



RIGOL

ADM Mode

For RSA800 Series Spectrum

Programming Guide

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Guaranty and Declaration

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1 Document Overview

This manual is your guide to programming RSA800 series spectrum analyzer by using SCPI commands through remote interface. RSA800 series can communicate with the PC via the USB or LAN (requiring to work with RIGOL USB-GPIB adaptor) interface.

Tip:

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

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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 "Utility" function menu to view the basic setting configuration items.

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 ADM 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)

2 Command System

This chapter introduces the syntax, function, parameters, and usage of each command.

2.1 :CALCulate Commands

:CALCulate:AM:MARKer:AOff

Syntax

:CALCulate:AM:MARKer:AOff

Description

Disables all the enabled markers for AM demodulation.

Remarks

To set or query the type of the analog demodulation, run the :CONFigure? command.

:CALCulate:AM:MARKer:SElect

Syntax

:CALCulate:AM:MARKer:SElect <n>

:CALCulate:AM:MARKer:SElect?

Description

Sets the selected marker.

Queries the selected marker.

Parameter

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

Return Format

The query returns 1, 2, 3, 4, 5, 6, 7, or 8.

Example

```
:CALCulate:AM:MARKer:SElect 2 /*Sets the selected marker to Marker 2.*/  
:CALCulate:AM:MARKer:SElect? /*The query returns 2.*/
```

:CALCulate:AM:MARKer<n>:CPSearch[:STATe]

Syntax

:CALCulate:AM:MARKer<n>:CPSearch[:STATe] <bool>

:CALCulate:AM:MARKer<n>:CPSearch[:STATe]?

Description

Sets the status of the continuous peak search for the AM demodulation and marks the peak with the specified marker.

Queries the status of the continuous peak search for the AM demodulation.

Parameter

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

Return Format

The query returns 0 or 1.

Example

:CALCulate:AM:MARKer1:CPSearch ON /*Enables the continuous peak search and marks the peak with Marker1.*/

:CALCulate:AM:MARKer1:CPSearch? /*The query returns 1.*/

:CALCulate:AM:MARKer<n>:CMSearch[:STATe]

Syntax

:CALCulate:AM:MARKer<n>:CMSearch[:STATe] <bool>

:CALCulate:AM:MARKer<n>:CMSearch[:STATe]?

Description

Sets the status of the continuous Min search for the AM demodulation and marks the peak with the specified marker.

Queries the on/off status of the continuous Min search for the AM demodulation.

Parameter

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

Return Format

The query returns 0 or 1.

Example

```
:CALCulate:AM:MARKer1:CMSearch ON /*Enables the continuous Min search and marks the
peak with Marker1.*/
:CALCulate:AM:MARKer1:CMSearch? /*The query returns 1.*/
```

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

```
:CALCulate:AM:MARKer<n>:REFerence <id>
```

```
:CALCulate:AM:MARKer<n>:REFerence?
```

Description

Sets the reference marker of the selected marker.

Queries the reference marker of the selected marker.

Parameter

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

Remarks

The reference marker of any marker cannot be the marker itself.

Return Format

The query returns 1, 2, 3, 4, 5, 6, 7, or 8.

Example

```
:CALCulate:AM:MARKer1:REFerence 2 /*Sets the reference marker of Marker1 to Marker2.*/
:CALCulate:AM:MARKer1:REFerence? /*The query returns 2.*/
```

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

```
:CALCulate:AM:MARKer<n>:MAXimum:LEFT
```

Description

Searches for and marks the peak closest to the left side of the current peak with the specified marker in AM demodulation.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Example

```
:CALCulate:AM:MARKer1:MAXimum:LEFT /*Searches for and marks the peak closest to the left side of the current peak with Marker1.*/
```

:CALCulate:AM:MARKer<n>:MAXimum[:MAX]

Syntax

:CALCulate:AM:MARKer<n>:MAXimum[:MAX]

Description

In AM demodulation, 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	1

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Example

```
:CALCulate:AM:MARKer1:MAXimum /*Performs one peak search and marks it Marker1.*/
```

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

Syntax

:CALCulate:AM: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 with the specified marker in AM demodulation.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Example

```
:CALCulate:AM:MARKer1:MAXimum:NEXT /*Performs next peak search operation and marks it with Marker1.*/
```

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

Syntax

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

Description

Searches for and marks the peak closest to the right side of the current peak with the specified marker in AM demodulation.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Example

```
:CALCulate:AM:MARKer1:MAXimum:RIGHT /*Searches for and marks the peak closest to the right side of the current peak with Marker1.*/
```

:CALCulate:AM:MARKer<n>:MINimum

Syntax

:CALCulate:AM:MARKer<n>:MINimum

Description

Searches for and marks the peak with the minimum amplitude on the trace with the specified marker in AM demodulation.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Example

:CALCulate:AM:MARKer1:MINimum /*Searches for and marks the peak with the minimum amplitude on the trace with Marker1.*/

:CALCulate:AM:MARKer<n>:PTPeak

Syntax

:CALCulate:AM:MARKer<n>:PTPeak

Description

In AM demodulation, performs the Pk-Pk search.

Parameter

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

Example

:CALCulate:AM:MARKer1:PTPeak /*Performs the Pk-Pk search and marks it with Marker1.*/

:CALCulate:AM:MARKer<n>:LINES[:STATe]

Syntax

:CALCulate:AM:MARKer<n>:LINES[:STATe] <bool>

:CALCulate:AM:MARKer<n>:LINES[:STATe]?

Description

Sets the marker line state for the specified marker in AM demodulation.

Queries the on/off status for the marker line of the specified marker.

Parameter

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

Return Format

The query returns 0 or 1.

Example

:CALCulate:AM:MARKer1:LINES ON /*Enables the marker line of Marker1.*/

:CALCulate:AM:MARKer1:LINES? /*The query returns 1.*/

:CALCulate:AM:MARKer<n>:MODE

Syntax

:CALCulate:AM:MARKer<n>:MODE <mode>

:CALCulate:AM:MARKer<n>:MODE?

Description

Sets the marker mode of the specified marker for the AM demodulation type.

Queries the marker mode of the specified marker for the AM demodulation type.

Parameter

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

Remarks

- POSition: indicates Position marker.
- DELTA: indicates Delta marker.
- FIXed: indicates Fixed marker.
- OFF: disables the marker.

To set or query the type of the analog demodulation, run the :CONFigure? command.

Return Format

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

Example

```
:CALCulate:AM:MARKer1:MODE OFF /*Disables Marker 1.*/  
:CALCulate:AM:MARKer1:MODE? /*The query returns OFF.*/
```

:CALCulate:AM:MARKer<n>:TRACe

Syntax

:CALCulate:AM:MARKer<n>:TRACe <type>

:CALCulate:AM:MARKer<n>:TRACe?

Description

Sets the trace marked by the specified marker in AM demodulation.

Queries the trace marked by the specified marker in AM demodulation.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	1
<type>	Discrete	RFSPectrum AFSPectrum DEMod DAverage DMAximum DMINimum	RFSPectrum

Remarks

- RFSPectrum: trace in the RF Spectrum view.
- AFSPectrum: trace in the AF Spectrum view.
- DEMod: trace in the Waveform view.
- DAVerage: Average trace in the Waveform view.
- DMAximum: Max Hold trace in the Waveform view.
- DMINimum: Min Hold trace in the Waveform view.

DAverage, DMAximum, and DMINimum are only available when you have enabled the Average state. To set or query the Average state, run the [\[:SENSe\]:AM:AVERage\[:STATe\]](#) command.

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns RFSP, AFSP, DEM, DAV, DMAx, or DMIN.

Example

```
:CALCulate:AM:MARKer1:TRACe AFSPectrum /*Sets the trace marked by Marker1 in AM demodulation to AFSPectrum trace.*/
:CALCulate:AM:MARKer1:TRACe? /*The query returns AFSP.*/
```

:CALCulate:AM:MARKer<n>:X**Syntax**

:CALCulate:AM:MARKer<n>:X <real>

:CALCulate:AM:MARKer<n>:X?

Description

Sets the X-axis value for the specified marker in AM demodulation.

Queries the X-axis value for the specified marker in AM demodulation.

Parameter

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

Remarks

<real> can be any value within the available range of the current X axis.

- When the selected trace is the following type, its X-axis indicates marker frequency, with the unit Hz.
 - RFSpectrum
 - AFSpectrum
- When the selected trace is the following type, its X-axis indicates marker time, with the unit s.
 - DEMod
 - DAVerage
 - DMAXimum
 - DMINimum

To set or query the marker trace of the specified marker in AM demodulation, run the [:CALCulate:AM:MARKer<n>:TRACe](#) command.

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the X-axis value for the specified marker in real number.

Example

```
:CALCulate:AM:MARKer1:X 150000000 /*Sets the X-axis value of Marker1 to 150 MHz.*/
:CALCulate:AM:MARKer1:X? /*The query returns 150000000.*/
```

:CALCulate:AM:MARKer<n>:Y

Syntax

:CALCulate:AM:MARKer<n>:Y <real>

:CALCulate:AM:MARKer<n>:Y?

Description

Sets the Y-axis value for the specified fixed marker in AM demodulation.

Queries the Y-axis value for the specified marker in AM demodulation.

Parameter

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

Remarks

To set or query the X-axis value for the specified marker in AM demodulation, run the `:CALCulate:AM:MARKer<n>:X` command.

To set or query the type of the analog demodulation, run the `:CONFigure:CATalog?` command.

Return Format

The query returns the Y-axis value for the specified marker in real number.

Example

```
:CALCulate:AM:MARKer1:Y /*Sets the Y-axis value for fixed Marker1 in AM demodulation to 20.*/
:CALCulate:AM:MARKer1:Y? /*The query returns 20.*/
```

:CALCulate:AM:MARKer<n>:SET:CENTer**Syntax**

:CALCulate:AM:MARKer<n>:SET:CENTer

Description

Sets the center frequency of the analyzer to the frequency of the specified marker in AM demodulation.

Parameter

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

Remarks

If Position marker is selected, the center frequency will be set to the frequency of the current marker.

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

This command is valid when the marker is in the RF Spectrum view.

To set or query the type of the analog demodulation, run the `:CONFigure?` command.

Example

```
:CALCulate:AM:MARKer1:SET:CENTer /*Sets the center frequency of the analyzer to the frequency of the Marker1 in AM demodulation.*/
```

:CALCulate:FM:MARKer:AOff

Syntax

:CALCulate:FM:MARKer:AOff

Description

Disables all the enabled markers for FM demodulation.

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

:CALCulate:FM:MARKer:SElect

Syntax

:CALCulate:FM:MARKer:SElect <n>

:CALCulate:FM:MARKer:SElect?

Description

Sets the selected marker.

Queries the selected marker.

Parameter

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

Return Format

The query returns 1, 2, 3, 4, 5, 6, 7, or 8.

Example

:CALCulate:FM:MARKer:SElect 2 /*Sets the selected marker to Marker 2.*/

:CALCulate:FM:MARKer:SElect? /*The query returns 2.*/

:CALCulate:FM:MARKer<n>:CPSearch[:STATe]

Syntax

:CALCulate:FM:MARKer<n>:CPSearch[:STATe] <bool>

:CALCulate:FM:MARKer<n>:CPSearch[:STATe]?

Description

Sets the status of the continuous peak search for the FM demodulation and marks the peak with the specified marker.

Queries the status of the continuous peak search for the FM demodulation.

Parameter

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

Return Format

The query returns 0 or 1.

Example

```
:CALCulate:FM:MARKer1:CPSearch ON /*Enables the continuous peak search and marks the
peak with Marker1.*/
:CALCulate:FM:MARKer1:CPSearch? /*The query returns 1.*/
```

:CALCulate:FM:MARKer<n>:CMSearch[:STATe]

Syntax

```
:CALCulate:FM:MARKer<n>:CMSearch[:STATe] <bool>
```

```
:CALCulate:FM:MARKer<n>:CMSearch[:STATe]?
```

Description

Sets the status of the continuous Min search for the FM demodulation and marks the peak with the specified marker.

Queries the on/off status of the continuous Min search for the FM demodulation.

Parameter

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

Return Format

The query returns 0 or 1.

Example

```
:CALCulate:FM:MARKer1:CMSearch ON /*Enables the continuous Min search and marks the
peak with Marker1.*/
:CALCulate:FM:MARKer1:CMSearch? /*The query returns 1.*/
```

:CALCulate:FM:MARKer<n>:REFerence

Syntax

:CALCulate:FM:MARKer<n>:REFerence <id>

:CALCulate:FM:MARKer<n>:REFerence?

Description

Sets the reference marker for the current marker.

Queries the reference marker for the current marker.

Parameter

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

Remarks

The reference marker of any marker cannot be the marker itself.

Return Format

The query returns 1, 2, 3, 4, 5, 6, 7, or 8.

