIN RREAL RIMAg RPHase RPHUnwrap RIQ RCONs RIEYe RQEYe RSPECTrum ETIME ESPECTrum EMag EPHase	POSiTion

Remarks

For detailed description of the parameter <enum>, refer to "Window ID Table" in Display Commands

Return Format

The query returns RTIM, SPEC, MLOG, MLIN, MREA, MIMA, MPHA, MPHU, MIQ, MCON, MIEY, MQEY, MSPE, RLOG, RLIN, RREAL, RIMA, RPHA, RPHU, RIQ, RCON, RIEY, RQEY, RSPE, ETIM, ESPE, EM, or EPHA.

Example

The following command sets the Marker 1 window to SPECTrum.

```
:CALCulate:DDEMod:MARKer1:WINDow SPECTrum
```

The following query returns SPEC.

```
:CALCulate:DDEMod:MARKer1:WINDow?
```

:CALCulate:DDEMod:MARKer<n>:REFerence**Syntax**

:CALCulate:DDEMod:MARKer<n>:REFerence <integer>
 :CALCulate:DDEMod:MARKer<n>:REFerence?

Description

Sets the reference marker for the specified marker.
 Queries the reference marker for the specified marker.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—
<integer>	Integer	1 to 8	By default, the reference marker is the marker next to it.

Remarks

Each marker can have another marker to be its reference marker.
 If the current marker is a Delta marker, the measurement result of the marker will be determined by the reference marker.
 Any marker cannot have itself to be the reference marker.

Example

The following command sets the reference marker for Marker 1 to 2.
 :CALCulate:DDEMod:MARKer1:REFerence 2

The following query returns 2.
 :CALCulate:DDEMod:MARKer1:REFerence?

:CALCulate:DDEMod:MARKer<n>:FUNction

Syntax

:CALCulate:DDEMod:MARKer<n>:FUNction <func>
 :CALCulate:DDEMod:MARKer<n>:FUNction?

Description

Sets the band function type.
 Queries the band function type.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—
<func>	Discrete	BPOWER OFF	OFF

Remarks

BPOWER: indicates the band power.
 OFF: turns off all the measurements.
 The commands are valid only when you enable the marker of the frequency-domain data.

Return Format

The query returns BPOW or OFF.

Example

The following command sets the measurement type of Marker 1 to band power.
 :CALCulate:DDEMod:MARKer1:FUNction BPOW

The following query returns BPOW.
:CALCulate:DDEMod:MARKer1:FUNCtion?

:CALCulate:DDEMod:MARKer<n>:FUNCtion:BAND:LEFT

Syntax

:CALCulate:DDEMod:MARKer<n>:FUNCtion:BAND:LEFT <real>
:CALCulate:DDEMod:MARKer<n>:FUNCtion:BAND:LEFT?

Description

Sets the left edge frequency or time for the band of the selected marker.
Queries the left edge frequency or time for the band of the selected marker.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—
<freq>	Real	0 to band right	center frequency-bandwidth/2

Description

The commands are valid only when you enable the marker of the frequency-domain data and enable the band function.

Return Format

The query returns the left edge frequency of the signal in scientific notation.

Example

The following command sets the left edge frequency of the signal involved in the calculation for the Marker 1 band function.

```
:CALCulate:DDEMod:MARKer1:FUNCtion:BAND:LEFT 2000000
```

The following query returns 2.000000000e+06.

```
:CALCulate:DDEMod:MARKer1:FUNCtion:BAND:LEFT?
```

:CALCulate:DDEMod:MARKer<n>:FUNCtion:BAND:RIGHT

Syntax

:CALCulate:DDEMod:MARKer<n>:FUNCtion:BAND:RIGHT <real>
:CALCulate:DDEMod:MARKer<n>:FUNCtion:BAND:RIGHT?

Description

Sets the right edge frequency or time for the band of the selected marker.
Queries the right edge frequency or time for the band of the selected marker.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—
<freq>	Real	band left to +∞	center frequency+bandwidth/2

Description

The commands are valid only when you enable the marker of the frequency-domain data and enable the band function.

Return Format

The query returns the right edge frequency of the signal in scientific notation.

Example

The following command sets the right edge frequency of the signal involved in the calculation for the Marker 1 band function to 4 GHz.

```
:CALCulate:DDEMod:MARKer1:FUNCtion:BAND:RIGHT 4000000000
```

The following query returns 4.000000000e+09.

```
:CALCulate:DDEMod:MARKer1:FUNCtion:BAND:RIGHT?
```

:CALCulate:DDEMod:MARKer<n>:FUNCtion:BAND:SPAN**Syntax**

```
:CALCulate:DDEMod:MARKer<n>:FUNCtion:BAND:SPAN <freq>
```

```
:CALCulate:DDEMod:MARKer<n>:FUNCtion:BAND:SPAN?
```

Description

Sets the band span of the specified marker.

Queries the band span of the specified marker.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—
<freq>	Real	0 to +∞	span/20

Description

The commands are valid only when you enable the marker of the frequency-domain data and enable the band function.

Return Format

The query returns the band span involved in the calculation for the band function in scientific notation.

Example

The following command sets the bandwidth of the signal involved in the calculation for the Marker 1 band function to 500 MHz.

```
:CALCulate:DDEMod:MARKer1:FUNCtion:BAND:SPAN 500000000
```

The following query returns 5.000000000e+08.

```
:CALCulate:DDEMod:MARKer1:FUNCtion:BAND:SPAN?
```

:CALCulate:DDEMod:MARKer<n>[:SET]:CENTer**Syntax**

```
:CALCulate:DDEMod:MARKer<n>[:SET]:CENTer
```

Description

Sets the frequency of the specified marker to center frequency of the analyzer.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—

Remarks

If the marker mode of the specified marker is Position or Fixed, the center frequency will be set to the

frequency of the marker.

If the specified marker mode is Delta, the center frequency will be set to the frequency of the Delta marker.

Example

The following command sets the frequency of Marker 1 (Position) to the center frequency of the analyzer.

:CALCulate:DDEMod:MARKer1:SET:CENTer

:CALCulate:DDEMod:MARKer<n>[:SET]:DELTA:CENTer

Syntax

:CALCulate:DDEMod:MARKer<n>[:SET]:DELTA:CENTer

Description

Sets the center frequency of the analyzer to the frequency difference between the two Delta markers.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—

Remarks

It is only valid when the current marker mode is "Delta".

Example

The following command sets the center frequency of the analyzer to the frequency difference between the two Delta markers.

:CALCulate:DDEMod:MARKer1:SET:DELTA:CENTer

:CALCulate:DDEMod:MARKer<n>[:SET]:RLEVEL

Syntax

:CALCulate:DDEMod:MARKer<n>[:SET]:RLEVEL

Description

Sets the reference level of the analyzer to the amplitude of the specified marker.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—

Remarks

If the marker mode of the specified marker is Position or Fixed, the reference level will be set to the amplitude of the marker.

If the specified marker mode is Delta and the current marker is the reference marker, then the reference level is set to the amplitude of the reference marker; if the current marker is the Delta marker, then the reference level is set to the amplitude of the Delta marker.

Example

The following command sets the reference level of the analyzer to the amplitude of Marker 2 (Position).

:CALCulate:DDEMod:MARKer2:SET:RLEVEL

:CALCulate:DDEMod:MARKer<n>[:SET]:STEP

Syntax

:CALCulate:DDEMod:MARKer<n>[:SET]:STEP

Description

Sets the frequency at the specified marker to the CF step of the analyzer.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—

Remarks

If the marker mode of the specified marker is Position or Fixed, the center frequency step will be set to the frequency of the marker.

If the specified marker mode is Delta, the CF step is set to the frequency of the Delta marker.

Example

The following command sets the frequency at Marker 4 (Position) to the CF step of the analyzer.

:CALCulate:DDEMod:MARKer4:SET:STEP

:CALCulate:DDEMod:MARKer<n>:MAXimum**Syntax**

:CALCulate:DDEMod:MARKer<n>:MAXimum

Description

Performs one peak search and marks it with the specified marker.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—

Remarks

When no peak is found, a prompt message "No peak found" is displayed on the screen.

Example

The following command performs one peak search, and marks with Marker 2.

:CALCulate:DDEMod:MARKer2:MAXimum

:CALCulate:DDEMod:MARKer<n>:MAXimum:LEFT**Syntax**

:CALCulate:DDEMod:MARKer<n>:MAXimum:LEFT

Description

Searches for and marks the peak closest to the left side of the current peak.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—

Remarks

When no peak is found, a prompt message "No peak found" is displayed on the screen.

Example

The following command performs one left peak search, and marks with Marker 2.
:CALCulate:DDEMod:MARKer2:MAXimum:LEFT

:CALCulate:DDEMod:MARKer<n>:MAXimum:NEXT

Syntax

:CALCulate:DDEMod:MARKer<n>:MAXimum:NEXT

Description

Searches for and marks the peak whose amplitude on the trace is next lower than that of the current peak.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—

Remarks

When no peak is found, a prompt message "No peak found" is displayed on the screen.

Example

The following command performs one next peak search, and marks with Marker 2.

:CALCulate:DDEMod:MARKer2:MAXimum:NEXT

:CALCulate:DDEMod:MARKer<n>:MAXimum:PREVIOUS

Syntax

:CALCulate:DDEMod:MARKer<n>:MAXimum:PREVIOUS

Description

Searches for and marks the peak whose amplitude on the trace is next higher than that of the current peak.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—

Remarks

When no peak is found, a prompt message "No peak found" is displayed on the screen.

Example

The following command performs one next peak search, and marks with Marker 2.

:CALCulate:DDEMod:MARKer2:MAXimum:PREVIOUS

:CALCulate:DDEMod:MARKer<n>:MAXimum:RIGHT

Syntax

:CALCulate:DDEMod:MARKer<n>:MAXimum:RIGHT

Description

Searches for and marks the peak closest to the right side of the current peak.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	—

Remarks

When no peak is found, a prompt message "No peak found" is displayed on the screen.

Example

The following command performs one right peak search, and marks with Marker 2.

```
:CALCulate:DDEMod:MARKer2:MAXimum:RIGHT
```

:CALCulate:DDEMod:MARKer<n>:MINimum**Syntax**

```
:CALCulate:DDEMod:MARKer<n>:MINimum
```

Description

Searches for and marks the peak with the minimum amplitude on the trace.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	——

Remarks

When no peak is found, a prompt message "No peak found" is displayed on the screen.