Example

```
:CALCulate:FM:MARKer1:REFerence 2 /*Sets the reference marker of Marker1 to Marker2.*/
:CALCulate:FM:MARKer1:REFerence? /*The query returns 2.*/
```

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

Syntax

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

Description

Searches for and marks the peak closest to the left side of the current peak with the specified marker in FM demodulation.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Example

:CALCulate:FM:MARKer1:MAXimum:LEFT /*Searches for and marks the peak closest to the left side of the current peak with Marker1.*/

:CALCulate:FM:MARKer<n>:MAXimum[:MAX]

Syntax

:CALCulate:FM:MARKer<n>:MAXimum[:MAX]

Description

In FM demodulation, 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	1

Remarks

To set or query the type of the analog demodulation, run the :CONFigure? command.

Example

:CALCulate:FM:MARKer1:MAXimum /*Performs one peak search and marks it with Marker1.*/

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

Syntax

:CALCulate:FM: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 with the specified marker in FM demodulation.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the :CONFigure? command.

Example

:CALCulate:FM:MARKer1:MAXimum:NEXT /*Performs next peak search operation and marks it with Marker1.*/

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

Syntax

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

Description

Searches for and marks the peak closest to the right side of the current peak with the specified marker in FM demodulation.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Example

```
:CALCulate:FM:MARKer1:MAXimum:RIGHT /*Searches for and marks the peak closest to the right side of the current peak with Marker1.*/
```

:CALCulate:FM:MARKer<n>:MINimum

Syntax

:CALCulate:FM:MARKer<n>:MINimum

Description

Searches for and marks the peak with the minimum amplitude on the trace with the specified marker in FM demodulation.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Example

```
:CALCulate:FM:MARKer1:MINimum /*Searches for and marks the peak with the minimum amplitude on the trace with Marker1.*/
```

:CALCulate:FM:MARKer<n>:PTPeak

Syntax

:CALCulate:FM:MARKer<n>:PTPeak**Description**

In FM demodulation, performs the Pk-Pk search.

Parameter

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

Example

```
:CALCulate:FM:MARKer1:PTPeak /*Performs the Pk-Pk search and marks it with Marker1.*/
```

:CALCulate:FM:MARKer<n>:LINES[:STATe]**Syntax**

```
:CALCulate:FM:MARKer<n>:LINES[:STATe] <bool>
```

```
:CALCulate:FM:MARKer<n>:LINES[:STATe]?
```

Description

Sets the marker line state for the specified marker in FM demodulation.

Queries the on/off status for the marker line of the specified marker.

Parameter

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

Return Format

The query returns 0 or 1.

Example

```
:CALCulate:FM:MARKer1:LINES ON /*Enables the marker line of Marker1.*/
:CALCulate:FM:MARKer1:LINES? /*The query returns 1.*/
```

:CALCulate:FM:MARKer<n>:MODE**Syntax**

```
:CALCulate:FM:MARKer<n>:MODE <mode>
```

```
:CALCulate:FM:MARKer<n>:MODE?
```

Description

Sets the marker mode for the specified marker in FM demodulation.

Queries the marker mode for the specified marker in FM demodulation.

Parameter

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

Remarks

- POSition: indicates Position marker.
- DELTA: indicates Delta marker.
- FIXed: indicates Fixed marker.
- OFF: disables the marker.

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

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

Example

```
:CALCulate:FM:MARKer1:MODE OFF /*Disables Marker 1.*/
:CALCulate:FM:MARKer1:MODE? /*The query returns OFF.*/
```

:CALCulate:FM:MARKer<n>:TRACe

Syntax

:CALCulate:FM:MARKer<n>:TRACe <type>

:CALCulate:FM:MARKer<n>:TRACe?

Description

Sets the trace marked by the specified marker in FM demodulation.

Queries the trace marked by the specified marker in FM demodulation.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	1
<type>	Discrete	RFSPectrum AFSPectrum DEMod DAVerage DMAxim um DMINimum	RFSPectrum

Remarks

- RFSpectrum: trace in the RF Spectrum view.
- AFSpectrum: trace in the AF Spectrum view.
- DEMod: trace in the Waveform view.
- DAVerage: Average trace in the Waveform view.
- DMAXimum: Max Hold trace in the Waveform view.
- DMINimum: Min Hold trace in the Waveform view.

DAVerage, DMAXimum, and DMINimum are only available when you have enabled the Average state. To set or query the Average state, run the `:SENSe:FM:AVERage:STATe` command.

To set or query the type of the analog demodulation, run the `:CONFigure:CATalog?` command.

Return Format

The query returns RFSP, AFSP, DEM, DAV, DMAX, or DMIN.

Example

```
:CALCulate:FM:MARKer1:TRACe AFSpectrum /*Sets the marker trace marked by Marker1 in F
M demodulation to AFSpectrum trace.*/
:CALCulate:FM:MARKer1:TRACe? /*The query returns AFSP.*/
```

:CALCulate:FM:MARKer<n>:X

Syntax

`:CALCulate:FM:MARKer<n>:X <real>`

`:CALCulate:FM:MARKer<n>:X?`

Description

Sets the X-axis value for the specified marker in FM demodulation.

Queries the X-axis value for the specified marker in FM demodulation.

Parameter

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

Remarks

<real> can be any value within the available range of the current X axis.

- When the selected trace is the following type, its X-axis indicates marker frequency, with the unit Hz.
 - RFSPpectrum
 - AFSPpectrum
- When the selected trace is the following type, its X-axis indicates marker time, with the unit s.
 - DEMod
 - DAVerage
 - DMAXimum
 - DMINimum

To set or query the marker trace of the specified marker in FM demodulation, run the `:CALCulate:FM:MARKer<n>:TRACe` command.

To set or query the type of the analog demodulation, run the `:CONFigure?` command.

Return Format

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

Example

```
:CALCulate:FM:MARKer1:X 150000000 /*Sets the X-axis value of Marker1 to 150 MHz.*/
:CALCulate:FM:MARKer1:X? /*The query returns 150000000.*/
```

:CALCulate:FM:MARKer<n>:Y

Syntax

`:CALCulate:FM:MARKer<n>:Y <real>`

`:CALCulate:FM:MARKer<n>:Y?`

Description

Sets the Y-axis value for the specified fixed marker in FM demodulation.

Queries the Y-axis value for the specified fixed marker in FM demodulation.

Parameter

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

Remarks

To set or query the X-axis value for the specified marker in FM demodulation, run the `:CALCulate:FM:MARKer<n>:X` command.

To set or query the type of the analog demodulation, run the `:CONFigure?` command.

Return Format

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

Example

```
:CALCulate:FM:MARKer1:Y 20 /*Sets the Y-axis value for fixed Marker1 in FM demodulation to 20.*/  
:CALCulate:FM:MARKer1:Y? /*The query returns 20.*/
```

:CALCulate:FM:MARKer<n>:SET:CENTer

Syntax

`:CALCulate:FM:MARKer<n>:SET:CENTer`

Description

Sets the center frequency of the analyzer to the frequency of the specified marker in FM demodulation.

Parameter

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

Remarks

If Position marker is selected, the center frequency will be set to the frequency of the current marker.

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

This command is valid when the marker is in the RF Spectrum view.

To set or query the type of the analog demodulation, run the `:CONFigure?` command.

Example

```
:CALCulate:FM:MARKer1:SET:CENTer /*Sets the center frequency of the analyzer to the frequency of the Marker1 in FM demodulation.*/
```

:CALCulate:PM:MARKer:AOff

Syntax

`:CALCulate:PM:MARKer:AOff`

Description

Disables all the enabled markers for PM demodulation.

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

:CALCulate:PM:MARKer:SElect**Syntax**

:CALCulate:PM:MARKer:SElect <n>

:CALCulate:PM:MARKer:SElect?

Description

Sets the selected marker.

Queries the selected marker.

Parameter

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

Return Format

The query returns 1, 2, 3, 4, 5, 6, 7, or 8.

Example

```
:CALCulate:PM:MARKer:SElect 2 /*Sets the selected marker to Marker 2.*/  
:CALCulate:PM:MARKer:SElect? /*The query returns 2.*/
```

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

:CALCulate:PM:MARKer<n>:CPSearch[:STATe] <bool>

:CALCulate:PM:MARKer<n>:CPSearch[:STATe]?

Description

Sets the status of the continuous peak search for the PM demodulation and marks the peak with the specified marker.

Queries the status of the continuous peak search for the PM demodulation.

Parameter

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

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

Return Format

The query returns 0 or 1.

Example

:CALCulate:PM:MARKer1:CPSearch ON /*Enables the continuous peak search and marks the peak with Marker1.*/

:CALCulate:PM:MARKer1:CPSearch? /*The query returns 1.*/

:CALCulate:PM:MARKer<n>:CMSearch[:STATe]

Syntax

:CALCulate:PM:MARKer<n>:CMSearch[:STATe] <bool>

:CALCulate:PM:MARKer<n>:CMSearch[:STATe]?

Description

Sets the status of the continuous Min search for the PM demodulation and marks the peak with the specified marker.

Queries the on/off status of the continuous Min search for the PM demodulation.

Parameter

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

Return Format

The query returns 0 or 1.

Example

:CALCulate:PM:MARKer1:CMSearch ON /*Enables the continuous Min search and marks the peak with Marker1.*/

:CALCulate:PM:MARKer1:CMSearch? /*The query returns 1.*/

:CALCulate:PM:MARKer<n>:REFerence

Syntax

:CALCulate:PM:MARKer<n>:REFerence <id>

:CALCulate:PM:MARKer<n>:REFerence?**Description**

Sets the reference marker of the selected marker.

Queries the reference marker of the selected marker.

Parameter

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

Remarks

The reference marker of any marker cannot be the marker itself.

Return Format

The query returns 1, 2, 3, 4, 5, 6, 7, or 8.

Example

```
:CALCulate:PM:MARKer1:REFerence 2 /*Sets the reference marker of Marker1 to Marker2.*/
:CALCulate:PM:MARKer1:REFerence? /*The query returns 2.*/
```

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

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

Description

Searches for and marks the peak closest to the left side of the current peak with the specified marker in PM demodulation.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Example

```
:CALCulate:PM:MARKer1:MAXimum:LEFT /*Searches for and marks the peak closest to the left side of the current peak with Marker1.*/
```

:CALCulate:PM:MARKer<n>:MAXimum[:MAX]

Syntax

:CALCulate:PM:MARKer<n>:MAXimum[:MAX]

Description

In PM demodulation, 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	1

Remarks

To set or query the type of the analog demodulation, run the :CONFigure? command.

Example

```
:CALCulate:PM:MARKer1:MAXimum /*Performs one peak search and marks it with Marker1.*/
```

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

Syntax

:CALCulate:PM: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 with the specified marker in PM demodulation.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the :CONFigure? command.

Example

```
:CALCulate:PM:MARKer1:MAXimum:NEXT /*Performs next peak search operation and marks it with Marker1.*/
```

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

Syntax

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

Description

Searches for and marks the peak closest to the right side of the current peak with the specified marker in PM demodulation.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Example

```
:CALCulate:PM:MARKer1:MAXimum:RIGHT /*Searches for and marks the peak closest to the right side of the current peak with Marker1.*/
```

:CALCulate:PM:MARKer<n>:MINimum

Syntax

:CALCulate:PM:MARKer<n>:MINimum

Description

Searches for and marks the peak with the minimum amplitude on the trace with the specified marker in PM demodulation.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Example

```
:CALCulate:PM:MARKer1:MINimum /*Searches for and marks the peak with the minimum amplitude on the trace with Marker1.*/
```

:CALCulate:PM:MARKer<n>:PTPeak

Syntax

:CALCulate:PM:MARKer<n>:PTPeak

Description

In PM demodulation, performs the Pk-Pk search.

Parameter

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

Example

```
:CALCulate:PM:MARKer1:PTPeak /*Performs the Pk-Pk search and marks it with Marker1.*/
```

:CALCulate:PM:MARKer<n>:LINEs[:STATE]**Syntax**

```
:CALCulate:PM:MARKer<n>:LINEs[:STATE] <bool>
```

```
:CALCulate:PM:MARKer<n>:LINEs[:STATE]?
```

Description

Sets the marker line state for the specified marker in PM demodulation.

Queries the on/off status for the marker line of the specified marker in PM demodulation.

Parameter

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

Return Format

The query returns 0 or 1.

Example

```
:CALCulate:PM:MARKer1:LINEs ON /*Enables the marker line of Marker1.*/
```

```
:CALCulate:PM:MARKer1:LINEs? /*The query returns 1.*/
```

:CALCulate:PM:MARKer<n>:MODE**Syntax**

```
:CALCulate:PM:MARKer<n>:MODE <mode>
```

```
:CALCulate:PM:MARKer<n>:MODE?
```

Description

Sets the marker mode for the specified marker in PM demodulation.

Queries the marker mode for the specified marker in PM demodulation.

Parameter

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

Remarks

- POSition: indicates Position marker.
- DELTA: indicates Delta marker.
- FIXed: indicates Fixed marker.
- OFF: disables the marker.

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

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

Example

```
:CALCulate:PM:MARKer1:MODE OFF /*Disables Marker 1.*/
:CALCulate:PM:MARKer1:MODE? /*The query returns OFF.*/
```

:CALCulate:PM:MARKer<n>:TRACe

Syntax

:CALCulate:PM:MARKer<n>:TRACe <type>

:CALCulate:PM:MARKer<n>:TRACe?

Description

Sets the trace marked by the specified marker in PM demodulation.

Queries the trace marked by the specified marker in PM demodulation.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3 4 5 6 7 8	1
<type>	Discrete	RFSPectrum AFSPectrum DEMod DAverage DMaximum DMINimum	RFSPectrum

Remarks

- RFSPectrum: trace in the RF Spectrum view.

- AFSPpectrum: trace in the AF Spectrum view.
- DEMod: trace in the Waveform view.
- DAVerage: Average trace in the Waveform view.
- DMAXimum: Max Hold trace in the Waveform view.
- DMINimum: Min Hold trace in the Waveform view.

DAVerage, DMAXimum, and DMINimum are only available when you have enabled the Average state. To set or query the Average state, run the `[:SENSe]:PM:AVERage[:STATe]` command.

To set or query the type of the analog demodulation, run the `:CONFigure?` command.

Return Format

The query returns RFSPpectrum, AFSPpectrum, DEMod, DAVerage, DMAXimum or DMINimum.

Example

```
:CALCulate:PM:MARKer1:TRACe AFSPpectrum /*Sets the marker trace marked by Marker1 in P
M demodulation to AFSPpectrum trace.*/
:CALCulate:PM:MARKer1:TRACe? /*The query returns AFSP.*/
```

:CALCulate:PM:MARKer<n>:X

Syntax

`:CALCulate:PM:MARKer<n>:X <real>`

`:CALCulate:PM:MARKer<n>:X?`

Description

Sets the X-axis value for the specified marker in PM demodulation.

Queries the X-axis value for the specified marker in PM demodulation.

Parameter

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

Remarks

<real> can be any value within the available range of the current X axis.

- When the selected trace is the following type, its X-axis indicates marker frequency, with the unit Hz.
 - RFSPpectrum

- AFSpectrum
- When the selected trace is the following type, its X-axis indicates marker time, with the unit s.
 - DEMod
 - DAVerage
 - DMAXimum
 - DMINimum

To set or query the marker trace of the specified marker in PM demodulation, run the `:CALCulate:PM:MARKer<n>:TRACe` command.

To set or query the type of the analog demodulation, run the `:CONFigure?` command.

Return Format

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

Example

```
:CALCulate:PM:MARKer1:X 150000000 /*Sets the X-axis value of Marker1 to 150 MHz.*/
:CALCulate:PM:MARKer1:X? /*The query returns 150000000.*/
```

:CALCulate:PM:MARKer<n>:Y

Syntax

`:CALCulate:PM:MARKer<n>:Y <real>`

`:CALCulate:PM:MARKer<n>:Y?`

Description

Sets the Y-axis value for the specified fixed marker in PM demodulation.

Queries the Y-axis value for the specified fixed marker in PM demodulation.

Parameter

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

Remarks

To set or query the X-axis value for the specified marker in PM demodulation, run the `:CALCulate:PM:MARKer<n>:X` command.

To set or query the type of the analog demodulation, run the `:CONFigure?` command.

Return Format

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

Example

```
:CALCulate:PM:MARKer1:Y 20 /*Sets the Y-axis value for fixed Marker1 in PM demodulation to 20.*/
:CALCulate:PM:MARKer1:Y? /*The query returns 20.*/
```

:CALCulate:PM:MARKer<n>:SET:CENTer

Syntax

:CALCulate:PM:MARKer<n>:SET:CENTer

Description

Sets the center frequency of the analyzer to the frequency of the specified marker in PM demodulation.

Parameter

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

Remarks

If Position marker is selected, the center frequency will be set to the frequency of the current marker.

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

This command is valid when the marker is in the RF Spectrum view.

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Example

```
:CALCulate:PM:MARKer1:SET:CENTer /*Sets the center frequency of the analyzer to the frequency of the Marker1 in PM demodulation.*/
```

2.2 :CONFigure Commands

:CONFigure?

Syntax

:CONFigure?

Description

Queries the current measurement function.

Return Format

The query returns AM, FM, or PM.

:CONFigure:CATalog?

Syntax

:CONFigure:CATalog?

Description

Queries the currently supported measurement application.

2.3 :CALibration Commands

:CALibration[:ALL]

Syntax

:CALibration[:ALL]

Description

Executes self-calibration immediately.

Example

```
:CALibration:ALL /*Executes self-calibration immediately.*/
```

:CALibration:AUTO

Syntax

:CALibration:AUTO <bool>

:CALibration:AUTO?

Description

Enables or disables auto calibration.

Queries the on/off 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

```
:CALibration:AUTO ON /*Enables the auto calibration.*/  
:CALibration:AUTO? /*The query returns 1.*/
```

2.4 :Display Commands

:DISPlay:AM:WINDow<n>:TRACe:Y[:SCALe]:AUTo:ONCE

Syntax

:DISPlay:AM:WINDow[<n>]:TRACe:Y[:SCALe]:AUTo:ONCE

Description

Auto sets the Y-axis scale value and reference value and in AM demodulation.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3	1

Remarks

- n = 1 or not specified: RF Spectrum window. The default Y-axis reference value is 0 dB. Its range is from -170 dB to 25 dB. The default Y-axis scale value is 10 dB. Its range is from 0.1 dB to 20 dB.
- n = 2: (Demod) Waveform window. The default Y-axis reference value is 0%. Its range is from -100% to 100%. The default Y-axis scale value is 20%. Its range is from 0.1% to 1000%.
- n = 3: AF Spectrum window. The default Y-axis reference value is 100%. Its range is from 0.01% to 10000%. The default Y-axis scale value is 10 dB. Its range is from 0.1 dB to 20 dB.

:DISPlay:AM:WINDow[<n>]:TRACe:Y[:SCALe]:PDIVision

Syntax

:DISPlay:AM:WINDow[<n>]:TRACe:Y[:SCALe]:PDIVision <rel>

:DISPlay:AM:WINDow[<n>]:TRACe:Y[:SCALe]:PDIVision?

Description

Sets the Y-axis scale per division for the specified window in AM demodulation.

Queries the Y-axis scale per division for the specified window in AM demodulation.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3	1
<rel>	Real	Refer to Remarks	Refer to Remarks

Remarks

- $n = 1$ or not specified: RF Spectrum window. The default value of <rel> is 10 dB. The range of <rel> is from 0.1 dB to 20 dB.
- $n = 2$: (Demod) Waveform window. The default value of <rel> is 20%. The range of <rel> is from 0.1% to 1000%.
- $n = 3$: AF Spectrum window. The default value of <rel> is 10 dB. The range of <rel> is from 0.1 dB to 20 dB.

Return Format

The query returns the Y-axis scale value in real number.

Example

```
:DISPlay:AM:WINDow:TRACe:Y:PDIVision 0.3 /*Sets the Y-axis scale value in the RF Spectru
m window to 0.3 dB.*/
:DISPlay:AM:WINDow:TRACe:Y:PDIVision? /*The query returns 0.3.*/
```

:DISPlay:AM:WINDow[<n>]:TRACe:Y[:SCALe]:RLEVel

Syntax

:DISPlay:AM:WINDow[<n>]:TRACe:Y[:SCALe]:RLEVel <amptd>

:DISPlay:AM:WINDow[<n>]:TRACe:Y[:SCALe]:RLEVel?

Description

Sets the reference level of the specified window in AM demodulation.

Queries the reference level of the specified window in AM demodulation.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3	1
<amptd>	Real	Refer to Remarks	Refer to Remarks

Remarks

- $n = 1$ or not specified: RF Spectrum window. The default value of <amptd> is 0 dBm. The range of <amptd> is from -170 dBm to +25 dBm.
- $n = 2$: (Demod) Waveform window. The default value of <amptd> is 0%. The range of <amptd> is from -100% to 100%.
- $n = 3$: AF Spectrum window. The default value of <amptd> is 100%. The range of <amptd> is from 0.01% to 10000%.

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the reference value in real number.

Example

```
:DISPlay:AM:WINDow:TRACe:Y:RLEVel -10 /*Sets the reference value in the RF Spectrum window to -10 dBm.*/
:DISPlay:AM:WINDow:TRACe:Y:RLEVel? /*The query returns -10.*/
```

:DISPlay:FM:WINDow<n>:TRACe:Y[:SCALe]:AUTo:ONCE

Syntax

:DISPlay:FM:WINDow[<n>]:TRACe:Y[:SCALe]:AUTo:ONCE

Description

Auto sets the Y-axis scale value and reference value and in FM demodulation.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3	1

Remarks

- n = 1 or not specified: RF Spectrum window. The default Y-axis reference value is 0 dB. Its range is from -170 dB to 25 dB. The default Y-axis scale value is 10 dB. Its range is from 0.1 dB to 20 dB.
- n = 2: (Demod) Waveform window. The default Y-axis reference value is 0 Hz. Its range is from -1 MHz to 1 MHz. The default Y-axis scale value is 100 Hz. Its range is from 1 Hz to 100 kHz.
- n = 3: AF Spectrum window. The default Y-axis reference value is 100 kHz. Its range is from 1 Hz to 100 MHz. The default Y-axis scale value is 10 dB. Its range is from 0.1 dB to 20 dB.

:DISPlay:FM:WINDow[<n>]:TRACe:Y[:SCALe]:PDIVision

Syntax

:DISPlay:FM:WINDow[<n>]:TRACe:Y[:SCALe]:PDIVision <rel>

:DISPlay:FM:WINDow[<n>]:TRACe:Y[:SCALe]:PDIVision?

Description

Sets the Y-axis scale per division for the specified window in FM demodulation.

Queries the Y-axis scale per division for the specified window in FM demodulation.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3	1
<rel>	Real	Refer to Remarks	Refer to Remarks

Remarks

- n = 1 or not specified: RF Spectrum window. The default value of <rel> is 10 dB. The range of <rel> is from 0.1 dB to 20 dB.
- n = 2: (Demod) Waveform window. The default value of <rel> is 100 Hz. The range of <rel> is from 1 Hz to 100 kHz.
- n = 3: AF Spectrum window. The default value of <rel> is 10 dB. The range of <rel> is from 0.1 dB to 20 dB.

Return Format

The query returns the Y-axis scale value in real number.

Example

```
:DISPlay:FM:WINDow:TRACe:Y:PDIVision 0.3 /*Sets the Y-axis scale value in the RF Spectru
m window to 0.3*/
:DISPlay:FM:WINDow:TRACe:Y:PDIVision? /*The query returns 0.3*/
```

:DISPlay:FM:WINDow[<n>]:TRACe:Y[:SCALe]:RLEVel

Syntax

:DISPlay:FM:WINDow[<n>]:TRACe:Y[:SCALe]:RLEVel <amptd>

:DISPlay:FM:WINDow[<n>]:TRACe:Y[:SCALe]:RLEVel?

Description

Sets the reference level of the specified window in FM demodulation.

Queries the reference level of the specified window in FM demodulation.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3	1
<amptd>	Real	Refer to Remarks	Refer to Remarks

Remarks

- n = 1 or not specified: RF Spectrum window. The default value of <amptd> is 0 dBm. The range of <amptd> is from -170 dBm to +25 dBm.

- $n = 2$: (Demod) Waveform window. The default value of <amptd> is 0 Hz. The range of <amptd> is from -1 MHz to 1 MHz.
- $n = 3$: AF Spectrum window. The default value of <amptd> is 100 kHz. The range of <amptd> is from 1 Hz to 100 MHz.

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the reference value in real number.

Example

```
:DISPlay:FM:WINDow:TRACe:Y:RLEVel -10 /*Sets the reference value in the RF Spectrum window to -10 dBm.*/
:DISPlay:FM:WINDow:TRACe:Y:RLEVel? /*The query returns -10.*/
```

:DISPlay:PM:WINDow<n>:TRACe:Y[:SCALe]:AUTo:ONCE

Syntax

:DISPlay:PM:WINDow[<n>]:TRACe:Y[:SCALe]:AUTo:ONCE

Description

Auto sets the Y-axis scale value and reference value and in PM demodulation.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3	1

Remarks

- $n = 1$ or not specified: RF Spectrum window. The default Y-axis reference value is 0 dB. Its range is from -170 dB to 25 dB. The default Y-axis scale value is 10 dB. Its range is from 0.1 dB to 20 dB.
- $n = 2$: (Demod) Waveform window. The default Y-axis reference value is 0 rad. Its range is from -10 Mrad to 10 Mrad. The default Y-axis scale value is 1 rad. Its range is from 0.1 rad to 200 rad.
- $n = 3$: AF Spectrum window. The default Y-axis reference value is 10 rad. Its range is from 0.01 rad to 10000 rad. The default Y-axis scale value is 10 dB. Its range is from 0.1 dB to 20 dB.