Example

The following command performs one minimum search, and marks it with Marker 2.

```
:CALCulate:DDEMod:MARKer2:MINimum
```

:CALCulate:DDEMod:MARKer<n>:CPSearch[:STATe]**Syntax**

```
:CALCulate:DDEMod:MARKer<n>:CPSearch[:STATe] <bool>
```

```
:CALCulate:DDEMod:MARKer<n>:CPSearch[:STATe]?
```

Description

Sets the on/off status of continuous peak search.

Queries the on/off status of continuous peak search.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	——
<bool>	Bool	OFF ON 0 1	OFF 0

Remarks

N/A

Example

The following command enables the continuous peak search of Marker 1.

```
:CALCulate:DDEMod:MARKer1:CPSearch:STATe
```

```
or :CALCulate:DDEMod:MARKer1:CPSearch:STATe 1
```

ON

The following query returns 1.

```
:CALCulate:DDEMod:MARKer1:CPSearch:STATe?
```

:CALCulate:DDEMod:MARKer:AOff**Syntax**

:CALCulate:DDEMod:MARKer:AOff

Description

Turns off all the enabled markers.

:CALCulate:DDEMod:MARKer:COUPle[:STATe]

Syntax

:CALCulate:DDEMod:MARKer:COUPle[:STATe] <bool>

:CALCulate:DDEMod:MARKer:COUPle[:STATe]?

Description

Enables or disables the couple marker function.

Queries the state of the couple marker function.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	OFF 0

Remarks

When you enable the couple marker function, moving any marker will make other markers (that are not fixed or off) move along with it.

Return Format

The query returns 0 or 1.

Example

The following command disables the couple marker function.

:CALCulate:DDEMod:MARKer:COUPle:STATe OFF or :CALCulate:DDEMod:MARKer:COUPle:STATe 0

The following query returns 0.

:CALCulate:DDEMod:MARKer:COUPle:STATe?

:CALCulate:DDEMod:MARKer:SElect

Syntax

:CALCulate:DDEMod:MARKer:SElect <num>

:CALCulate:DDEMod:MARKer:SElect?

Description

Sets the selected marker.

Queries the currently selected marker.

Parameter

Name	Type	Range	Default
<num>	Integer	1 2 3 4 5 6 7 8	—

Return Format

The query returns the current marker in integer.

Example

The following command sets Marker 2 to be the selected marker.

:CALCulate:DDEMod:MARKer:SElect 2

The following query command returns 2.

:CALCulate:DDEMod:MARKer:SElect?

:CALCulate:DDEMod:MARKer:NEXT

Syntax

:CALCulate:DDEMod:MARKer:NEXT

Description

Selects the next marker.

:CALibration Commands

:CALibration[:ALL]

Syntax

:CALibration[:ALL]

Description

Executes self-calibration immediately.

Example

The following command executes the self-calibration immediately.

:CALibration:ALL

:CALibration:AUTO

Syntax

:CALibration:AUTO <bool>

:CALibration:AUTO?

Description

Enables or disables auto calibration.

Queries the setting status of auto calibration.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	OFF 0

Return Format

The query returns 0 or 1.

Example

The following command enables auto calibration.

:CALibration:AUTO ON or :CALibration:AUTO 1

The following query returns 1.

:CALibration:AUTO?

:CONFigure Commands

:CONFigure?

Syntax

:CONFigure?

Description

Queries the current measurement function.

Return Format

The query returns SA, RTSA, EMI, VSA, AM, FM, PM, GPSA_TPOW, GPSA_ACP, GPSA_CHP, GPSA_OBW, GPSA_CNR, GPSA_HARM, GPSA_TOI, GPSA_TG, or RTSA_UFS.

:CONFigure:CATalog?

Syntax

:CONFigure:CATalog?

Description

Queries the currently supported measurement application.

:DISPlay Commands

Window ID Table

Window ID	Window Name	Window Parameter	Window ID	Window Name	Window Parameter
23	Raw Time	RTIME	41	RefReal	RREAL
26	Spectrum	SPECTrum	42	RefImag	RIMAg
27	MeasLog	MLOG	43	RefPhase	RPHAsE
28	MeasLin	MLIN	44	RefPhaseUnwrap	RPHUnwrap
29	MeasReal	MREAL	45	RefIQ	RIQ
30	MeasImag	MIMAg	46	RefCons	RCONs
31	MeasPhase	MPHAsE	47	RefIEye	RIEYe
32	MeasPhaseUnwrap	MPHUnwrap	48	RefQEye	RQEYe
33	MeasIQ	MIQ	50	RefSpectrum	RSPECTrum
34	MeasCons	MCONs	51	EVMEErrorTime	ETIME
35	MeasIEye	MIEYe	52	EVMEErrorSpectrum	ESPECTrum
36	MeasQEye	MQEYe	53	MagError	EMag
38	MeasSpectrum	MSPECTrum	54	PhaseError	EPHAsE
39	RefLog	RLOG	55	Meas	
40	RefLin	RLIN	56	Demod Bits	

:DISPlay:WINDow<n>:SWITCh

Syntax

:DISPlay:WINDow<n>:SWITCh

Description

Switches the window.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	-
<integer>	Integer	Refer to "Remarks"	-

Remarks

The range of parameter <n> and <integer> ranges from 23 to 56. For details, refer to "Window ID Table" in Display Commands.

Example

The following command switches the window view from 35 to 36.

```
:DISPlay:WINDow35:SWITCh 36
```

:DISPlay:DDEMod:VIEW[:SElect]

Syntax

```
:DISPlay:DDEMod:VIEW[:SElect] <enum>
:DISPlay:DDEMod:VIEW[:SElect]?
```

Description

Sets the preset combination view.

Queries the preset combination view.

Parameter

Name	Type	Range	Default
<enum>	Discrete	NORMal DTRace DERRor NRESults	NORMal

Remarks

NORMal: indicates normal view.

DTRace: indicates Demod Trace view.

DERRor: indicates Demod Error view.

NRESults: indicates Result Summary view.

Return Format

The query returns NORM, DTR, DERR, or NRES.

Example

The following command sets the preset combination view to DTRace.

```
:DISPlay:DDEMod:VIEW:SElect DTRace
```

The following query returns DTR.

```
:DISPlay:DDEMod:VIEW:SElect?
```

:DISPlay:DDEMod:<n> X[:SCALe]:COUPle**Syntax**

```
:DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:COUPle <bool>
```

```
:DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:COUPle?
```

Description

Enables or disables auto adjustment of X Scale.

Queries the on/off status of auto adjustment of X Scale.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	—
<bool>	Bool	OFF ON 0 1	ON 1

Remarks

ON: enables auto adjustment of X Scale. The instrument auto adjusts the reference value and width of X scale to an optimal state.

OFF: disables auto adjustment of X Scale. The reference value and width of X scale need to be adjusted manually.

The range of parameter <n> ranges from 23 to 56. For details, refer to "Window ID Table" in :DISPlay Commands.

Return Format

The query returns 0 or 1.

Example

The following command enables the auto adjustment of X scale.

```
:DISPlay:DDEMod:WINDOW 23:X:SCALe:COUPle ON or :DISPlay:DDEMod:WINDOW 23:X:SCALe:COUPle 1
```

The following query returns 1.

```
:DISPlay:DDEMod:WINDOW 23:X:SCALe:COUPle?
```

:DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:RLEVel**Syntax**

:DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:RLEVel <real>
 :DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:RLEVel?

Description

Sets the reference value of X scale.

Queries the reference value of X scale.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	—
<real>	Real	(-1e+12) to (1e+12) (Time-Domain Data) -1 THz to 1 THz (Frequency-Domain Data)	25 (19.1406 us) /1 GHz

Remarks

The command is valid when you disable the auto adjustment of X scale.

When the time-domain data source is selected, the reference value unit is symbol or s; when the frequency-domain data source is selected, the reference value unit is Hz.

The range of parameter <n> ranges from 23 to 56. For details, refer to "Window ID Table" in :DISPlay Commands.

Return Format

The query returns the X-axis reference of the selected trace in scientific notation.

Example

The following command sets the reference value of X scale to 25.

```
:DISPlay:DDEMod:WINDOW23:X:SCALe:RLEVel 25
```

The following query returns 2.500000000e+01.

```
:DISPlay:DDEMod:WINDOW23:X:SCALe:RLEVel?
```

:DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:RPOStion

Syntax

:DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:RPOStion <enum>
 :DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:RPOStion?

Description

Sets the reference position of X scale.

Queries the reference position of X scale.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	—
<enum>	Discrete	LEFT CENTer RIGHT	LEFT

Remarks

The range of parameter <n> ranges from 23 to 56. For details, refer to "Window ID Table" in :DISPlay Commands.

Return Format

The query returns LEFT, CENT, or RIGH.

Example

The following command sets the reference position of X scale to Left.
:DISPlay:DDEMod:WINDOW23:X:SCALe:RPOSition LEFT

The following query returns LEFT.
:DISPlay:DDEMod:WINDOW23:X:SCALe:RPOSition?

:DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:WIDTh

Syntax

:DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:WIDTh <real>
:DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:WIDTh?

Description

Sets the width of X scale.
Queries the width of X scale.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	—
<real>	Real	0 to (1e+12) (Time-Domain Data) 0 Hz to 1 THz (Frequency-Domain Data)	50 (38.2812 us)/3.125 MHz

Remarks

The command is valid when you disable the auto adjustment of X scale.
When the time-domain data source is selected, the reference value unit is symbol or s; when the frequency-domain data source is selected, the reference value unit is Hz.
The range of parameter <n> ranges from 23 to 56. For details, refer to "Window ID Table" in :DISPlay Commands..

Return Format

The query returns the width of X scale in scientific notation.

Example

The following command sets the width of X scale to 50.
:DISPlay:DDEMod:WINDOW23:X:SCALe:WIDTh 50

The following query returns 5.000000000e+01.
:DISPlay:DDEMod:WINDOW23:X:SCALe:WIDTh?

:DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:LAST

Syntax

:DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:LAST

Description

Sets the last scale.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	—

Remarks

The range of parameter <n> ranges from 23 to 56. For details, refer to "Window ID Table" in :DISPlay

Commands.

Example

The following command sets the last scale.

```
:DISPlay:DDEMod:WINDOW23:X:SCALe:LAST
```

:DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:COPY

Syntax

```
:DISPlay:DDEMod:WINDOW<n>:X[:SCALe]:COPY <enum>
```

Description

Copies X Scale.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	—
<enum>	Discrete	RTIME SPECTrum MLOG MLIN MREAL MIMAg MPHase MPHUnwrap MIQ MCONs MIEYe MQEYe MSPECTrum RLOG RLIN RREAL RIMAg RPHase RPHUnwrap RIQ RCONs RIEYe RQEYe RSPECTrum ETIME ESPECTrum EMag EPHase	—

Remarks

The range of parameter <n> ranges from 23 to 56. For details, refer to "Window ID Table" in :DISPlay Commands.