:DISPlay:PM:WINDow[<n>]:TRACe:Y[:SCALe]:PDIVision

Syntax

:DISPlay:PM:WINDow[<n>]:TRACe:Y[:SCALe]:PDIVision <rel>

:DISPlay:PM:WINDow[<n>]:TRACe:Y[:SCALe]:PDIVision?

Description

Sets the Y-axis scale per division for the specified window in PM demodulation.

Queries the Y-axis scale per division for the specified window in PM demodulation.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3	1
<rel>	Real	Refer to Remarks	Refer to Remarks

Remarks

- n = 1 or not specified: RF Spectrum window. The default value of <rel> is 10 dB. The range of <rel> is from 0.1 dB to 20 dB.
- n = 2: (Demod) Waveform window. The default value of <rel> is 100 Hz. The range of <rel> is from 0.1 rad to 200 rad.
- n = 3: AF Spectrum window. The default value of <rel> is 10 dB. The range of <rel> is from 0.1 dB to 20 dB.

Return Format

The query returns the Y-axis scale value in real number.

Example

```
:DISPlay:PM:WINDow:TRACe:Y:PDIVision 0.3 /*Sets the Y-axis scale value in the RF Spectru
m window to 0.3 dB*/
:DISPlay:PM:WINDow:TRACe:Y:PDIVision? /*The query returns 0.3.*/*
```

:DISPlay:PM:WINDow[<n>]:TRACe:Y[:SCALe]:RLEVel

Syntax

```
:DISPlay:PM:WINDow[<n>]:TRACe:Y[:SCALe]:RLEVel <amptd>
```

```
:DISPlay:PM:WINDow[<n>]:TRACe:Y[:SCALe]:RLEVel?
```

Description

Sets the reference level of the specified window in PM demodulation.

Queries the reference level of the specified window in PM demodulation.

Parameter

Name	Type	Range	Default
<n>	Discrete	1 2 3	1
<amptd>	Real	Refer to Remarks	Refer to Remarks

Remarks

- $n = 1$ or not specified: RF Spectrum window. The default value of <amptd> is 0 dBm. The range of <amptd> is from -170 dBm to +25 dBm.
- $n = 2$: (Demod) Waveform window. The default value of <amptd> is 0 rad. The range of <amptd> is from -10 Mrad to 10 Mrad.
- $n = 3$: AF Spectrum window. The default value of <amptd> is 10 rad. The range of <amptd> is from 0.01 rad to 10000 rad.

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the reference value in real number.

Example

```
:DISPlay:PM:WINDow:TRACe:Y:RLEVel -10 /*Sets the reference value in the RF Spectrum win
dow to -10 dBm.*/
:DISPlay:PM:WINDow:TRACe:Y:RLEVel? /*The query returns -10.*/
```

2.5 :FETCh Commands

:FETCh:AM[<n>]?

Syntax

:FETCh:AM[<n>]?

Description

Queries the trace data and measurement results of AM demodulation.

Parameter

Name	Type	Range	Default
<n>	Integer	0 to 6	1

Remarks

- When n is set to 0,
the query returns the RF trace data in (x,y) format. The unit of x-axis is Hz, and the unit of Y-axis is dBm.
- When n is set to 1 or not specified, the query returns the following measurement results, separated by commas.
 - RF Center Frequency (Hz)

- Carrier Power (dBm)
- Carrier Frequency Error (Hz)
- Modulation Rate (Hz)
- SINAD (dB)
- Distortion/Total Vrms (%)
- THD (%)
- AM Modulation Depth Peak+ (%) If the Average state is enabled, the query returns the measurement results after being averaged; if disabled, the query returns the current measurement results.
- AM Modulation Depth Peak- (%) If the Average state is enabled, the query returns the measurement results after being averaged; if disabled, the query returns the current measurement results.
- AM Modulation Depth (Pk-Pk)/2 (%) If the Average state is enabled, the query returns the measurement results after being averaged; if disabled, the query returns the current measurement results.
- AM Modulation Depth RMS (%) If the Average state is enabled, the query returns the measurement results after being averaged; if disabled, the query returns the current measurement results.
- AM Modulation Depth Peak+ Max Hold (%) If the Average state is disabled, the query returns 0.
- AM Modulation Depth Peak- Max Hold(%) If the Average state is disabled, the query returns 0.
- AM Modulation Depth (Pk-Pk)/2 Max Hold (%) If the Average state is disabled, the query returns 0.
- AM Modulation Depth RMS Max Hold (%) If the Average state is disabled, the query returns 0.
- SNR (dB)
- Incidental FM (Hz), Incidental Amplitude Modulation of FM.
- When n is set to 2,
 - the query returns the Demod Min trace data in (x,y) format. The unit of x-axis is second (s), and the unit of Y-axis is %. If the Average state is disabled, the query returns NAN.

- When n is set to 3,
the query returns the Demod Max trace data in (x,y) format. The unit of x-axis is second (s), and the unit of Y-axis is %. If the Average state is disabled, the query returns NAN.
- When n is set to 4,
the query returns the Demod trace data in (x,y) format. The unit of x-axis is second (s), and the unit of Y-axis is %.
- When n is set to 5,
the query returns the Demod Average trace data in (x,y) format. The unit of x-axis is second (s), and the unit of Y-axis is %. If the Average state is disabled, the query returns NAN.
- When n is set to 6,
the query returns the AF trace data in (x,y) format. The unit of x-axis is Hz, and the unit of Y-axis is %.

To set or query the Average state, run the `[:SENSe]:AM:AVERage[:STATe]` command.

To set or query the type of the analog demodulation, run the `:CONFigure?` command.

Return Format

The query returns the trace data and measurement results of AM demodulation in strings.

Example

```
:FETCH:AM1? /*The query returns 1000000000.000,1.095,0.000,27969.727,46.116,0.495,0.193,17.923,-18.074,17.998,12.537,18.455,-18.501,18.478,12.882,46.832.*/
```

:FETCH:FM[<n>]?

Syntax

`:FETCH:FM[<n>]?`

Description

Queries the trace data and measurement results of FM demodulation.

Parameter

Name	Type	Range	Default
<n>	Integer	0 to 6	1

Remarks

- When n is set to 0,
the query returns the RF trace data in (x,y) format. The unit of x-axis is Hz, and the unit of Y-axis is dBm.

- When n is set to 1 or not specified, the query returns the following measurement results, separated by commas.
 - RF Center Frequency (Hz)
 - Carrier Power (dBm)
 - Carrier Frequency Error (Hz)
 - Modulation Rate (Hz)
 - SINAD (dB)
 - Distortion/Total Vrms (%)
 - THD (%)
 - FM Deviation Peak+ (Hz) If the Average state is enabled, the query returns the measurement results after being averaged; if disabled, the query returns the current measurement results.
 - FM Deviation Peak- (Hz) If the Average state is enabled, the query returns the measurement results after being averaged; if disabled, the query returns the current measurement results.
 - FM Deviation (Pk-Pk)/2 (Hz) If the Average state is enabled, the query returns the measurement results after being averaged; if disabled, the query returns the current measurement results.
 - FM Deviation RMS (Hz) If the Average state is enabled, the query returns the measurement results after being averaged; if disabled, the query returns the current measurement results.
 - FM Deviation Peak+ Max Hold (Hz) If the Average state is disabled, the query returns 0.
 - FM Deviation Peak- Max Hold(Hz) If the Average state is disabled, the query returns 0.
 - FM Deviation (Pk-Pk)/2 Max Hold (Hz) If the Average state is disabled, the query returns 0.
 - FM Deviation RMS Max Hold (Hz) If the Average state is disabled, the query returns 0.
 - SNR (dB)
 - Incidental AM (%): FM incidental amplitude modulation, carrier amplitude variation in FM.
- When n is set to 2,

the query returns the Demod Min trace data in (x,y) format. The unit of x-axis is second (s), and the unit of Y-axis is Hz. If the Average state is disabled, the query returns NAN.

- When n is set to 3,
the query returns the Demod Max trace data in (x,y) format. The unit of x-axis is second (s), and the unit of Y-axis is Hz. If the Average state is disabled, the query returns NAN.
- When n is set to 4,
the query returns the Demod trace data in (x,y) format. The unit of x-axis is second (s), and the unit of Y-axis is Hz.
- When n is set to 5,
the query returns the Demod Average trace data in (x,y) format. The unit of x-axis is second (s), and the unit of Y-axis is Hz. If the Average state is disabled, the query returns NAN.
- When n is set to 6,
the query returns the AF trace data in (x,y) format. The unit of x-axis is Hz, and the unit of Y-axis is Hz.

To set or query the Average state, run the `[:SENSe]:FM:AVERAge[:STATe]` command.

To set or query the type of the analog demodulation, run the `:CONFigure?` command.

Return Format

The query returns the trace data and measurement results of AM demodulation in strings.

Example

```
:FETCh:FM1? /*The query returns 1000000000.000,1.105,7.167,27969.727,13.957,20.053,13.31
0,772.399,-783.714,778.056,516.163,963.388,-1184.446,1073.917,512.596,16.479.*/
```

:FETCh:PM[<n>]?

Syntax

`:FETCh:PM[<n>]?`

Description

Queries the trace data and measurement results of PM demodulation.

Parameter

Name	Type	Range	Default
<n>	Integer	0 to 6	1

Remarks

- When n is set to 0,
the query returns the RF trace data in (x,y) format. The unit of x-axis is Hz, and the unit of Y-axis is dBm.

- When n is set to 1 or not specified, the query returns the following measurement results, separated by commas.
 - RF Center Frequency (Hz)
 - Carrier Power (dBm)
 - Carrier Frequency Error (Hz)
 - Modulation Rate (Hz)
 - SINAD (dB)
 - Distortion/Total Vrms (%)
 - THD (%)
 - PM radians Peak+ (rad) If the Average state is enabled, the query returns the measurement results after being averaged; if disabled, the query returns the current measurement results.
 - PM radians Peak- (rad) If the Average state is enabled, the query returns the measurement results after being averaged; if disabled, the query returns the current measurement results.
 - PM radians (Pk-Pk)/2 (rad) If the Average state is enabled, the query returns the measurement results after being averaged; if disabled, the query returns the current measurement results.
 - PM radians RMS (rad) If the Average state is enabled, the query returns the measurement results after being averaged; if disabled, the query returns the current measurement results.
 - PM radians Peak+ Max Hold (rad) If the Average state is disabled, the query returns 0.
 - PM radians Peak- Max Hold (rad) If the Average state is disabled, the query returns 0.
 - PM radians (Pk-Pk)/2 Max Hold (rad) If the Average state is disabled, the query returns 0.
 - PM radians RMS Max Hold (rad) If the Average state is disabled, the query returns 0.
 - SNR (dB)
- When n is set to 2,
the query returns the Demod Min trace data in (x,y) format. The unit of x-axis is second (s), and the unit of Y-axis is rad. If the Average state is disabled, the query returns NAN.

- When n is set to 3,
the query returns the Demod Max trace data in (x,y) format. The unit of x-axis is second (s), and the unit of Y-axis is rad. If the Average state is disabled, the query returns NAN.
- When n is set to 4,
the query returns the Demod trace data in (x,y) format. The unit of x-axis is second (s), and the unit of Y-axis is rad.
- When n is set to 5,
the query returns the Demod Average trace data in (x,y) format. The unit of x-axis is second (s), and the unit of Y-axis is rad. If the Average state is disabled, the query returns NAN.
- When n is set to 6,
the query returns the AF trace data in (x,y) format. The unit of x-axis is Hz, and the unit of Y-axis is rad.

To set or query the Average state, run the `[:SENSe]:PM:AVERAge[:STATe]` command.

To set or query the type of the analog demodulation, run the `:CONFigure?` command.

Return Format

The query returns the trace data and measurement results of AM demodulation in strings.

Example

```
:FETCH:PM1? /*The query returns 1000000000.000,1.106,7.150,27969.727,5.365,54.005,13.657,
0.017,-0.034,0.025,0.018,0.112,-0.103,0.107,0.030,5.655.*/
```

2.6 :INITiate Commands

:INITiate:CONTinuous

Syntax

`:INITiate:CONTinuous <bool>`

`:INITiate:CONTinuous?`

Description

Sets the current measurement to Continuous (ON|1) or Single (OFF|0) measurement.

Queries the current measurement state.

Parameter

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

Return Format

The query returns 1 or 0.

Example

```
:INITiate:CONTInuous OFF /*Sets the measurement status to Single.*/
:INITiate:CONTInuous? /*The query returns 0.*/
```

:INITiate[:IMMediate]**Syntax**

:INITiate[:IMMediate]

Description

Initiates one sweep when the average state is disabled; initiates one average/hold measurement when the average state is enabled.

:INITiate:REStart**Syntax**

:INITiate:REStart

Description

Restarts to initiate a sweep.

2.7 :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 in 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

```
:INSTRument:COUPle:FREQUency:CENTer ALL /*Enables the global CF mode.*/
:INSTRument:COUPle:FREQUency:CENTer? /*The query returns ALL.*/
```

: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:SELeCt

Syntax

:INSTrument:SCReen:SElect <name>

:INSTrument:SCReen:SElect?

Description

Switches to the specified screen.

Queries the currently selected screen.

Parameter

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

Remarks

To query the screen name, run the **:INSTrument:SCReen:CATalog?** command.

Example

```
:INSTrument:SCReen:SElect AM 2 /*Switches the screen to AM 2.*/
```

```
:INSTrument:SCReen:SElect? /*The query returns AM 2.*/
```

:INSTrument[:SElect]

Syntax

:INSTrument[:SElect] <mode>

:INSTrument[:SElect]?

Description

Selects the working mode of the instrument.

Queries the working mode of the instrument.

Parameter

Name	Type	Range	Default
<mode>	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

You are not allowed to perform the follow-up step until the command for switching to the specified working mode is completed and takes effects.

Example

```
:INSTrument:SElect AM /*The instrument enters the AM mode.*/
```

```
:INSTrument:SElect? /*The query returns AM.*/
```

2.8 :LAN Commands

The :LAN commands are used to set and query the LAN parameters.

:LAN:DHCP

Syntax

:LAN:DHCP <bool>

:LAN:DHCP?

Description

Turns on or off the DHCP configuration mode; or queries the on/off status of the current DHCP configuration mode.

Parameter

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

Remarks

- When the three IP configuration types (DHCP, Auto IP, and Static IP) are all turned on, the priority of the parameter configuration from high to low is "DHCP", "Auto IP", and "Static IP". The three IP configuration types cannot be all turned off at the same time.
- When DHCP is valid, the DHCP server in the current network will assign the network parameters (such as the IP address) for the instrument.
- After the [:LAN:APPLY](#) command is executed, the configuration type can take effect immediately.

Return Format

The query returns 1 or 0.

Example

```
:LAN:DHCP OFF      /*Disables DHCP configuration mode.*/
:LAN:DHCP?         /*The query returns 0.*/
```

:LAN:AUTOip

Syntax

:LAN:AUTOip <bool>

:LAN:AUTOip?

Description

Turns on or off the Auto IP configuration mode; or queries the on/off status of the current Auto IP

configuration mode.

Parameter

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

Remarks

When the auto IP mode is valid, disable DHCP manually. In auto IP mode, the instrument will get the IP address (ranging from 169.254.0.1 to 169.254.255.254) and the subnet mask (255.255.0.0) automatically according to the current network configuration.

Return Format

The query returns 1 or 0.

Example

```
:LAN:AUTOip OFF      /*Disables the Auto IP configuration mode.*/
:LAN:AUTOip?          /*The query returns 0.*/
```

:LAN:MANual

Syntax

:LAN:MANual <bool>

:LAN:MANual?

Description

Turns on or off the static IP configuration mode; or queries the on/off status of the static IP configuration mode.

Parameter

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

Remarks

When the static IP mode is valid, disable DHCP and Auto IP manually. You can self-define the network parameters of the instrument, such as IP address, subnet mask, gateway, and DNS address. For the setting of the IP address, refer to the [:LAN:IPADdress](#) command. For the setting of the subnet mask, refer to the [:LAN:SMASK](#) command. For the setting of the gateway, refer to the [:LAN:GATeway](#) command. For the setting of DNS, refer to the [:LAN:DNS](#) command.

Return Format

The query returns 1 or 0.

Example

```
:LAN:MANual ON      /*Enables the static IP configuration mode.*/
```

:LAN:MANual? /*The query returns 1.*/

:LAN:IPADdress

Syntax

:LAN:IPADdress <string>

:LAN:IPADdress?

Description

Sets or queries the IP address of the instrument.

Parameter

Name	Type	Range	Default
<string>	ASCII String	Refer to Remarks	-

Remarks

- The format of <string> is nnn.nnn.nnn.nnn. The range of the first section of "nnn" is from 0 to 223 (except 127), and the ranges of the other three sections of "nnn" are from 0 to 255.
- Only when the IP configuration mode is set to Static IP mode, and both DHCP and Auto IP are disabled, can you use the set IP address.

Return Format

The query returns the current IP address in strings.

Example

```
:LAN:IPADdress 192.168.1.10 /*Sets the IP address to 192.168.1.10.*/
:LAN:IPADdress? /*The query returns 192.168.1.10.*/
```

:LAN:SMASk

Syntax

:LAN:SMASk <string>

:LAN:SMASk?

Description

Sets or queries the subnet mask.

Parameter

Name	Type	Range	Default
<string>	ASCII String	Refer to Remarks	-

Remarks

- The format of <string> is nnn.nnn.nnn.nnn. The range of the section "nnn" is from 0 to 255.
- Only when the IP configuration mode is set to Static IP mode, and both DHCP and Auto IP are disabled, can you use the set subnet mask.

Return Format

The query returns the current subnet mask in strings.

Example

```
:LAN:SMASK 255.255.255.0 /*Sets the subnet mask to 255.255.255.0*/
:LAN:SMASK? /*The query returns 255.255.255.0*/
```

:LAN:GATeway

Syntax

:LAN:GATeway <string>

:LAN:GATeway?

Description

Sets or queries the default gateway.

Parameter

Name	Type	Range	Default
<string>	ASCII String	Refer to Remarks	-

Remarks

- The format of <string> is nnn.nnn.nnn.nnn. The range of the first section of "nnn" is from 0 to 223 (except 127), and the ranges of the other three sections of "nnn" are from 0 to 255.
- Only when the IP configuration mode is set to Static IP mode, and both DHCP and Auto IP are disabled, can you use the set default gateway.

Return Format

The query returns the current gateway in strings.

Example

```
:LAN:GATeway 192.168.1.1 /*Sets the default gateway to 192.168.1.1*/
:LAN:GATeway? /*The query returns 192.168.1.1*/
```

:LAN:DNS

Syntax

:LAN:DNS <string>

:LAN:DNS?**Description**

Sets or queries the DNS address.

Parameter

Name	Type	Range	Default
<string>	ASCII String	Refer to Remarks	-

Remarks

- The format of <string> is nnn.nnn.nnn.nnn. The range of the first section of "nnn" is from 0 to 223 (except 127), and the ranges of the other three sections of "nnn" are from 0 to 255.
- Only when the IP configuration mode is set to Static IP mode, and both DHCP and Auto IP are disabled, can you use the set DNS address.

Return Format

The query returns the current DNS address in strings.

Example

```
:LAN:DNS 192.168.1.1      /*Sets the DNS address to 192.168.1.1.*/
:LAN:DNS?                 /*The query returns 192.168.1.1.*/
```

:LAN:MAC?**Syntax****:LAN:MAC?****Description**

Queries the MAC address of the instrument.

Return Format

The query returns the MAC address in strings. For example, 00:19:AF:00:11:22.

:LAN:DSERver?**Syntax****:LAN:DSERver?****Description**

Queries the address of the DHCP server.

Return Format

The query returns the address of the DHCP server in strings.

:LAN:STATus?

Syntax

:LAN:STATus?

Description

Queries the current network configuration status.

Remarks

- **UNLINK:** not connected.
- **CONNECTED:** the network is successfully connected.
- **INIT:** the instrument is acquiring an IP address.
- **IPCONFLICT:** there is an IP address conflict.
- **BUSY:** please wait...
- **CONFIGURED:** the network configuration has been successfully configured.
- **DHCPFAILED:** the DHCP configuration has failed.
- **INVALIDIP:** invalid IP.
- **IPLOSE:** IP lost.

Return Format

The query returns UNLINK, CONNECTED, INIT, IPCONFLICT, BUSY, CONFIGURED, DHCPFAILED, INVALIDIP, or IPLOSE.

:LAN:VISA?

Syntax

:LAN:VISA? [<type>]

Description

Queries the VISA address of the instrument.

Parameter

Name	Type	Range	Default
<type>	Discrete	{USB LXI}	-

Remarks

This command contains a parameter "type" and it is used to set or query the address type. By default, it

returns the LXI address.

Return Format

The query returns the VISA address in strings.

:LAN:MDNS

Syntax

:LAN:MDNS <bool>

:LAN:MDNS?

Description

Enables or disables mDNS; or queries the mDNS status.

Parameter

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

Return Format

The query returns 1 or 0.

Example

```
:LAN:MDNS ON           /*Enables mDNS.*/
:LAN:MDNS?             /*The query returns 1.*/
```

:LAN:APPLY

Syntax

:LAN:APPLY

Description

Applies the network configuration.

Remarks

After configuring all the LAN-related parameters with the :LAN commands, you need to send this command to make all the LAN configurations take effect.

:LAN:HOST:NAME

Syntax

:LAN:HOST:NAME <name>

:LAN:HOST:NAME?

Description

Sets or queries the host name.

Parameter

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

Return Format

The query returns the host name in ASCII strings.

:LAN:DESCRiption

Syntax

:LAN:DESCRiption <name>

:LAN:DESCRiption?

Description

Sets or queries the description.

Parameter

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

Return Format

The query returns the description in ASCII strings.

2.9 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.

2.10 :MMEMory Commands**:MMEMory:LOAD:STATe****Syntax**

:MMEMory:LOAD:STATe <file_name>

Description

Loads the specified state file suffixed with *.sta from the default path.

Parameter

Name	Type	Range	Default
<file_name>	ASCII String	Name of the file to be loaded	-

Remarks

- The default path is "/adm/state".
- This command is valid when the specified file already exists in the default path.

Example

```
:MMEMory:LOAD:STATe mydata.sta /*Loads the file named "mydata.sta" from the default path.*
/
```

:MMEMory:STORe:SCReen**Syntax**

:MMEMory:STORe:SCReen <file_name>**Description**

Saves the current screen image as a file with the specified file name to the default path.

Parameter

Name	Type	Range	Default
<file_name>	ASCII String	-	-

Remarks

- The default path is "/adm/screen".
- If the specified file already exists, overwrite it.
- The file can be saved in "*.png", "*.bmp", or "*.jpg" format. If no suffix is added to the filename, by default, the file is saved with the suffix that you choose for the format in the screen saving user interface.

Example

```
:MMEMory:STORe:SCReen myData.png /*Saves the current screen image as a file named my
Data.png to the /adm/screen folder.*/
```

:MMEMory:STORe:SCReen:DATA?**Syntax**

:MMEMory:STORe:SCReen:DATA?

Description

Saves the screen data.

:MMEMory:STORe:STATe**Syntax**

:MMEMory:STORe:STATe <file_name>

Description

Saves the current instrument state as a file with the specified file name suffixed with "*.sta" to the default path.

Parameter

Name	Type	Range	Default
<file_name>	ASCII String	-	-

Remarks

- The default path is "/adm/state".
- If the specified file already exists, overwrite it.

Example

```
:MMEMory:STORe:STATe mydata /*Saves the current instrument state as a file named mydata.sta to the /adm/state folder.*/
```

:MMEMory:STORe:TRACe:DATA

Syntax

```
:MMEMory:LOAD:TRACe:DATA <label> <file_name>
```

Description

Saves the trace measurement data with a specified filename suffixed with ".csv" to the default path ("mode name"/measdata).

Parameter

Name	Type	Range	Default
<label>	Discrete	TRACE1 TRACE2 TRACE3 TRACE4 TRACE5 TRACE6	-
<file_name>	ASCII String	-	-

Remarks

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

TRACE1-TRACE6 indicate RFSpectrum, AFSpectrum, DEMod, DAVerage, DMAXimum, and DMINimum respectively.

Example

```
:MMEMory:STORe:TRACe:DATA TRACE1,mydata /*Saves the RFSpectrum measurement data as a file named mydata.csv to the /adm/measdata folder.*/
```

: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	-	-

:MMEMory:STORe:RESults

Syntax

:MMEMory:STORe:RESults <file_name>

Description

Saves the current measurement results with the 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

```
:MMEMory:STORe:RESults data /*Saves the current measurement results as a file named "data" to the /adm/measdata folder.*/
```

:MMEMory:USER:STORe

Syntax

:MMEMory:USER:STORe <user>

:MMEMory:USER:STORe?

Description

Selects and saves the specified preset settings.

Queries the selected preset.

Parameter

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

Example

```
:MMEMory:USER:STORe USER1 /*Selects USER1 and saves its preset settings.*/
:MMEMory:USER:STORe? /*The query returns USER1.*/
```

2.11 :SENSe Commands

[:SENSe]:FREQUency:CENTer

Syntax

[:SENSe]:FREQUency:CENTer <freq>

[:SENSe]:FREQUency:CENTer?