For detailed description of the parameter <enum>, refer to "Window ID Table" in :DISPlay Commands.

Example

The following command copies the X Scale of Spectrum view (26) to the MeasSpectrum view.

```
:DISPlay:DDEMod:WINDOW26:X:SCALe:COPY MSPECTrum
```

:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:AUTO:ONCE

Syntax

```
:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:AUTO:ONCE
```

Description

Enables the auto adjustment of Y scale.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	—

Remarks

The range of parameter <n> ranges from 23 to 56. For details, refer to "Window ID Table" in :DISPlay Commands..

Example

The following command performs the auto adjustment of Y scale.

```
:DISPlay:DDEMod:WINDOW23:Y:SCALe:AUTO:ONCE
```

:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:RLEVel

Syntax

```
:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:RLEVel <real>
:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:RLEVel?
```

Description

Sets the reference value of Y scale.
Queries the reference value of Y scale.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	—
<ampl>	Real	(-1e+12) to (1e+12)	0

Remarks

The unit of the reference value is determined by the Y scale unit.
The range of parameter <n> ranges from 23 to 56. For details, refer to "Window ID Table" in :DISPlay Commands.

Return Format

The query returns the reference value in scientific notation.

Example

The following command sets the reference value of Y scale to -10.
:DISPlay:DDEMod:WINDOW23:Y:SCALe:RLEVel -10

The following query returns -1.000000000e+01.
:DISPlay:DDEMod:WINDOW23:Y:SCALe:RLEVel?

:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:RPOSition**Syntax**

```
:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:RPOSition <enum>
:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:RPOSition?
```

Description

Sets the reference position of Y scale.
Queries the reference position of Y scale.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	—
<enum>	Discrete	TOP CENTer BOTTom	CENTer

Remarks

The range of parameter <n> ranges from 23 to 56. For details, refer to "Window ID Table" in :DISPlay Commands.

Return Format

The query returns TOP, CENT, or BOT.

Example

The following command sets the reference position of Y scale to TOP.
:DISPlay:DDEMod:WINDOW 23:Y:SCALe:RPOSition TOP

The following query returns TOP.
:DISPlay:DDEMod:WINDOW23:Y:SCALe:RPOSition?

:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:PDIVision

Syntax

:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:PDIVision <rel>
:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:PDIVision?

Description

Sets the Y scale/div.
Queries the Y scale/div.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	—
<rel>	Real	(-1e+09) to (1e+12)	0.3

Remarks

The range of parameter <n> ranges from 23 to 56. For details, refer to "Window ID Table" in :DISPlay Commands..

Return Format

The query returns Y scale/div in scientific notation.

Example

The following command sets the Y scale/div to 0.3.
:DISPlay:DDEMod:WINDOW23:Y:SCALe:PDIVision 0.3

The following command returns 3.000000000e-01.
:DISPlay:DDEMod:WINDOW23:Y:SCALe:PDIVision?

:DISPlay:DDEMod:WINDOW<n>:Y:UNIT:PREFerence

Syntax

:DISPlay:DDEMod:WINDOW<n>:Y:UNIT:PREFerence <enum>
:DISPlay:DDEMod:WINDOW<n>:Y:UNIT:PREFerence?

Description

Sets the Y-axis unit of the specified trace.
Queries the Y-axis unit of the specified trace.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	—
<enum>	Discrete	PEAK RMS POWEr	PEAK

Remarks

The range of parameter <n> ranges from 23 to 56. For details, refer to "Window ID Table" in :DISPlay Commands..
This command is valid when the window is "RawTime" or "Spectrum".

Return Format

The query returns PEAK, RMS, or POW.

Example

The following command sets Y-axis unit of the Trace 1 to Peak.
:DISPlay:DDEMod:WINDOW23:Y:UNIT:PREFerence PEAK

The following query returns PEAK.

:DISPlay:DDEMod:WINDOW23:Y:UNIT:PREFerece?

:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:LAST

Syntax

:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:LAST

Description

Sets last scale of Y-axis.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	——

Remarks

The range of parameter <n> ranges from 23 to 56. For details, refer to "Window ID Table" in :DISPlay Commands..

:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:COPY

Syntax

:DISPlay:DDEMod:WINDOW<n>:Y[:SCALe]:COPY <enum>

Description

Copies Y scale.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	——
<enum>	Discrete	RTIME SPECTrum MLOG MLIN MREAL MIMAg MPHase MPHUnwrap MIQ MCONs MIEYe MQEYe MSPECTrum RLOG RLIN RREAL RIMAg RPHase RPHUnwrap RIQ RCONs RIEYe RQEYe RSPECTrum ETIMe ESPECTrum EMag EPHase	——

Remarks

The range of parameter <n> ranges from 23 to 56. For details, refer to "Window ID Table" in :DISPlay Commands..

For detailed description of the parameter <enum>, refer to "Window ID Table" in :DISPlay Commands..

Example

The following command copies the Y Scale of Spectrum view (26) to the MeasSpectrum view.

:DISPlay:DDEMod:WINDOW26:Y:SCALE:COPY MSPECTrum

:DISPlay:DDEMod:WINDOW<n>:EYE:INTerval

Syntax

:DISPlay:DDEMod:WINDOW<n>:EYE:INTerval <integer>

:DISPlay:DDEMod:WINDOW<n>:EYE:INTerval?

Description

Sets the eye length.

Queries the eye length.

Parameter

Name	Type	Range	Default
<n>	Discrete	Refer to "Remarks"	—
<integer>	Integer	1 to 40	2

Remarks

The range of parameter <n> and <integer> ranges from 23 to 56. This command is valid when <n> is set to 35, 36, 47, or 48. For details, refer to "Window ID Table 错误!未找到引用源。错误!未找到引用源。错误!未找到引用源。" in :DISPlay Commands..

Return Format

The query returns the eye length in integer.

Example

The following command sets the eye length to 20.
:DISPlay:DDEMod:WINDOW36:EYE:INTerval 20

The following query returns 20.
:DISPlay:DDEMod:WINDOW36:EYE:INTerval?

:DISPlay:DDEMod:BITS:FORMat

Syntax

:DISPlay:DDEMod:BITS:FORMat <enum>
:DISPlay:DDEMod:BITS:FORMat?

Description

Sets the bit format.
Queries the bit format.

Parameter

Name	Type	Range	Default
<enum>	Discrete	HEX BINary	-

Remarks

Hex: indicates Hexadecimal;
BINary: indicates the binary format.

Return Format

The query returns HEX or BIN.

Example

The following command sets the bit format to HEX.
:DISPlay:DDEMod:BITS:FORMat HEX

The following query returns HEX.
:DISPlay:DDEMod:BITS:FORMat?

:DISPlay:DDEMod:TXBit:PATtern

Syntax

:DISPlay:DDEMod:TXBit:PATtern <bool>
:DISPlay:DDEMod:TXBit:PATtern?

Description

Enables or disables the display of the reference bits.
Queries the on/off status of the reference bits.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	ON 1

Return Format

The query returns 0 or 1.

Example

The following command enables the display of the reference bits.

:DISPlay:DDEMod:TXBit:PATtern ON or :DISPlay:DDEMod:TXBit:PATtern 1

The following query returns 1.

:DISPlay:ENABLE?

:FETCh Commands

:FETCh:DDEMod<n>?

Syntax

:FETCh:DDEMod<n>?

Description

Queries the digital demodulation measurement result.

Parameter

Name	Type	Range	Default
<n>	Integer	Refer to "Remarks"	-

Remarks

The relationship between parameter n and the return value is as follows:

Parameter n	Return Value	Parameter n	Return Value
0	Raw Time	16	RefLin
1	Measurement Result	17	RefReal
2	Spectrum	18	RefImag
3	MeasLog	19	RefPhase
4	MeasLin	20	RefPhaseUnwrap
5	MeasReal	21	RefIQ
6	MeasImag	22	RefCons
7	MeasPhase	23	RefEye
8	MeasPhaseUnwrap	24	RefQEye
9	MeasIQ	25	Reserve
10	MeasCons	26	RefSpectrum
11	MeasIEye	27	EVMEErrorTime
12	MeasQEye	28	EVMEErrorSpectrum
13	Reserve	29	MagError
14	MeasSpectrum	30	PhaseError
15	RefLog	31	Demod Bits

IEEE 488.2 Common Commands

IEEE 488.2 common commands are used to operate or query the status registers.

*CLS

Syntax

*CLS

Description

Clears all the event registers and status byte registers.

*ESE

Syntax

*ESE <value>

*ESE?

Description

Sets the enable register for the standard event status register.

Queries the enable register for the standard event status register.

Parameter

Name	Type	Range	Default
<value>	Integer	Refer to "Remarks"	0

Remarks

The bit 2, bit 3, bit 4, and bit 7 are reserved; you can set their values but they will not affect the system. Bit 1 and bit 6 are not used and are always treated as 0; therefore, the range of <value> are the decimal numbers corresponding to the binary numbers ranging from 00000000 (0 in decimal) to 11111111 (255 in decimal) and of which bit 1 and bit 6 are 0.

Return Format

The query returns an integer. The integer equals to the binary-weighted sum of all the bits set in the register. For example, the query returns 144 if Bit 4 (16 in decimal) and Bit 7 (128 in decimal) are enabled.

Example

The following command sets the enable register for the standard event status register to 16.

*ESE 16

The following query returns 16.

*ESE?

*ESR?

Syntax

*ESR?

Description

Queries and clears the event register for the standard event status register.

Remarks

Bit 1 and Bit 6 in the standard event status register are not in use, and are regarded as 0. The query returns a decimal value that corresponds to the binary values ranging from 00000000 (0 in decimal) to 11111111

(255 in decimal) and of which Bit 1 and Bit 6 are 0.

Return Format

The query returns an integer. The integer equals to the binary-weighted sum of all the bits set in the register. For example, the query returns 144 if Bit 4 (16 in decimal) and Bit 7 (128 in decimal) are enabled.

Example

The following query returns 24 (Bit 3 and Bit 4 have been set).

*ESR?

*IDN?

Syntax

*IDN?

Description

Queries the ID string of instrument.

Return Format

The query returns the ID string in the following format:

Rigol Technologies,<model>,<serial number>,XX.XX.XX

<model>: instrument model

<serial number>: serial number of the instrument

XX.XX.XX: software version of the instrument

Example

The following query returns Rigol Technologies,RSA814,RSA8004000000,00.00.25.