Description

Sets the center frequency in the RF Spectrum view.

Queries the center frequency in the RF Spectrum view.

Parameter

Name	Type	Range	Default
<freq>	Real	2.5 kHz to $F_{\max}$	1 GHz

Remarks

The maximum measurement frequency $F_{\max}$ is determined by the instrument model.

Return Format

The query returns the center frequency in the RF Spectrum view in real number. The unit is Hz.

Example

:FREQUency:CENTer 50000000 /*Sets the center frequency in the RF Spectrum view to 50 MHz.*/

:FREQUency:CENTer? /*The query returns 50000000.000000.*/

[: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	- $F_{\max}$ to $F_{\max}$	$F_{\max}/10$

Remarks

The maximum measurement frequency F_{max} is determined by the instrument model.

Return Format

The query returns the center frequency in the RF Spectrum view in real number. The unit is Hz.

Example

```
:SENSe:FREQuency:CENTer:STEP:INCRement 100000 /*Sets the CF step to 100 kHz.*/
:SENSe:FREQuency:CENTer:STEP:INCRement? /*The query returns 100000.000000.*/
```

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

Syntax

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

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

Description

Sets the CF step mode to Manual or Auto.

Queries the CF step mode.

Parameter

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

Remarks

0: sets the CF step mode to Manual.

1: sets the CF step mode to Auto.

Return Format

The query returns 1 or 0.

Example

```
:SENSe:FREQuency:CENTer:STEP:AUTO ON /*Sets the CF step mode to Auto.*/
:SENSe:FREQuency:CENTer:STEP:AUTO? /*The query returns 1.*/
```

[[:SENSe]:POWer[:RF]:ATTenuation

Syntax

[[:SENSe]:POWer[:RF]:ATTenuation <real>

[[:SENSe]:POWer[:RF]:ATTenuation?

Description

Sets the attenuation of the RF front-end attenuator.

Queries the attenuation of the RF front-end attenuator.

Parameter

Name	Type	Range	Default
<real>	Integer	0 dB to 30 dB	10 dB

Return Format

The query returns the attenuation in integer. The unit is dB.

Example

```
:SENSe:POWer:RF:ATTenuation 20 /*Sets the attenuation to 20 dB*/
:SENSe:POWer:RF:ATTenuation? /*The query returns 20.*/
```

[[:SENSe]:POWer[:RF]:ATTenuation:AUTO**Syntax**

[[:SENSe]:POWer[:RF]:ATTenuation:AUTO <bool>

[[:SENSe]:POWer[:RF]:ATTenuation:AUTO?

Description

Sets the attenuation mode to Manual or Auto.

Queries the attenuation mode.

Parameter

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

Remarks

0: sets the attenuation mode to Manual.

1: sets the attenuation mode to Auto.

Return Format

The query returns 1 or 0.

Example

```
:SENSe:POWer:RF:ATTenuation:AUTO ON /*Sets the attenuation mode to Auto.*/
:SENSe:POWer:RF:ATTenuation:AUTO? /*The query returns 1.*/
```

[[:SENSe]:POWer[:RF]:GAIN[:STATE]**Syntax**

[[:SENSe]:POWer[:RF]:GAIN[:STATE] <bool>

[[:SENSe]:POWer[:RF]:GAIN[:STATE]?

Description

Enables or disables the preamplifier (PA).

Queries the on/off status of the preamplifier (PA).

Parameter

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

Return Format

The query returns 1 or 0.

Example

```
:SENSe:POWer:RF:GAIN:STATe ON /*Enables the preamplifier (PA).*/
:SENSe:POWer:RF:GAIN:STATe? /*The query returns 1.*/
```

[[:SENSe]:POWer[:RF]:MIXer:RANGe[:UPPer]**Syntax**

[[:SENSe]:POWer[:RF]:MIXer:RANGe[:UPPer] <ampl>

[[:SENSe]:POWer[:RF]:MIXer:RANGe[:UPPer]?

Description

Sets the maximum input level of the mixer.

Queries the maximum input level of the mixer.

Parameter

Name	Type	Range	Default
<ampl>	Real	-40 dBm to -10 dBm	-10 dBm

Return Format

The query returns the maximum input level of the mixer in scientific notation. The unit is dBm.

Example

```
:SENSe:POWer:RF:MIXer:RANGe:UPPer -20 /*Sets the maximum input level of the mixer to -20 dBm.*/
:SENSe:POWer:RF:MIXer:RANGe:UPPer? /*The query returns -2.0E+01.*/
```

[[:SENSe]:AM:AFSPpectrum:BANDwidth**Syntax**

[[:SENSe]:AM:AFSPpectrum:BANDwidth <bandwidth>

[[:SENSe]:AM:AFSPpectrum:BANDwidth?

Description

Sets the AF RBW value in the AF Spectrum view for AM demodulation type.

Queries the AF RBW value in the AF Spectrum view for AM demodulation type.

Parameter

Name	Type	Range	Default
<bandwidth>	Real	Related to the span	96 Hz

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the AF resolution bandwidth in real number. Its unit is Hz.

Example

```
:AM:AFSPpectrum:BANDwidth 100000 /*Sets the AF RBW value in the AF Spectrum view for A
M demodulation type to 12 kHz.*/
:AM:AFSPpectrum:BANDwidth? /*The query returns 12000.000000.*/
```

[[:SENSe]:AM:AFSPpectrum:BANDwidth:AUTO**Syntax**

[[:SENSe]:AM:AFSPpectrum:BANDwidth:AUTO <bool>

[[:SENSe]:AM:AFSPpectrum:BANDwidth:AUTO?

Description

Sets the AF RBW Mode in the AF Spectrum view for AM demodulation type.

Queries the AF RBW Mode in the AF Spectrum view for AM demodulation type.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns 1 or 0.

Example

```
:AM:AFSPpectrum:BANDwidth:AUTO ON /*Sets the AF RBW Mode in the AF Spectrum view for
AM demodulation type to Auto.*/
:AM:AFSPpectrum:BANDwidth:AUTO? /*The query returns 1.*/
```

[[:SENSe]:AM:AFSPpectrum:FREQUENCY:START

Syntax

[[:SENSe]:AM:AFSPpectrum:FREQUENCY:START <freq>

[[:SENSe]:AM:AFSPpectrum:FREQUENCY:START?

Description

Sets the AF start frequency in the AF Spectrum view for the AM demodulation type.

Queries the AF start frequency in the AF Spectrum view for the AM demodulation type.

Parameter

Name	Type	Range	Default
<freq>	Real	0 to (40 MHz - 10 Hz)	0 Hz

Remarks

If set AF start frequency is the greater than the current AF stop frequency, then the AF stop frequency will be modified to (set AF start frequency + 10 Hz).

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the AF start frequency in real number. The unit is Hz.

Example

```
:AM:AFSPpectrum:FREQUENCY:START 10000000 /*Sets the AF start frequency in the AF Spectru
m view for AM demodulation type to 10 MHz.*/
:AM:AFSPpectrum:FREQUENCY:START? /*The query returns 10000000.000000.*/
```

[[:SENSe]:AM:AFSPpectrum:FREQUENCY:STOP

Syntax

[[:SENSe]:AM:AFSPpectrum:FREQUENCY:STOP <freq>

[[:SENSe]:AM:AFSPpectrum:FREQUENCY:STOP?

Description

Sets the AF stop frequency in the AF Spectrum view for the AM demodulation type.

Queries the AF stop frequency in the AF Spectrum view for the AM demodulation type.

Parameter

Name	Type	Range	Default
<freq>	Real	10 Hz to 40 MHz	10 kHz

Remarks

If the set AF stop frequency is the smaller than the current AF start frequency, then the start frequency will be modified to (AF stop frequency - 10 Hz).

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the AF stop frequency in real number. The unit is Hz.

Example

```
:AM:AFSPectrum:FREQuency:STOP 10000000 /*Sets the AF stop frequency in the AF Spectru
m view for AM demodulation type to 10 MHz.*/
:AM:AFSPectrum:FREQuency:STOP? /*The query returns 10000000.000000.*/
```

[[:SENSe]:AM:AVERage:COUNT

Syntax

[[:SENSe]:AM:AVERage:COUNT <count>

[[:SENSe]:AM:AVERage:COUNT?

Description

Sets the average count of the current measurement for the AM demodulation type.

Queries the average count of the current measurement for the AM demodulation type.

Parameter

Name	Type	Range	Default
<count>	Integer	1 to 10000	10

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the average count in integer.

Example

```
:AM:AVERage:COUNT 10 /*Sets the average count of the current measurement for the AM de
modulation type to 10.*/
:AM:AVERage:COUNT? /*The query returns 10.*/
```

[[:SENSe]:AM:AVERage[:STATe]

Syntax

[[:SENSe]:AM:AVERage[:STATe] <bool>

[[:SENSe]:AM:AVERage[:STATe]?

Description

Enables or disables the Average state for the AM demodulation type.

Queries the Average state for the AM demodulation type.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns 1 or 0.

Example

```
:AM:AVERage ON /*Enables the Average state.*/
:AM:AVERage? /*The query returns 1.*/
```

[[:SENSe]:AM:BANDwidth|BWIDth:CHANnel

Syntax

[[:SENSe]:AM:BANDwidth|BWIDth:CHANnel <freq>

[[:SENSe]:AM:BANDwidth|BWIDth:CHANnel?

Description

Sets the channel bandwidth for the AM demodulation type.

Queries the channel bandwidth for the AM demodulation type.

Parameter

Name	Type	Range	Default
<freq>	Real	Refer to Remarks	25 kHz

Remarks

- The range of the <freq> parameter is from 40 Hz to 40 MHz.
- The channel bandwidth shall be smaller than or equal to the span. If the set channel bandwidth is greater than the current span, the span will be modified to the channel bandwidth. To set or query the current span in the RF Spectrum view for the AM demodulation type, run the [\[:SENSe\]:AM:FREQuency:SPAN](#) command.
- To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the channel bandwidth in real number. Its unit is Hz.

Example

```
:AM:BANDwidth|BWIDth:CHANnel 100000 /*Sets the channel bandwidth in the RF Spectrum view for AM demodulation type to 100 kHz.*/
```

```
:AM:BANDwidth|BWIDth:CHANnel? /*The query returns 100000.000000.*/
```

[[:SENSe]:AM:FREQuency:SPAN

Syntax

[[:SENSe]:AM:FREQuency:SPAN

[[:SENSe]:AM:FREQuency:SPAN?

Description

Sets the span in the RF Spectrum view for AM demodulation type.

Queries the span in the RF Spectrum view for AM demodulation type.

Parameter

Name	Type	Range	Default
	Real	Refer to Remarks	75 kHz

Remarks

- The range of the parameter is dependent on frequency f , where $F_{\max}$ denotes the maximum measurement frequency determined by the instrument model.
 - $5 \text{ kHz} \leq f \leq 100 \text{ MHz}$: 5kHz to 20 MHz
 - $100 \text{ MHz} < f \leq F_{\max}$: 5kHz to 40 MHz
- The span shall be equal to or greater than the channel bandwidth. If the set span is smaller than the current bandwidth, the current channel bandwidth will be modified to the span accordingly. To set or query the channel bandwidth in the AM demodulation, run the [\[:SENSe\]:AM:BANDwidth|BWIDth:CHANnel](#) command.
- To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the span in the RF Spectrum view in real number. The unit is Hz.

Example

```
:AM:FREQuency:SPAN 100000 /*Sets the span in the RF Spectrum view for AM demodulation type to 100 kHz.*/
```

```
:AM:FREQuency:SPAN? /*The query returns 100000.000000.*/
```

[[:SENSe]:AM:SWEep:POINts

Syntax

[[:SENSe]:AM:SWEep:POINts <integer>

[[:SENSe]:AM:SWEep:POINts

Description

Sets the number of sweep points in AM demodulation.

Queries the number of sweep points in AM demodulation.

Parameter

Name	Type	Range	Default
<integer>	Integer	101 to 20001	2001

Return Format

The query returns the number of sweep points in integer.

Example

:SENSe:AM:SWEep:POINts 650 /*Sets the number of sweep points in AM demodulation to 650.*/
 :SENSe:AM:SWEep:POINts? /*The query returns 650.*/*

[[:SENSe]:FM:AFSPectrum:BANDwidth

Syntax

[[:SENSe]:FM:AFSPectrum:BANDwidth <bandwidth>

[[:SENSe]:FM:AFSPectrum:BANDwidth?

Description

Sets the AF RBW value in the AF Spectrum view for FM demodulation type.

Queries the AF RBW value in the AF Spectrum view for FM demodulation type.

Parameter

Name	Type	Range	Default
<bandwidth>	Real	Related to the span	96 Hz

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the AF resolution bandwidth in real number. Its unit is Hz.