*IDN?

*OPC

Syntax

*OPC

*OPC?

Description

Sets Bit 0 (Operation Complete, OPC) in the standard event status register to 1 after the current operation is finished.

Queries whether the current operation is finished.

Return Format

The query returns 1 after the current operation is finished; otherwise, the query returns 0.

*RCL

Syntax

*RCL <integer>

Description

Recalls the selected register.

Parameter

Name	Type	Range	Default
<integer>	Integer	1 to 16	—

Example

The following command recalls Register 1.

*RCL 1

***RST**

Syntax

*RST

Description

Restores the instrument to its factory default settings.

SAV*Syntax**

*SAV <integer>

Description

Saves the current instrument state to the selected register.

Parameter

Name	Type	Range	Default
<integer>	Integer	1 to 16	—

Example

The following command saves the current instrument state to Register 1.

*SAV 1

SRE*Syntax**

*SRE <value>

*SRE?

Description

Sets the enable register for the status byte register.

Queries the bits in the service request register.

Parameter

Name	Type	Range	Default
<value>	Integer	Refer to "Remarks"	0

Remarks

Bit 0 and Bit 1 are not used and are always treated as 0; therefore, the range of <value> are the decimal numbers corresponding to the binary numbers ranging from 00000000 (0 in decimal) to 11111111 (255 in decimal) and of which Bit 0 and Bit 1 are 0.

Return Format

The query returns an integer. The integer equals to the binary-weighted sum of all the bits set in the register. For example, the query returns 144 if Bit 4 (16 in decimal) and Bit 7 (128 in decimal) are enabled.

Example

The following command sets the enable register for the status byte register to 16.

*SRE 16

The following query returns 16.

*SRE?

*STB?

Syntax

*STB?

Description

Queries the event register for the status byte register.

Remarks

Bit 0 and Bit 1 in the status byte register are not in use, and are regarded as 0. The query returns a decimal value that corresponds to the binary values ranging from 00000000 (0 in decimal) to 11111111 (255 in decimal) and of which Bit 0 and Bit 1 are 0.

Return Format

The query returns an integer. The integer equals to the binary-weighted sum of all the bits set in the register. For example, the query returns 144 if Bit 4 (16 in decimal) and Bit 7 (128 in decimal) are enabled.

Example

The following query returns 24 (Bit 3 and Bit 4 have been set).

*STB?

*TST?

Syntax

*TST?

Description

Queries whether the self-check operation is finished.

Remarks

The query returns 0 or 1. A zero is returned if the test is successful, 1 if it fails.

*WAI

Syntax

*WAI

Description

Waits for all the pending operations to complete before executing any additional commands.

:INITiate Commands

:INITiate:CONTinuous

Syntax

:INITiate:CONTinuous <bool>

:INITiate:CONTinuous?

Description

Selects continuous (ON|1) or single (OFF|0) measurement mode.
Queries the current measurement mode.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	ON 1

Return Format

The query returns 0 or 1.

Example

The following command sets the instrument to sweep continuously.
:INITiate:CONTinuous ON or :INITiate:CONTinuous 1

The following query returns 1.
:INITiate:CONTinuous?

:INITiate[:IMMediate]**Syntax**

:INITiate[:IMMediate]

Description

Initializes one sweep in the non-measurement state.
Triggers one measurement in the measurement state.

:INITiate:REStart**Syntax**

:INITiate:REStart

Description

Restarts the sweep.

:INPut Commands

:INPut:IF:OVERload?

Syntax

:INPut:IF:OVERload?

Description

Queries the IF overload.

Remarks

The query returns 0 or 1.

0 indicates not overloaded; 1 indicates overloaded.

:INSTRument Commands

:INSTRument:COUPle:FREQuency:CENTer

Syntax

:INSTRument:COUPle:FREQuency:CENTer <enum>
:INSTRument:COUPle:FREQuency:CENTer?

Description

Sets the setting status of the global center frequency of the instrument.
Queries the setting status of the global center frequency of the instrument.

Parameter

Name	Type	Range	Default
<enum>	Discrete	ALL NONE	NONE

Remarks

NONE: turns off the global center frequency.

ALL: turns on the global center frequency.

If you execute this command in any mode, the center frequency of the current mode is set to the global center frequency. Adjusting the center frequency in a mode, while the global center frequency is on, will modify the global center frequency.

Return Format

The query returns ALL or NONE.

Example

The following command enables the global center frequency of the instrument.

```
:INSTRument:COUPle:FREQuency:CENTer ALL
```

The following query returns ALL.

```
:INSTRument:COUPle:FREQuency:CENTer?
```

:INSTRument:SCReen:CATalog?

Syntax

```
:INSTRument:SCReen:CATalog?
```

Description

Queries the available measurement modes displayed at the bottom of the screen.

:INSTRument:SCReen:CREate

Syntax

```
:INSTRument:SCReen:CREate
```

Description

Creates a new measurement mode label at the bottom of the screen.

:INSTRument:SCReen:DELeTe

Syntax

```
:INSTRument:SCReen:DELeTe
```

Description

Deletes the currently selected measurement mode label at the bottom of the screen.

:INSTrument:SCReen:DELeTe:ALL**Syntax**

:INSTrument:SCReen:DELeTe:ALL

Description

Deletes all the currently not selected measurement mode label at the bottom of the screen.

:INSTrument:SCReen:REName**Syntax**

:INSTrument:SCReen:REName<name>

Description

Renames the currently selected measurement mode label at the bottom of the screen.

Parameter

Name	Type	Range	Default
<name>	ASCII String	The label can contain English letters and numbers, as well as some symbols.	-

:INSTrument:SCReen:SELeCt**Syntax**

:INSTrument:SCReen:SELeCt <name>

:INSTrument:SCReen:SELeCt?

Description

Selects the specified measurement mode label at the bottom of the screen.

Queries the measurement mode label at the bottom of the screen that you select currently.

Parameter

Name	Type	Range	Default
<name>	ASCII String	The label can contain English letters and numbers, as well as some symbols.	-

Remarks

You can run the :INSTrument:SCReen:CATalog? command to query the measurement mode label name.

Example

The following command sets to select measurement mode label RTSA 1 at the bottom of the screen.

```
:INSTrument:SCReen:SELeCt RTSA 1
```

The following query returns RTSA 1.

```
:INSTrument:SCReen:SELeCt?
```

:INSTrument[:SElect]

Syntax

:INSTrument[:SElect] <enum>
:INSTrument[:SElect]?

Description

Selects the working mode of the instrument.
Queries the working mode of the instrument.

Parameter

Name	Type	Range	Default
<enum>	Discrete	SA GPSA_TG RTSA RTSA_UFS GPSA_ACP GPSA_CNR GPSA_CHPower GPSA_TOI GPSA_HARModist GPSA_OBW GPSA_TPOWer EMI VSA AM FM PM PNOISE	SA

Remarks

After running the command of switching the working mode, we recommend you set the timeout value to 8 s, or perform the next operation after a delay of 8 s.

Example

The following command sets the working mode of the instrument to VSA.
:INSTrument:SElect VSA

The following query returns 13 or SA.
:INSTrument:SElect?

:MMEMory Commands

:MMEMory:DELeTe

Syntax

:MMEMory:DELeTe <file_name>

Description

Deletes a specified file.

Parameter

Name	Type	Range	Default
<file_name>	ASCII String	—	--

Remarks

<file_name> should contain the path and the filename.

This operation fails if the file with the specified filename does not exist.

Example

The following command deletes the "state1.sta" file from the "/ VSA/state" folder.

:MMEMory:DELeTe /VSA/state/state1.sta

:MMEMory:LOAD:STATe

Syntax

:MMEMory:LOAD:STATe <file_name>

Description

Loads the specified state file (.sta).

Parameter

Name	Type	Range	Default
<file_name>	ASCII String	—	--

Remarks

This operation fails if the file with the specified filename does not exist.

Example

The following command loads the state file (state1.sta) to the instrument.

:MMEMory:LOAD:STATe state1.sta

:MMEMory:LOAD:RESults

Syntax

:MMEMory:LOAD:RESults <label>,<path>

Description

Loads the measurement results.

Parameter

Name	Type	Range	Default
<label>	Discrete	RAWDATA	—
<path>	Real	—	--

Remarks

This operation fails if the file with the specified filename does not exist.

Example

The following command loads the rawdata.csv file to the raw data.

```
:MMEMory:LOAD:RESults RAWDATA1,rawdata1.csv
```

:MMEMory:MOVE**Syntax**

```
:MMEMory:MOVE <file_name1>,<file_name2>
```

Description

Renames the specified file <file_name1> as <file_name2>.

Parameter

Name	Type	Range	Default
<file_name1>	ASCII String	——	--
<file_name2>	ASCII String	——	--

Remarks

<file_name1> and <file_name2> should contain the path and the filename.

This operation fails if the file with the specified filename does not exist.

Example

The following command renames the state file (state1.sta) in the folder (/GPSSA/state) as "state2.sta".

```
:MMEMory:MOVE /GPSSA/state/state1.sta,/GPSSA/state/state2.sta
```

:MMEMory:STORE:IMG:PNG**Syntax**

```
:MMEMory:STORE:IMG:PNG <path>
```

Description

Saves the screen image to the specified path.

Parameter

Name	Type	Range	Default
<path>	ASCII String	The label can contain English letters and numbers, as well as some symbols.	——

Remarks

<path> should contain the path and the filename.

Example

The following command sets the saving path of the image to "/data/UserData/vsa/image.png".

```
:MMEMory:STORE:IMG:PNG /data/UserData/vsa/image.png
```

:MMEMory:STORe:STATe

Syntax

:MMEMory:STORe:STATe <file_name>
:MMEMory:STORe:STATe?

Description

Saves the current instrument state with the specified filename suffixed with ".sta" to the default path ("/mode name"/state).

Parameter

Name	Type	Range	Default
<file_name>	ASCII String	—	--

Remarks

If the specified file already exists, overwrite it.

Example

The following command saves the current instrument state with the filename "state.sta" to the folder (/VSA/state).

:MMEMory:STORe:STATe state

The following command returns /VSA/state/state.sta.

:MMEMory:STORe:STATe?

:MMEMory:STORe:RESuLts

Syntax

:MMEMory:STORe:RESuLts <file_name>

Description

Saves the raw data of the current measurement results with a specified filename suffixed with ".csv" by default (you do not have to add the suffix manually) to the default path ("/mode name"/measdata).

Parameter

Name	Type	Range	Default
<file_name>	ASCII String	—	--

Remarks

If the specified file already exists, overwrite it.

Example

The following command saves the current measurement results with the specified filename "data" to the folder (/VSA/measdata).

:MMEMory:STORe:RESuLts data

:MMEMory:STORe:RETurn?

Syntax

:MMEMory:STORe:RETurn?

Description

Saves the returned results.

:MMEMory:STORe:SCReen

Syntax

:MMEMory:STORe:SCReen <file_name>

Description

Saves the current screen image with the specified filename suffixed with "*.jpg", "*.png", or "*.bmp" to the default path ("/mode name"/screen).

Parameter

Name	Type	Range	Default
<file_name>	ASCII String	—	--

Remarks

If the specified file already exists, overwrite it.

If a suffix (.jpg/.png/.bmp) is added to the filename, you can save the current screen image with a different format based on its different suffix.

If no suffix is added to the filename, then by default, the current screen image is saved in the currently selected format.

Example

The following command saves the current screen image with the filename "screen.jpg" to the folder (/VSA/screen).

:MMEMory:STORe:SCReen screen.jpg

:MMEMory:STORe:SCReen:DATA?

Syntax

:MMEMory:STORe:SCReen:DATA?

Description

Saves the screen data.

:MMEMory:USER:STORe

Syntax

:MMEMory:USER:STORe <user>

:MMEMory:USER:STORe?

Description

Sets the preset settings.

Queries the preset settings.

Parameter

Name	Type	Range	Default
<user>	Discrete	DEF USER1 USER2 USER3 USER4 USER5 USER6	DEF

Remarks

N/A

Example

The following command selects USER1.

:MMEMory:USER:STORE USER1

The following query command returns USER1.
:MMEMory:USER:STORE?

:SAVE:MEASure

Syntax

:SAVE:MEASure <type>,<path>

Description

Saves the current measurement data with a specified filename suffixed with ".csv" by default (you do not have to add the suffix manually) to the default path ("/mode name"/measdata).

Parameter

Name	Type	Range	Default
<type>	Discrete	RESULT RAWDATA	——
<path>	ASCII String	——	——

Remarks

If the specified file already exists, overwrite it.

RESULT: measurement results.

RAWDATA: raw data.

Example

The following command saves the current measurement results with the specified filename "measdata1" to the storage path "/VSA/measdata".

:SAVE:MEASure RESULT,measdata1

[[:SENSe] Commands

[[:SENSe]:POWer[:RF]:RANGe

Syntax

```
[[:SENSe]:POWer[:RF]:RANGe <real>
[:SENSe]:POWer[:RF]:RANGe?
```

Description

Sets the amplitude of the largest sinusoidal input signal without being clipped by the IF ADC.
Queries the amplitude of the largest sinusoidal input signal without being clipped by the IF ADC.

Parameter

Name	Type	Range	Default
<real>	Real	-15 dBm to 25 dBm	20 dBm

Return Format

The query returns the signal amplitude value in scientific notation. The unit is dBm.

Example

The following command sets the amplitude of the largest sinusoidal input signal without being clipped by the IF ADC to 20 dBm.

```
:SENSe:POWer:RF:RANGe 20
```

The following query returns 2.000000000e+01.

```
:SENSe:POWer:RF:RANGe?
```

[[:SENSe]:DDEMod[:SEGMENT1]:FFT:WINDow[:TYPE]

Syntax

```
[[:SENSe]:DDEMod[:SEGMENT1]:FFT:WINDow[:TYPE] <type>
[:SENSe]:DDEMod[:SEGMENT1]:FFT:WINDow[:TYPE]?
```

Description

Sets the type of the FFT window function.
Queries the type of the FFT window function.

Parameter

Name	Type	Range	Default
<type>	Keyword	UNIFORM HANNING GAUSSIAN FLATtop	UNIFORM

Return Format

The query returns UNIF, HANN, GAUS, or FLAT.

Example

The following command sets the FFT window type to Gaussian.

```
:SENSe:DDEMod:FFT:WINDow:TYPE GAUSSian
```

The following query returns GAUS.

```
:SENSe:DDEMod:FFT:WINDow:TYPE?
```

[[:SENSe]:DDEMod[:SEGMENT1]:MODulation

Syntax

[[:SENSe]:DDEMod[:SEGMent1]:MODulation <type>
 [[:SENSe]:DDEMod[:SEGMent1]:MODulation?

Description

Sets the modulation format.

Queries the modulation format.

Parameter

Name	Type	Range	Default
<type>	Discrete	ASK2 ASK4 FSK2 FSK4 FSK8 MSK1 MSK2 BPSK QPSK PSK8 DQPSK DPSK8 PI4DQPSK PI8DPSK8 OQPSK QAM16 QAM32 QAM64 QAM128 QAM256 QAM512 QAM1024	-

Return Format

The query returns ASK2, ASK4, FSK2, FSK4, FSK8, MSK1, MSK2, BPSK, QPSK, PSK8, DQPSK, DPSK8, PI4DQPSK, PI8DPSK8, OQPSK, QAM16, QAM32, QAM64, QAM128, QAM256, QAM512, or QAM1024.

Example

The following command sets the modulation format to ASK2.

:SENSe:DDEMod:MODulation ASK2

The following query returns ASK2.

:SENSe:DDEMod:MODulation?

[[:SENSe]:DDEMod[:SEGMent1]:SRATe

Syntax

[[:SENSe]:DDEMod[:SEGMent1]:SRATe <frequency>
 [[:SENSe]:DDEMod[:SEGMent1]:SRATe?

Description

Sets the symbol rate.

Queries the symbol rate.

Parameter

Name	Type	Range	Default
<frequency>	Integer	Refer to "Remarks"	1 Msps

Remarks

Min Symbol Rate = 1 kHz.

Max. Symbol Rate $SR_{max} = SP_{max} \times 1.28 / (\text{Points/Symbol})$. Wherein, SP_{max} indicates the max span.

Return Format

The query returns the symbol rate in integer.

Example

The following command sets the symbol rate to 1 Msps.

:SENSe:DDEMod:SRATe 1 Msps

The following query returns 1000000.

:SENSe:DDEMod:SRATe?

[[:SENSe]:DDEMod[:SEGMent1]:PPSYmbol

Syntax

[[:SENSe]:DDEMod[:SEGMENT1]:PPSYmbol <integer>
 [[:SENSe]:DDEMod[:SEGMENT1]:PPSYmbol?

Description

Sets Points/symbol of the digital demodulation.
 Queries Points/symbol of the digital demodulation.

Parameter

Name	Type	Range	Default
<integer>	Integer	4 8 16	4

Return Format

The query returns Points/symbol in integer.

Example

The following command sets the number of sample points/symbol to 4.
 :SENSe:DDEMod:PPSYmbol 4

The following query returns 4.
 :SENSe:DDEMod:PPSYmbol?

[[:SENSe]:DDEMod[:SEGMENT1]:SWEep:POINTS

Syntax

[[:SENSe]:DDEMod[:SEGMENT1]:SWEep:POINTS <integer>
 [[:SENSe]:DDEMod[:SEGMENT1]:SWEep:POINTS?

Description

Sets the measurement interval.
 Queries the measurement interval.

Parameter

Name	Type	Range	Default
<integer>	Integer	10 to 4,096	50

Remarks

N/A

Return Format

The query returns the measurement interval in integer.

Example

The following command sets the measurement interval to 200.
 :SENSe:DDEMod:SWEep:POINTS 200

The following query returns 200.
 :SENSe:DDEMod:SWEep:POINTS?

[[:SENSe]:DDEMod[:SEGMENT1]:FILTer:MEASurement

Syntax

[[:SENSe]:DDEMod[:SEGMENT1]:FILTer:MEASurement <type>
 [[:SENSe]:DDEMod[:SEGMENT1]:FILTer:MEASurement?

Description

Sets the measurement filter type.

Queries the measurement filter type.

Parameter

Name	Type	Range	Default
<type>	Discrete	NONE RRCosine GAUSSian RECTangle USER1 USER2 USER3 USER4 USER5 USER6	RRCosine

Remarks

NONE: disables the filter.

RRCosine: indicates the root raised cosine.

GAUSSian: indicates the Gaussian filter.

RECTangle: indicates the rectangular filter.

USER<n>: indicates the user-defined filter. <n> ranges from 1 to 6.

Return Format

The query returns NONE, RRC, GAUS, RECT, USER1, USER2, USER3, USER4, USER5, or USER6.。

Example

The following command sets the measurement filter to Gaussian.

```
:SENSe:DDEMod:FILTer:MEASurement GAUSSian
```

The following query returns GAUS.

```
:SENSe:DDEMod:FILTer:MEASurement?
```

[[:SENSe]:DDEMod[:SEGMENT1]:FILTer:REference**Syntax**

```
[[:SENSe]:DDEMod[:SEGMENT1]:FILTer:REference <type>
```

```
[[:SENSe]:DDEMod[:SEGMENT1]:FILTer:REference?
```

Description

Sets the reference filter type.

Queries the reference filter type.

Parameter

Name	Type	Range	Default
<type>	Discrete	RCOSine RRCosine GAUSSian RECTangle HSINe USER2 USER3 USER4 USER5 USER6	RCOSine

Remarks

RCOSine: indicates the raised cosine filter.

RRCosine: indicates the root raised cosine.

GAUSSian: indicates the Gaussian filter.

RECTangle: indicates the rectangular filter.

HSINe: indicates the half-sine filter.

USER<n>: indicates the user-defined reference filter. <n> ranges from 1 to 6.

Return Format

The query returns RCOS, RRC, GAUS, RECT, HSIN, USER1, USER2, USER3, USER4, USER5, or USER6.

Example

The following command sets the reference filter to Gaussian.

```
:SENSe:DDEMod:FILTer:REFeRence GAUSSian
```

The following query returns GAUS.

```
:SENSe:DDEMod:FILTer:REFeRence?
```

[[:SENSe]:DDEMod[:SEGMent1]:FILTer:ALPHa**Syntax**

```
[[:SENSe]:DDEMod[:SEGMent1]:FILTer:ALPHa <real>
```

```
[[:SENSe]:DDEMod[:SEGMent1]:FILTer:ALPHa?
```

Description

Sets the Alpha/BT value of the filter.

Queries the Alpha/BT value of the filter.

Parameter

Name	Type	Range	Default
<real>	Real	0.05 to 100	—

Return Format

The query returns the Alpha/BT value of the filter in scientific notation.