Example

:FM:AFSPpectrum:BANDwidth 100000 /*Sets the AF RBW value in the AF Spectrum view for FM demodulation type to 100 kHz.*/
FM:AFSPpectrum:BANDwidth? /*The query returns 100000.000000.*/

[[:SENSe]:FM:AFSPpectrum:BANDwidth:AUTO

Syntax

[[:SENSe]:FM:AFSPpectrum:BANDwidth:AUTO <bool>

[[:SENSe]:FM:AFSPpectrum:BANDwidth:AUTO?

Description

Sets the AF RBW Mode in the AF Spectrum view for FM demodulation type.

Queries the AF RBW Mode in the AF Spectrum view for FM demodulation type.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns 1 or 0.

Example

:FM:AFSPpectrum:BANDwidth:AUTO ON /*Sets the AF RBW Mode in the AF Spectrum view for FM demodulation type to Auto.*/
:FM:AFSPpectrum:BANDwidth:AUTO? /*The query returns 1.*/

[[:SENSe]:FM:AFSPpectrum:FREQuency:START

Syntax

[[:SENSe]:FM:AFSPpectrum:FREQuency:START <freq>

[[:SENSe]:FM:AFSPpectrum:FREQuency:START?

Description

Sets the AF start frequency in the AF Spectrum view for the FM demodulation type.

Queries the AF start frequency in the AF Spectrum view for the FM demodulation type.

Parameter

Name	Type	Range	Default
<freq>	Real	0 to (40 MHz - 10 Hz)	0 Hz

Remarks

If set AF start frequency is the greater than the current AF stop frequency, then the AF stop frequency will be modified to (set AF start frequency + 10 Hz).

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the AF start frequency in real number. The unit is Hz.

Example

```
:FM:AFSPectrum:FREQuency:START 10000000 /*Sets the AF start frequency in the AF Spectru
m view for FM demodulation type to 10 MHz.*/
:FM:AFSPectrum:FREQuency:START? /*The query returns 10000000.000000.*/
```

[[:SENSe]:FM:AFSPectrum:FREQuency:STOP**Syntax**

[[:SENSe]:FM:AFSPectrum:FREQuency:STOP <freq>

[[:SENSe]:FM:AFSPectrum:FREQuency:STOP?

Description

Sets the AF stop frequency in the AF Spectrum view for the FM demodulation type.

Queries the AF stop frequency in the AF Spectrum view for the FM demodulation type.

Parameter

Name	Type	Range	Default
<freq>	Real	10 Hz to 40 MHz	10 kHz

Remarks

If the set AF stop frequency is the smaller than the current AF start frequency, then the start frequency will be modified to (AF stop frequency - 10 Hz).

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the AF stop frequency in real number. The unit is Hz.

Example

```
:FM:AFSPectrum:FREQuency:STOP 10000000 /*Sets the AF stop frequency in the AF Spectru
m view for FM demodulation type to 10 MHz.*/
:FM:AFSPectrum:FREQuency:STOP? /*The query returns 10000000.000000.*/
```

[[:SENSe]:FM:AVERage:COUNT**Syntax**

[[:SENSe]:FM:AVERage:COUNT <integer>

[[:SENSe]:FM:AVERage:COUNT?**Description**

Sets the average count of the current measurement for the FM demodulation type.

Queries the average count of the current measurement for the FM demodulation type.

Parameter

Name	Type	Range	Default
<count>	Integer	1 to 10000	10

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the average count in integer.

Example

```
:FM:AVERage:COUNT 10 /*Sets the average count of the current measurement for the FM de  
modulation type.*/
```

```
:FM:AVERage:COUNT? /*The query returns 10.*/
```

[[:SENSe]:FM:AVERage[:STATe]**Syntax**

[[:SENSe]:FM:AVERage[:STATe] <bool>

[[:SENSe]:FM:AVERage[:STATe]?]

Description

Enables or disables the Average state for the FM demodulation type.

Queries the Average state for the FM demodulation type.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns 1 or 0.

Example

```
:FM:AVERage ON /*Enables the Average state.*/
```

:FM:AVERage? /*The query returns 1.*/

[[:SENSe]:FM:BANDwidth|BWIDth:CHANnel

Syntax

[[:SENSe]:FM:BANDwidth|BWIDth:CHANnel <freq>

[[:SENSe]:FM:BANDwidth|BWIDth:CHANnel?

Description

Sets the channel bandwidth for the FM demodulation type.

Queries the channel bandwidth for the FM demodulation type.

Parameter

Name	Type	Range	Default
<freq>	Real	Refer to Remarks	25 kHz

Remarks

- The range of <freq> is from 40 Hz to 80 MHz.
- The channel bandwidth shall be smaller than or equal to the span. If the set channel bandwidth is greater than the current span, the span will be modified to the channel bandwidth. To set or query the current span in the RF Spectrum view for the FM demodulation type, run the [\[:SENSe\]:FM:FREQuency:SPAN](#) command.
- To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the channel bandwidth in real number. Its unit is Hz.

Example

:FM:BANDwidth|BWIDth:CHANnel 100000 /*Sets the channel bandwidth in the RF Spectrum view for FM demodulation type to 100 kHz.*/

:FM:BANDwidth|BWIDth:CHANnel? /*The query returns 100000.000000.*/

[[:SENSe]:FM:FREQuency:SPAN

Syntax

**[[:SENSe]:FM:FREQuency:SPAN **

[[:SENSe]:FM:FREQuency:SPAN?

Description

Sets the span in the RF Spectrum view for FM demodulation type.

Queries the span in the RF Spectrum view for FM demodulation type.

Parameter

Name	Type	Range	Default
	Real	Refer to Remarks	75 kHz

Remarks

- The range of the parameter is from 5 kHz to 80 MHz.
- The span shall be equal to or greater than the channel bandwidth. If the set span is smaller than the current bandwidth, the current channel bandwidth will be modified to the span accordingly. To set or query the channel bandwidth in the FM demodulation, run the [\[:SENSe\]:FM:BANDwidth|BWIDth:CHANnel](#) command.
- To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the span in the RF Spectrum view in real number. The unit is Hz.

Example

```
:FM:FREQUENCY:SPAN 100000 /*Sets the span in the RF Spectrum view for FM demodulation
type to 100 kHz.*/
:FM:FREQUENCY:SPAN? /*The query returns 100000.000000.*/
```

[[:SENSe]:FM:SWEep:POINts**Syntax**

[[:SENSe]:FM:SWEep:POINts <integer>

[[:SENSe]:FM:SWEep:POINts

Description

Sets the number of sweep points in FM demodulation.

Queries the number of sweep points in FM demodulation.

Parameter

Name	Type	Range	Default
<integer>	Integer	101 to 20001	2001

Return Format

The query returns the number of sweep points in integer.

Example

```
:SENSe:FM:SWEep:POINts 650 /*Sets the number of sweep points in FM demodulation to 650.*/
:SENSe:FM:SWEep:POINts? /*The query returns 650.*/
```

[[:SENSe]:PM:AFSPpectrum:BANDwidth

Syntax

[[:SENSe]:PM:AFSPpectrum:BANDwidth <bandwidth>

[[:SENSe]:PM:AFSPpectrum:BANDwidth?

Description

Sets the AF RBW value in the AF Spectrum view for PM demodulation type.

Queries the AF RBW value in the AF Spectrum view for PM demodulation type.

Parameter

Name	Type	Range	Default
<bandwidth>	Real	Related to the span	96 Hz

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the AF resolution bandwidth in real number. Its unit is Hz.

Example

```
:PM:AFSPpectrum:BANDwidth 100000 /*Sets the AF RBW value in the AF Spectrum view for P
M demodulation type to 100 kHz.*/
:PM:AFSPpectrum:BANDwidth? /*The query returns 100000.000000.*/
```

[[:SENSe]:PM:AFSPpectrum:BANDwidth:AUTO

Syntax

[[:SENSe]:PM:AFSPpectrum:BANDwidth:AUTO <bool>

[[:SENSe]:PM:AFSPpectrum:BANDwidth:AUTO?

Description

Sets the AF RBW Mode in the AF Spectrum view for PM demodulation type.

Queries the AF RBW Mode in the AF Spectrum view for PM demodulation type.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns 1 or 0.

Example

```
:PM:AFSPpectrum:BANDwidth:AUTO ON /*Sets the AF RBW Mode in the AF Spectrum view for PM demodulation type to Auto.*/  
:PM:AFSPpectrum:BANDwidth:AUTO? /*The query returns 1.*/
```

[[:SENSE]:PM:AFSPpectrum:FREQUENCY:START

Syntax

[[:SENSE]:PM:AFSPpectrum:FREQUENCY:START <freq>

[[:SENSE]:PM:AFSPpectrum:FREQUENCY:START?

Description

Sets the AF start frequency in the AF Spectrum view for the PM demodulation type.

Queries the AF start frequency in the AF Spectrum view for the PM demodulation type.

Parameter

Name	Type	Range	Default
<freq>	Real	0 to (40 MHz - 10 Hz)	0 Hz

Remarks

If set AF start frequency is the greater than the current AF stop frequency, then the AF stop frequency will be modified to (set AF start frequency + 10 Hz).

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the AF start frequency in real number. The unit is Hz.

Example

```
:PM:AFSPpectrum:FREQUENCY:START 10000000 /*Sets the AF start frequency in the AF Spectrum view for PM demodulation type to 10 MHz.*/  
:PM:AFSPpectrum:FREQUENCY:START? /*The query returns 10000000.000000.*/
```

[[:SENSE]:PM:AFSPpectrum:FREQUENCY:STOP

Syntax

[[:SENSE]:PM:AFSPpectrum:FREQUENCY:STOP <freq>

[[:SENSE]:PM:AFSPpectrum:FREQUENCY:STOP?

Description

Sets the AF stop frequency in the AF Spectrum view for the PM demodulation type.

Queries the AF stop frequency in the AF Spectrum view for the PM demodulation type.

Parameter

Name	Type	Range	Default
<freq>	Real	10 Hz to 40 MHz	10 kHz

Remarks

If the set AF stop frequency is the smaller than the current AF start frequency, then the start frequency will be modified to (AF stop frequency - 10 Hz).

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the AF stop frequency in real number. The unit is Hz.

Example

```
:PM:AFSPectrum:FREQuency:STOP 10000000 /*Sets the AF stop frequency in the AF Spectru
m view for PM demodulation type to 10 MHz.*/
:PM:AFSPectrum:FREQuency:STOP? /*The query returns 10000000.000000.*/
```

[[:SENSe]:PM:AVERage:COUNT**Syntax**

[[:SENSe]:PM:AVERage:COUNT <integer>

[[:SENSe]:PM:AVERage:COUNT?

Description

Sets the average count of the current measurement for the PM demodulation type.

Queries the average count of the current measurement for the PM demodulation type.

Parameter

Name	Type	Range	Default
<count>	Integer	1 to 10000	10

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns the average count in integer.

Example

```
:PM:AVERage:COUNT 10 /*Sets the average count of the current measurement for the PM de
modulation type.*/
:PM:AVERage:COUNT? /*The query returns 10.*/
```

[[:SENSE]:PM:AVERage[:STATe]

Syntax

[[:SENSE]:PM:AVERage[:STATe] <bool>

[[:SENSE]:PM:AVERage[:STATe]?]

Description

Enables or disables the Average state for the PM demodulation type.

Queries the Average state for the PM demodulation type.

Parameter

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

Remarks

To set or query the type of the analog demodulation, run the [:CONFigure?](#) command.

Return Format

The query returns 1 or 0.

Example

```
:PM:AVERage ON /*Enables the Average state.*/  
:PM:AVERage? /*The query returns 1.*/
```

[[:SENSE]:PM:BANDwidth|BWIDth:CHANnel

Syntax

[[:SENSE]:PM:BANDwidth|BWIDth:CHANnel <freq>

[[:SENSE]:PM:BANDwidth|BWIDth:CHANnel?]

Description

Sets the channel bandwidth for the PM demodulation type.

Queries the channel bandwidth for the PM demodulation type.

Parameter

Name	Type	Range	Default
<freq>	Real	Refer to Remarks	25 kHz

Remarks

- The range of <freq> is from 40 Hz to 80 MHz.

- The channel bandwidth shall be smaller than or equal to the span. If the set channel bandwidth is greater than the current span, the span will be modified to the channel bandwidth. To set or query the current span in the RF Spectrum view for the PM demodulation type, run the `[[:SENSe]:PM:FREQuency:SPAN]` command.
- To set or query the type of the analog demodulation, run the `:CONFigure?` command.

Return Format

The query returns the channel bandwidth in real number. Its unit is Hz.

Example

```
:PM:BANDwidth|BWIDth:CHANnel 100000 /*Sets the channel bandwidth in the RF Spectrum view for PM demodulation type to 100 kHz.*/
:PM:BANDwidth|BWIDth:CHANnel? /*The query returns 100000.000000.*/
```

[[:SENSe]:PM:FREQuency:SPAN]

Syntax

`[[:SENSe]:PM:FREQuency:SPAN <span>`

`[[:SENSe]:PM:FREQuency:SPAN?`

Description

Sets the span in the RF Spectrum view for PM demodulation type.