Example

The following command sets the Alpha/BT value of the filter to 20.

```
:SENSe:DDEMod:FILTer:ALPHa 20
```

The following query returns 2.0E+01.

```
:SENSe:DDEMod:FILTer:ALPHa?
```

[[:SENSe]:DDEMod[:SEGMent1]:FSK:DEVIation:REFeRence**Syntax**

```
[[:SENSe]:DDEMod[:SEGMent1]:FSK:DEVIation:REFeRence <freq>
```

```
[[:SENSe]:DDEMod[:SEGMent1]:FSK:DEVIation:REFeRence?
```

Description

Sets the reference deviation of FSK modulation.

Queries the reference deviation of FSK modulation.

Parameter

Name	Type	Range	Default
<freq>	Real	1 kHz to 1 THz	1 kHz

Remarks

This command is valid when you select FSK modulation format and set the reference deviation mode to Manual.

Return Format

The query returns the reference deviation in scientific notation. The unit is Hz.

Example

The following command sets the reference deviation to 1 MHz.

```
:SENSe:DDEMod:FSK:DEViation:REFerence 1000000
```

The following query returns 1.000000000e+06.

```
:SENSe:DDEMod:FSK:DEViation:REFerence?
```

[[:SENSe]:DDEMod[:SEGMENT1]:FSK:DEViation:REFerence:AUTO**Syntax**

```
[[:SENSe]:DDEMod[:SEGMENT1]:FSK:DEViation:REFerence:AUTO <bool>
```

```
[[:SENSe]:DDEMod[:SEGMENT1]:FSK:DEViation:REFerence:AUTO?
```

Description

Enables or disables the auto reference deviation mode.

Queries whether the reference deviation mode is Auto or Manual.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	ON 1

Remarks

ON|1: sets the reference deviation mode to Auto.

OFF|0: sets the reference deviation mode to Manual.

This command is valid when you select FSK modulation format.

Return Format

The query returns 0 or 1.

Example

The following command sets the reference deviation mode of FSK modulation to Auto.

```
:SENSe:DDEMod:FSK:DEViation:REFerence:AUTO
```

```
or :SENSe:DDEMod:FSK:DEViation:REFerence:AUTO 1
```

ON

The following query returns 1.

```
:SENSe:DDEMod:FSK:DEViation:REFerence:AUTO?
```

[[:SENSe]:DDEMod[:SEGMENT1]:BER:STATe**Syntax**

```
[[:SENSe]:DDEMod[:SEGMENT1]:BER:STATe <bool>
```

```
[[:SENSe]:DDEMod[:SEGMENT1]:BER:STATe?
```

Description

Enables or disables the display of BER.

Queries the on/off status of BER.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	ON 1

Remarks

N/A

Return Format

The query returns 0 or 1.

Example

The following command enables the display of BER.

:SENSe:DDEMod:SEGMent1:BER:STATe 1 or :SENSe:DDEMod:SEGMent1:BER:STATe ON

The following query returns 1.

:SENSe:DDEMod:SEGMent1:BER:STATe?

[[:SENSe]:DDEMod[:SEGMent1]:BER:COUNT:BITS**Syntax**

[[:SENSe]:DDEMod[:SEGMent1]:BER:COUNT:BITS <real>

[[:SENSe]:DDEMod[:SEGMent1]:BER:COUNT:BITS?

Description

Sets the total bits.

Queries the total bits..

Parameter

Name	Type	Range	Default
<real>	Integer	0 to 40960	200

Remarks

N/A

Return Format

The query returns the total bits in scientific notation.

Example

The following command sets the total bits to 100.

:SENSe:DDEMod:SEGMent1:BER:COUNT:BITS 100

The following query returns 100.

:SENSe:DDEMod:SEGMent1:BER:COUNT:BITS?

[[:SENSe]:DDEMod:SYNC:SLENgth**Syntax**

[[:SENSe]:DDEMod:SYNC:SLENgth <time>

[[:SENSe]:DDEMod:SYNC:SLENgth?

Description

Sets the burst search length.

Queries the burst search length.

Parameter

Name	Type	Range	Default
<time>	Real	50 us to 16.3840 ms	50 us

Return Format

The query returns the burst search length in scientific notation.

Example

The following command sets the burst search length to 200 us.
 :SENSe:DDEMod:SYNC:SLENgth 0.0002

The following query returns 2.000000000e-04.
 :SENSe:DDEMod:SYNC:SLENgth?

[[:SENSe]:DDEMod:SYNC:SLENgth:AUTO**Syntax**

[[:SENSe]:DDEMod:SYNC:SLENgth:AUTO <bool>
 [[:SENSe]:DDEMod:SYNC:SLENgth:AUTO?

Description

Enables or disables the auto setting of burst search length.
 Queries the on/off status of auto setting of burst search length.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	OFF 0

Return Format

The query returns 0 or 1.

Example

The following command enables or disables the auto setting of burst search length.
 :SENSe:DDEMod:SYNC:SLENgth:AUTO 1 or :SENSe:DDEMod:SYNC:SLENgth:AUTO ON
 The following query returns 1.
 :SENSe:DDEMod:SYNC:SLENgth:AUTO?

[[:SENSe]:DDEMod:SYNC:ALENgth**Syntax**

[[:SENSe]:DDEMod:SYNC:ALENgth <integer>
 [[:SENSe]:DDEMod:SYNC:ALENgth?

Description

Sets the sync analysis length.
 Queries the sync analysis length.

Parameter

Name	Type	Range	Default
<integer>	Integer	50 to 4,096	50

Remarks

This command is only valid when you enable the sync search function and disable the burst search function.

Return Format

The query returns the sync analysis length in integer.

Example

The following command sets the sync analysis length to 50.
:SENSe:DDEMod:SYNC:ALENgtH 50

The following query returns 50.
:SENSe:DDEMod:SYNC:ALENgtH?

[[:SENSe]:DDEMod:SYNC:BURSt:RUNIn

Syntax

[[:SENSe]:DDEMod:SYNC:BURSt:RUNIn <integer>
[:SENSe]:DDEMod:SYNC:BURSt:RUNIn?

Description

Sets the burst search run-in.
Queries the burst search run-in.

Parameter

Name	Type	Range	Default
<integer>	Integer	0 to 16384	0

Remarks

This command is only valid when you enable the burst search function.

Return Format

The query returns the burst search run-in in integer.

Example

The following command sets the burst search run-in to 50.
:SENSe:DDEMod:SYNC:BURSt:RUNIn 50

The following query command returns 50.
:SENSe:DDEMod:SYNC:BURSt:RUNIn?

[[:SENSe]:DDEMod:SYNC:BURSt:[STATe]

Syntax

[[:SENSe]:DDEMod:SYNC:BURSt:[STATe] <bool>
[:SENSe]:DDEMod:SYNC:BURSt:[STATe]?

Description

Enables or disables the burst search.
Queries the on/off status of the burst search.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	OFF 0

Return Format

The query returns 0 or 1.

Example

The following command enables the burst search.
:SENSe:DDEMod:SYNC:BURSt:STATe ON or :SENSe:DDEMod:SYNC:BURSt:STATe 1

The following query returns 1.
:SENSe:DDEMod:SYNC:BURSt:STATe?

[[:SENSe]:DDEMod:SYNC:SWORd:OFFSet

Syntax

[[:SENSe]:DDEMod:SYNC:SWORd:OFFSet <integer>
[:SENSe]:DDEMod:SYNC:SWORd:OFFSet?

Description

Sets the sync offset of the sync search.
Queries the sync offset of the sync search.

Parameter

Name	Type	Range	Default
<integer>	Real	-2048 to 2048	0

Return Format

The query returns the sync offset in integer.

Example

The following command sets the sync offset to -3.
:SENSe:DDEMod:SYNC:SWORd:OFFSet -3

The following query returns -3.
:SENSe:DDEMod:SYNC:SWORd:OFFSet?

[[:SENSe]:DDEMod:SYNC:SWORd:PATtern

Syntax

[[:SENSe]:DDEMod:SYNC:SWORd:PATtern <string>
[:SENSe]:DDEMod:SYNC:SWORd:PATtern?

Description

Sets the sync pattern.
Queries the sync pattern.

Parameter

Name	Type	Range	Default
<string>	Real	0 to 32 symbols	—

Return Format

The query returns the sync pattern in strings.

Example

The following command sets the sync pattern to 1011010.
:SENSe:DDEMod:SYNC:SWORd:PATtern 1011010

The following query returns 1011010.
:SENSe:DDEMod:SYNC:SWORd:PATtern?

[[:SENSe]:DDEMod:SYNC:SWORd:[STATe]

Syntax

[[:SENSe]:DDEMod:SYNC:SWORd:[STATe] <bool>

[[:SENSe]:DDEMod:SYNC:SWORd:[:STATe]?]

Description

Enables or disables the sync word search.

Queries the setting status of the sync word search.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	OFF 0

Return Format

The query returns 0 or 1.

Example

The following command enables the sync word search.

:SENSe:DDEMod:SYNC:SWORd:STATe ON or :SENSe:DDEMod:SYNC:SWORd:STATe 1

The following query returns 1.

:SENSe:DDEMod:SYNC:SWORd:STATe?

[[:SENSe]:DDEMod:LOAD:KNOWndata]

Syntax

[[:SENSe]:DDEMod:LOAD:KNOWndata <path>]

Description

Loads the known data.

Parameter

Name	Type	Range	Default
<path>	ASCII String	The label can contain English letters and numbers, as well as some symbols.	—

Example

The following command sets to load the known data from the specified path.

:SENSe:DDEMod:LOAD:KNOWndata /data/UserData/BER_KnownData-QPSK.xml

[[:SENSe]:RADio:STANdard:PRESet]

Syntax

[[:SENSe]:RADio:STANdard:PRESet <type>]

[[:SENSe]:RADio:STANdard:PRESet?]

Description

Sets the preset standard of the digital demodulation.

Queries the preset standard of the digital demodulation.

Parameter

Name	Type	Range	Default
<type>	Discrete	NONE GSM NADC WCDMA PDC PHP BLUETOOTH WLAN802 ZIGBEE868M ZIGBEE915M ZIGBEE2450M TETRA DECT APCO25	NONE

Return Format

The query returns NONE, GSM, NADC, WCDMA, PDC, PHP, BLUETOOTH, WLAN802, ZIGBEE868M, ZIGBEE915M, ZIGBEE2450M, TETRA, DECT, or APCO25.

Example

The following command sets the preset standard of the digital demodulation to GSM.
:SENSe:RADio:STANdard:PRESet GSM

The following query returns GSM.
:SENSe:RADio:STANdard:PRESet?

[[:SENSe]:FREQuency:CENTer**Syntax**

[[:SENSe]:FREQuency:CENTer <freq>
[:SENSe]:FREQuency:CENTer?

Description

Sets the center frequency.
Queries the center frequency.

Parameter

Name	Type	Range	Default
<freq>	Real	(Smin ^[2] /2) to (Fmax - Smin/2)	Fmax ^[1] /2

Note^[1]: Fmax is determined by the instrument model. Refer to the product model list in the Overview chapter of the document.

Return Format

The query returns the center frequency in scientific notation. The unit is Hz.

Example

The following command sets the center frequency to 1 MHz.
:SENSe:FREQuency:CENTer 1000000

The following query returns 1.000000000e+06.
:SENSe:FREQuency:CENTer?

[[:SENSe]:FREQuency:CENTer:STEP:AUTO**Syntax**

[[:SENSe]:FREQuency:CENTer:STEP:AUTO <bool>
[:SENSe]:FREQuency:CENTer:STEP:AUTO?

Description

Enables or disables the auto setting mode of the CF step.
Queries the status of the auto setting mode of the CF step.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	ON 1

Return Format

The query returns 0 or 1.

Example

The following command enables the auto setting mode of the CF step.
:SENSe:FREQuency:CENTer:STEP:AUTO ON or :SENSe:FREQuency:CENTer:STEP:AUTO 1

The following query returns 1.

:SENSe:FREQuency:CENTer:STEP:AUTO?

[[:SENSe]:FREQuency:CENTer:STEP[:INCRement]]

Syntax

[[:SENSe]:FREQuency:CENTer:STEP[:INCRement]] <freq>

[[:SENSe]:FREQuency:CENTer:STEP[:INCRement]]?

Description

Sets the CF step.

Queries the CF step.

Parameter

Name	Type	Range	Default
<freq>	Real	-Fmax to Fmax	Fmax/10

Return Format

The query returns the center frequency step in scientific notation. The unit is Hz.

Example

The following command sets the CF step to 100 kHz.

:SENSe:FREQuency:CENTer:STEP:INCRement 100000

The following query returns 1.000000000e+05.

:SENSe:FREQuency:CENTer:STEP:INCRement?

[[:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude]]

Syntax

[[:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude]] <enum>

[[:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude]]?

Description

Sets the input impedance. Its unit is Ω .

Queries the input impedance.

Parameter

Name	Type	Range	Default
<enum>	Discrete	50 75	50

Remarks

If the output impedance of the system under test is 75 Ω , you should use a 75 Ω to 50 Ω adapter (option) supplied by RIGOL to connect the analyzer with the system under test, and then set the input impedance to 75 Ω .

Return Format

The query returns 50 or 75.

Example

The following command sets the input impedance to 75 Ω .

:SENSe:CORRection:IMPedance:INPut:MAGNitude 75

The following query returns 75.

:SENSe:CORRection:IMPedance:INPut:MAGNitude?

[[:SENSe]:CORRection:SA[:RF]:GAIN

Syntax

[[:SENSe]:CORRection:SA[:RF]:GAIN <rel_amp>
[:SENSe]:CORRection:SA[:RF]:GAIN?

Description

Sets the external gain.
Queries the external gain.

Parameter

Name	Type	Range	Default
<rel_amp>	Real	-120 dB to 120 dB	0 dB

Return Format

The query returns the external gain value in scientific notation. The unit is dB.

Example

The following command sets the external gain value to 20 dB.

:SENSe:CORRection:SA:RF:GAIN 20

The following query returns 2.000000000e+01.

:SENSe:CORRection:SA:RF:GAIN?

:SYSTem Commands

:SYSTem:BEEPer

Syntax

:SYSTem:BEEPer <bool>
:SYSTem:BEEPer?

Description

Enables or disables the beeper; queries the on/off status of the beeper.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	OFF 0

Return Format

The query returns 0 or 1.

Example

:SYSTem:BEEPer ON or :SYSTem:BEEPer 1 /*Enables the beeper.*/
:SYSTem:BEEPer? /*The query returns 1.*/*

:SYSTem:BRIGhtness

Syntax

:SYSTem:BRIGhtness <brightness>
:SYSTem:BRIGhtness?

Description

Sets or queries the screen brightness.

Parameter

Name	Type	Range	Default
<brightness>	Integer	0 to 100	80

Return Format

The query returns the screen brightness in integer.

Example

:SYSTem:BRIGhtness 50 /*Sets the screen brightness to 50%.*/
:SYSTem:BRIGhtness? /*The query returns 50.*/*

:SYSTem:DATE

Syntax

:SYSTem:DATE <year>,<month>,<day>
:SYSTem:DATE?

Description

Sets or queries the system date of the instrument.

Parameter

Name	Type	Range	Default
------	------	-------	---------

<year>	ASCII String	2000 to 2099	—
<month>	ASCII String	01 to 12	—
<day>	ASCII String	01 to 31	—

Return Format

The query returns the current system date in the format of "YYYY-MM-DD".

Example

:SYSTem:DATE 2017,11,16 /*Sets the system date of the instrument to Nov. 16th, 2017.*/

:SYSTem:DATE? /*The query returns 2017-11-16.*/

:SYSTem:GPIB**Syntax**

:SYSTem:GPIB <adr>

:SYSTem:GPIB?

Description

Sets or queries the GPIB address.

Parameter

Name	Type	Range	Default
<adr>	Integer	1 to 30	1

Return Format

The query returns an integer ranging from 1 to 30.

Example

:SYSTem:GPIB 2 /*Sets the GPIB address to 2.*/

:SYSTem:GPIB? /*The query returns 2.*/

:SYSTem:LANGuage**Syntax**

:SYSTem:LANGuage <enum>

Description

Sets or queries the system language of the instrument.

Parameter

Name	Type	Range	Default
<enum>	Discrete	SCHinese TCHinese KOREan JAPanese ENGLish GERMan PORTuguese POLish FRENch RUSSian SPAN THAI INDonesian	ENGLish

Remarks

SCHinese: Simplified Chinese.

TCHinese: Traditional Chinese.

KOREan: Korean.

JAPanese: Japanese.

ENGLish: English.

GERMan: German.

PORTuguese: Portuguese.

POLish: Polish.

FRENch: French.

RUSSian: Russian.
 SPAN: Spanish.
 THAI: Thai.
 INDonesian: Indonesian.

Return Format

The query returns SCH, TCH, KOR, JAP, ENGL, GERM, PORT, POL, FREN, RUSS, SPAN, THAI, or IND.

Example

```
:SYSTem:LANGUage ENGLISH /*Sets the system language to ENGLISH.*/
:SYSTem:LANGUage? /*The query returns ENGL.*/
```

:SYSTem:LOCKed

Syntax

```
:SYSTem:LOCKed<bool>
:SYSTem:LOCKed?
```

Description

Locks or unlocks the keypad.
 Queries whether the keypad is locked or not.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	OFF 0

Return Format

The query returns 0 or 1.

Example

```
:SYSTem:LOCKed 1 or :SYSTem:LOCKed ON /*Disables the touch screen operation.*/
:SYSTem:LOCKed? /*The query returns 1.*/
```

:SYSTem:OPTion:INSTall

Syntax

```
:SYSTem:OPTion:INSTall <option info>@<license info>
```

Description

Installs and activates the specified option.

Parameter

Name	Type	Range	Default
<option info>	ASCII String	--	--
<license info>	ASCII String	--	--

Remarks

The parameter <option info> indicates the order number of the option. <license info> indicates the serial number of the option.

Example

The following command installs the option RSA800-VSA.

```
:SYSTem:OPTion:INSTall RSA800-VSA@
8AD12B8EBC5DF492D1D4289B7CBA5B6150BF6F5D752D645C36D74530B05F39B49C461B23A50D
6C94A34E06782AC4380070B0D1A86BA84E02768391FFD70C2103
```

:SYSTem:OPTion:STATus?

Syntax

:SYSTem:OPTion:STATus? <option name>

Description

Queries whether the specified option is activated.

Parameter

Name	Type	Range	Default
<option name>	Discrete	BND EMI ADM VSA AMK PNM	—

Return Format

The query returns 0 (not activated) or 1 (activated).

Example

The following command queries whether the VSA option is activated.

:SYSTem:OPTion:STATus? VSA

:SYSTem:OPTion:UNINStall

Syntax

:SYSTem:OPTion:UNINStall

Description

Uninstalls all the official options.

:SYSTem:PON

Syntax

:SYSTem:PON <power_on>

:SYSTem:PON?

Description

Sets or queries the setting type when the instrument is powered on.

Parameter

Name	Type	Range	Default
<power_on>	Discrete	DEFault LATest	DEFault

Remarks

DEFault: indicates preset settings, including factory mode and 6 user-defined settings.

LATest: last settings.

Return Format

The query returns DEF or LAT.

Example

:SYSTem:PON LAT /*Sets the instrument to recall last settings at next power-on.*/

:SYSTem:PON? /*The query returns LAT.*/

:SYSTem:RESet

Syntax

:SYSTem:RESet

Description

Restarts the instrument.

:SYSTem:PRESet**Syntax**

:SYSTem:PRESet

Description

Initializes the instrument.

:SYSTem:PStatus**Syntax**

:SYSTem:PStatus <status>
:SYSTem:PStatus?

Description

Sets or queries the front-panel power switch status.

Parameter

Name	Type	Range	Default
<status>	Discrete	DEFault OPEN	DEFault

Remarks

DEFault: switches off. OPEN: switches on.

Return Format

The query returns DEF or OPEN.

Example

:SYSTem:PStatus OPEN /*Sets the power switch to be on.*/
:SYSTem:PStatus? /*The query returns OPEN.*/

:SYSTem:PWRD**Syntax**

:SYSTem:PWRD

Description

Powers off the instrument.

:SYSTem:STIME**Syntax**

:SYSTem:STIME <bool>
:SYSTem:STIME?

Description

Sets or queries whether to display the system time.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	OFF 0

Return Format

The query returns 0 or 1.

Example

:SYSTem:STIME 1 or :SYSTem:STIME ON /*Sets to display the system date.*/

:SYSTem:STIME? /*The query returns 1.*/

:SYSTem:TIME**Syntax**

:SYSTem:TIME <hour>,<minute>,<second>

:SYSTem:TIME?

Description

Sets or queries the system time of the instrument.

Parameter

Name	Type	Range	Default
<hour>	ASCII String	00 to 23	——
<minute>	ASCII String	00 to 59	——
<second>	ASCII String	00 to 59	——

Return Format

The query returns the current system time in the format of "HH:MM:SS".

Example

:SYSTem:TIME 15,10,30 /*Sets the system time of the instrument to 15:10:30.*/

:SYSTem:TIME? /*The query returns 15:10:30.*/

:SYSTem:VERSion?**Syntax**

:SYSTem:VERSion?

Description

Queries the version number of the SCPI used by the system.

:TRIGger Commands

:TRIGger[:SEQuence]:SOURce

Syntax

:TRIGger[:SEQuence]:SOURce <type>

:TRIGger[:SEQuence]:SOURce?

Description

Sets the trigger source.

Queries the trigger source.

Parameter

Name	Type	Range	Default
<type>	Discrete	IMMEDIATE EXTERNAL1 POWER	IMMEDIATE

Remarks

IMMEDIATE: indicates the free-run trigger.

EXTERNAL1: indicates the external trigger.

POWER: indicates the IF power trigger.

Return Format

The query returns IMM, EXT1, or POW.

Example

The following command sets the trigger source to external trigger.

:TRIGger:SEQuence:SOURce EXTERNAL1

The following query returns EXT1.

:TRIGger:SEQuence:SOURce?

:TRIGger[:SEQuence]:ATRigger

Syntax

:TRIGger[:SEQuence]:ATRigger <time>

:TRIGger[:SEQuence]:ATRigger?

Description

Sets the time that the analyzer will wait for the trigger to be initiated automatically.

Queries the time that the analyzer will wait for the trigger to be initiated automatically.

Parameter

Name	Type	Range	Default
<time>	Real	1 ms to 100 s	100 ms

Remarks

This command is only valid when the auto triggering function is enabled.

Return Format

The query returns the time value in scientific notation. The unit is s.

Example

The following command sets the time to 10 ms.

:TRIGger:SEQuence:ATRigger 0.01

The following query returns 1.000000000e-02.
:TRIGger:SEQuence:ATRigger?

:TRIGger[:SEQuence]:ATRigger:STATe

Syntax

:TRIGger[:SEQuence]:ATRigger:STATe <bool>
:TRIGger[:SEQuence]:ATRigger:STATe?

Description

Enables or disables the auto trigger function.
Queries the setting status of auto trigger function.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	OFF 0

Return Format

The query returns 1 or 0.

Example

The following command enables the auto trigger function.
:TRIGger:SEQuence:ATRigger:STATe ON or :TRIGger:SEQuence:ATRigger:STATe 1

The following query returns 1.
:TRIGger:SEQuence:ATRigger:STATe?

:TRIGger[:SEQuence]:EXTErnal1:DELAy

Syntax

:TRIGger[:SEQuence]:EXTErnal1:DELAy <time>
:TRIGger[:SEQuence]:EXTErnal1:DELAy?

Description

Sets the delay time for the external trigger.
Queries the delay time for the external trigger.

Parameter

Name	Type	Range	Default
<time>	Real	0 us to 500 ms	1 us

Remarks

This command is only valid when the external trigger delay function is enabled.

Return Format

The query returns the delay time for the external trigger in scientific notation. The unit is s.

Example

The following command sets the delay time for External Trigger 1 to 100 ms.
:TRIGger:SEQuence:EXTErnal1:DELAy 0.1

The following query returns 1.000000000e-01.
:TRIGger:SEQuence:EXTErnal1:DELAy?

:TRIGger[:SEQuence]:EXTernal1:DELay:STATe

Syntax

:TRIGger[:SEQuence]:EXTernal1:DELay:STATe <bool>
:TRIGger[:SEQuence]:EXTernal1:DELay:STATe?

Description

Enables or disables the external trigger delay function.
Queries the setting state of the external trigger delay function.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	OFF 0

Return Format

The query returns 1 or 0.

Example

The following command enables the delay function of External Trigger 1.

:TRIGger:SEQuence:EXTernal1:DELay:STATe ON or :TRIGger:SEQuence:EXTernal1:DELay:STATe 1

The following query returns 1.

:TRIGger:SEQuence:EXTernal1:DELay:STATe?

:TRIGger[:SEQuence]:EXTernal1:SLOPe

Syntax

:TRIGger:SEQuence:EXTernal1:SLOPe <type>
:TRIGger:SEQuence:EXTernal1:SLOPe?

Description

Sets the trigger edge for the external trigger.
Queries the trigger edge for the external trigger.

Parameter

Name	Type	Range	Default
<type>	Discrete	POSitive NEGative	POSitive

Remarks

POSitive: indicates the rising edge.
NEGative: indicates the falling edge.

Return Format

The query returns POS or NEG.

Example

The following command sets the trigger edge of External Trigger 1 to POSitive.

:TRIGger:SEQuence:EXTernal1:SLOPe POSitive

The following query returns POS.

:TRIGger:SEQuence:EXTernal1:SLOPe?

:TRIGger[:SEQuence]:IF:DELay

Syntax

:TRIGger[:SEQuence]:IF:DELay <time>
:TRIGger[:SEQuence]:IF:DELay?

Description

Sets the delay time for the IF power trigger.
Queries the delay time for the IF power trigger.

Parameter

Name	Type	Range	Default
<time>	Real	1 ms to 100 s	100 ms

Remarks

This command is only valid when the IF power trigger function is enabled.

Return Format

The query returns the time value in scientific notation. The unit is s.

Example

The following command sets the delay time for the IF power trigger to 10 ms.
:TRIGger:SEQuence:IF:DELay 0.01

The following query returns 1.000000000e-02.
:TRIGger:SEQuence:IF:DELay?

:TRIGger[:SEQuence]:IF:DELay:STATe

Syntax

:TRIGger[:SEQuence]:IF:DELay:STATe <bool>
:TRIGger[:SEQuence]:IF:DELay:STATe?

Description

Sets the delay state for the IF power trigger.
Queries the delay state for the IF power trigger.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	OFF 0

Return Format

The query returns 1 or 0.

Example

The following command enables the delay function for the IF power trigger.
:TRIGger:SEQuence:IF:DELay:STATe ON or :TRIGger:SEQuence:IF:DELay:STATe 1

The following query returns 1.
:TRIGger:SEQuence:IF:DELay:STATe?

:TRIGger[:SEQuence]:IF:LEVel

Syntax

:TRIGger[:SEQuence]:IF:LEVel <time>
 :TRIGger[:SEQuence]:IF:LEVel?

Description

Sets the trigger level of the IF power trigger.
 Queries the trigger level of the IF power trigger.

Parameter

Name	Type	Range	Default
<time>	Real	(-140+Level Offset) to (30+Level Offset)	-25 dBm

Remarks

This command is only valid when the IF power trigger function is enabled.

Return Format

The query returns the trigger level of the IF power trigger in scientific notation.

Example

The following command sets the trigger level of IF power trigger to 10 dBm.

:TRIGger:SEQuence:IF:LEVel 10

The following query returns 1.000000000e+01.

:TRIGger:SEQuence:IF:LEVel?

:TRIGger[:SEQuence]:HOLDoff

Syntax

:TRIGger[:SEQuence]:HOLDoff <time>
 :TRIGger[:SEQuence]:HOLDoff?

Description

Sets the trigger holdoff time.
 Queries the trigger holdoff time.

Parameter

Name	Type	Range	Default
<time>	Real	100 us to 500 ms (GPSA mode) 0 us to 10 s (RTSA mode)	100 ms

Remarks

This command is only valid when the trigger holdoff function is enabled.

Return Format

The query returns the trigger holdoff time in scientific notation. The unit is s.

Example

The following command sets the sync holdoff time to 100 ms.

:TRIGger:SEQuence:HOLDoff 0.1

The following query returns 1.000000000e-01.

:TRIGger:SEQuence:HOLDoff?

:TRIGger[:SEQuence]:HOLDoff:STATe

Syntax

:TRIGger[:SEQuence]:HOLDoff:STATe <bool>
 :TRIGger[:SEQuence]:HOLDoff:STATe?

Description

Turns on or off the trigger holdoff function.

Queries the status of the trigger holdoff function.

Parameter

Name	Type	Range	Default
<bool>	Bool	OFF ON 0 1	OFF 0

Return Format

The query returns 1 or 0.

Example

The following command enables the trigger holdoff function.

:TRIGger:SEQuence:HOLDoff:STATe ON or :TRIGger:SEQuence:HOLDoff:STATe 1

The following query returns 1.

:TRIGger:SEQuence:HOLDoff:STATe?

:TRIGger[:SEQuence]:PORT[:MODE]

Syntax

:TRIGger[:SEQuence]:PORT[:MODE] <type>
 :TRIGger[:SEQuence]:PORT[:MODE]?

Description

Sets the mode of the trigger port.

Queries the current mode of the trigger port.

Parameter

Name	Type	Range	Default
<type>	Discrete	IN OUT	IN

Remarks

- IN: The trigger port is used only for trigger input, and relevant trigger input configurations can be made. In this case, the Trigger Output is automatically switched to Off, and both Trigger Output and Trigger Output Polarity are grayed out and disabled.
- OUT: The trigger port is used only for trigger output, and relevant trigger output configurations can be made. In this case, the Trigger Source is automatically switched to Free Run, and the corresponding option is grayed out and disabled.

Return Format

The query returns IN or OUT.

Example

The following command sets the trigger port mode to OUT:

:TRIGger:SEQuence:PORT:MODE OUT

The following query returns OUT:

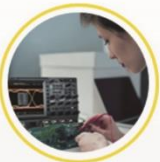
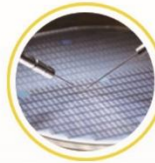
:TRIGger:SEQuence:PORT:MODE?

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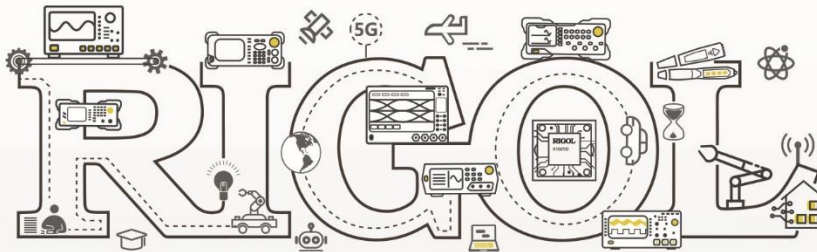
Industrial Intelligent
Manufacturing



Semiconductors



Education &
Research



Communication

System Integration



New Energy



- 5G Cellular-5G/WIFI
- UWB/RFID/ ZIGBEE
- Digital Bus/Ethernet
- Optical Communication

- Digital/Analog/RF Chip
- Memory and MCU Chip
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