Queries the span in the RF Spectrum view for PM demodulation type.

Parameter

Name	Type	Range	Default
	Real	Refer to Remarks	75 kHz

Remarks

- The range of the parameter is from 5 kHz to 80 MHz.
- The span shall be equal to or greater than the channel bandwidth. If the set span is smaller than the current bandwidth, the current channel bandwidth will be modified to the span accordingly. To set or query the channel bandwidth in the PM demodulation, run the `[[:SENSe]:PM:BANDwidth|BWIDth:CHANnel]` command.
- To set or query the type of the analog demodulation, run the `:CONFigure?` command.

Return Format

The query returns the span in the RF Spectrum view in real number. The unit is Hz.

Example

:PM:FREQuency:SPAN 100000 /*Sets the span in the RF Spectrum view for PM demodulation type to 100 kHz.*/
 :PM:FREQuency:SPAN? /*The query returns 100000.000000.*/

[[:SENSe]:PM:SWEep:POINTs

Syntax

[[:SENSe]:PM:SWEep:POINTs <integer>

[[:SENSe]:PM:SWEep:POINTs

Description

Sets the number of sweep points in PM demodulation.

Queries the number of sweep points in PM demodulation.

Parameter

Name	Type	Range	Default
<integer>	Integer	101 to 20001	2001

Return Format

The query returns the number of sweep points in integer.

Example

:SENSe:PM:SWEep:POINTs 650 /*Sets the number of sweep points in PM demodulation to 650.*/
 :SENSe:PM:SWEep:POINTs? /*The query returns 650.*/

[[:SENSe]:DEMod:DWSWeep:TIME

Syntax

[[:SENSe]:DEMod:DWSWeep:TIME <time>

[[:SENSe]:DEMod:DWSWeep:TIME?

Description

Sets the demodulation waveform time of the analyzer in the Demod Waveform view.

Queries the demodulation waveform time of the analyzer in the Demod Waveform view.

Parameter

Name	Type	Range	Default
<time>	Real	100 ns to 2 s	2 ms

Return Format

The query returns the demodulation waveform time of the analyzer in the Demod Waveform view in

scientific notation. The default unit is s.

Example

```
:SENSe:DEMod:DWSWeep:TIME 0.139 /*Sets the demodulation waveform time of the analyzer
in the Demod Waveform view to 139 ms*/
:SENSe:DEMod:DWSWeep:TIME? /*The query returns +1.38996445312500E-01.*/
```

[: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

```
:SENSe:CORRection:IMPedance:INPut:MAGNitude 75 /*Sets the input impedance to 75  $\Omega$ .*/
:SENSe:CORRection:IMPedance:INPut:MAGNitude? /*The query returns 75.*/
```

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

Syntax

[:SENSe]:CORRection:SA[:RF]:GAIN <amp;gt;

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

Description

Sets the external gain.

Queries the external gain.

Parameter

Name	Type	Range	Default
<ampl>	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

```
:SENSe:CORRection:SA:RF:GAIN 3 /*Sets the external gain value to 3 dB.*/
:SENSe:CORRection:SA:RF:GAIN? /*The query returns 3.0E+00.*/
```

[:SENSe]:HPFilter

Syntax

[:SENSe]:HPFilter <type>

[:SENSe]:HPFilter?

Description

Sets the ADM audio high-pass filter.

Queries the status of the ADM audio high-pass filter.

Parameter

Name	Type	Range	Default
<type>	Discrete	OFF HPF20 HPF50 HPF300 HPF400 MANual	OFF

Remarks

- OFF: Default option, filter disabled
- HPF20: Pass signals with frequency ≥ 20 Hz
- HPF50: Pass signals with frequency ≥ 50 Hz
- HPF300: Pass signals with frequency ≥ 300 Hz
- HPF400: Pass signals with frequency ≥ 400 Hz
- Manual: Manually customize the cutoff frequency of the high-pass filter

Return Format

The query returns OFF, HPF20, HPF50, HPF300, HPF400 or MANUAL.

Example

```
:SENSe:HPFilter HPF20 /*Set ADM audio high-pass filter to HPF20*/
:SENSe:HPFilter? /*Query and return HPF20*/
```

[[:SENSe]:HPFilter:MANual[:FREQUENCY]**Syntax**

```
[[:SENSe]:HPFilter:MANual[:FREQUENCY] <freq>
```

```
[[:SENSe]:HPFilter:MANual [:FREQUENCY]?
```

Description

Sets the manual cutoff frequency of the ADM audio high-pass filter.

Queries the manual cutoff frequency of the ADM audio high-pass filter.

Parameter

Name	Type	Range	Default
<freq>	Real	-10 ¹⁵ Hz ~ 10 ¹⁵ Hz	0 Hz

Remarks

This command takes effect only when the parameter of **[[:SENSe]:HPFilter** is set to MANual.

Return Format

The query returns the manual cutoff frequency of the ADM audio high-pass filter in scientific notation, with the unit of Hz.

Example

```
:SENSe:HPFilter:MANual 20 /* Set the manual cutoff frequency of ADM audio high-pass filter
to 20Hz */
:SENSe:HPFilter:MANual? /* Query and return 20 */
```

[[:SENSe]:LPFilter**Syntax**

```
[[:SENSe]:LPFilter <type>
```

```
[[:SENSe]:LPFilter?
```

Description

Sets the ADM audio low-pass filter.

Queries the status of the ADM audio low-pass filter.

Parameter

Name	Type	Range	Default
<type>	Discrete	OFF LPF300 LPF3K LPF3K4 LPF15K LPF30K LPF80K LPF300K LPF100K MANual	OFF

Remarks

- OFF: Default option, filter disabled
- LPF300: Pass signals with frequency ≤ 300 Hz
- LPF3K: Pass signals with frequency ≤ 3 kHz
- LPF3K4: Pass signals with frequency ≤ 3.4 kHz
- LPF15K: Pass signals with frequency ≤ 15 kHz
- LPF30K: Pass signals with frequency ≤ 30 kHz
- LPF80K: Pass signals with frequency ≤ 80 kHz
- LPF300K: Pass signals with frequency ≤ 300 kHz
- LPF100K: Pass signals with frequency ≤ 100 kHz
- Manual: Manually customize the cutoff frequency of the low-pass filter

Return Format

The query returns OFF, LPF300, LPF3K, LPF3K4, LPF15K, LPF30K, LPF80K, LPF300K, LPF100K or MANual.

Example

```
:SENSe:LPFilter LPF100K /* Set the type of ADM audio low-pass filter to LPF100K */
:SENSe:LPFilter? /* Query and return LPF100K */
```

[:SENSe]:LPFilter:MANual[:FREQuency]

Syntax

[:SENSe]:LPFilter:MANual[:FREQuency] <freq>

[:SENSe]:LPFilter:MANual[:FREQuency]?

Description

Sets the manual cutoff frequency of the ADM audio low-pass filter.

Queries the manual cutoff frequency of the ADM audio low-pass filter.

Parameter

Name	Type	Range	Default
<freq>	Real	-10 ¹⁵ Hz ~ 10 ¹⁵ Hz	0 Hz

Remarks

This command is only valid when the parameter of **[[:SENSe]:LPFilter]** is set to MANual.

Return Format

The query returns the manual cutoff frequency of the ADM audio low-pass filter in scientific notation, in Hz.

Example

```
:SENSe:LPFilter:MANual 2000 /* Set the manual cutoff frequency of ADM audio low-pass filter
to 2000 Hz */
:SENSe:LPFilter:MANual? /* Query and return 2000 */
```

2.12 :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 the screen brightness.

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 the system date of the instrument.

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 to */
Nov. 16th, 2017.*/
:SYSTem:DATE? /*The query returns 2017-11-16.*/
```

:SYSTem:LANGUage

Syntax

:SYSTem:LANGUage <lan>

:SYSTem:LANGUage?

Description

Sets the language of the instrument.

Queries the language of the instrument.

Parameter

Name	Type	Range	Default
<lan>	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

Enables or disables the keypad operation.

Queries the on/off status of the keypad operation.

Parameter

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

Return Format

The query returns 0 or 1.

Example

```
:SYSTem:LOCKed ON or :SYSTem:LOCKed 1 /*Disables the keypad 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

- <option info> indicates the Order No.
- <license info> indicates the option serial number.

Return Format

The query returns the trace data and measurement results of AM demodulation in strings.

Example

```
:SYSTem:OPTion:INSTall RSA800-ADM@
8AD12B8EBC5DF492D1D4289B7CBA5B6150BF6F5D752D645C36D74530B05F39B49C461B23A5
0D6C94A34E06782AC4380070B0D1A86BA84E02768391FFD70C2103
/*Installs the option RSA800-ADM.*/
```

:SYSTem:OPTion:STATe?**Syntax**

:SYSTem:OPTion:STATe? option name

Description

Queries whether an option is activated or not.

Parameter

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

Return Format

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

Example

```
:SYSTem:OPTion:STATe? ADM /*Queries whether the ADM option is activated.*/
```

:SYSTem:OPTion:UNINStall**Syntax**

:SYSTem:OPTion:UNINStall

Description

Uninstalls all the official options.

:SYSTem:PON**Syntax**

:SYSTem:PON <power_on>

:SYSTem:PON?

Description

Selects the setting type the instrument recalls at power-on.

Queries what setting type the instrument recalls at power-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

Resets the system to power on.

:SYSTem:PSTatus

Syntax

:SYSTem:PSTatus <status>

:SYSTem:PSTatus?

Description

Sets the power switch to be on or off.

Queries the status of power switch.

Parameter

Name	Type	Range	Default
<status>	Discrete	DEFault OPEN	DEFault

Remarks

- DEFault: switch off.
- OPEN: switch 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

Sets the system to power off.

:SYSTem:TIME

Syntax

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

:SYSTem:TIME?

Description

Sets the system time of the instrument.

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

:SYSTem:STIME

Syntax

:SYSTem:STIME <bool>

:SYSTem:STIME?

Description

Sets whether to display the system date and time.

Queries whether to display the system date and 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 ON or :SYSTem:STIME 1 /*Sets to display the system date.*/  
:SYSTem:STIME? /*The query returns 1.*/
```

:SYSTem:VERSion?

Syntax

:SYSTem:VERSion?

Description

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

2.13 :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

```
:TRIGger:SEQuence:SOURce EXTERNAL1 /*Sets the trigger source to external trigger.*/  
:TRIGger:SEQuence:SOURce? /*The query returns EXT1.*/*
```

: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

```
:TRIGger:SEquence:ATRigger 0.2 /*Sets the auto trigger time to 200 ms.*/  
:TRIGger:SEquence:ATRigger? /*The query returns 2.0E-01.*/
```

: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

```
:TRIGger:SEquence:ATRigger:STATE ON /*Enables the auto trigger.*/  
:TRIGger:SEquence:ATRigger:STATE? /*The query returns 1.*/
```

: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 to 500 ms	1 μ s

Remarks

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

Return Format

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

Example

```
:TRIGger:SEquence:EXternal1:DElay 0.1 /*Sets the external trigger delay time to 100 ms.*/
:TRIGger:SEquence:EXternal1:DElay? /*The query returns 1.0E-01.*/
```

: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

```
:TRIGger:SEquence:EXternal1:DElay:STATe ON /*Enables the external trigger delay function.*/
:TRIGger:SEquence:EXternal1:DElay:STATe? /*The query returns 1.*/
```

:TRIGger[:SEquence]:EXternal1:SLOPe**Syntax**

:TRIGger[:SEQuence]:EXTernal1:SLOPe <type>

:TRIGger[:SEQuence]:EXTernal1:SLOPe?

Description

Sets the trigger edge of the external trigger.

Queries the trigger edge of 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

:TRIGger:SEQuence:EXTernal1:SLOPe POSitive /*Sets the trigger edge of the external trigger to POSitive.*/

:TRIGger:SEQuence:EXTernal1:SLOPe? /*The query returns POS.*/

: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	-500 ms to 500 ms	1 μ s

Remarks

When the trigger delay is set to a negative value, it indicates a pre-trigger.

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

Return Format

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

Example

```
:TRIGger:SEquence:IF:DElay 0.01 /*Sets IF power trigger delay time to 10 ms.*/
:TRIGger:SEquence:IF:DElay? /*The query returns 1.0E-02.*/
```

:TRIGger[:SEquence]:IF:DElay:STATe

Syntax

:TRIGger[:SEquence]:IF:DElay:STATe <bool>

:TRIGger[:SEquence]:IF:DElay:STATe?

Description

Enables or disables the IF power trigger delay.

Queries the status of the IF power trigger delay.

Parameter

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

Return Format

The query returns 1 or 0.

Example

```
:TRIGger:SEquence:IF:DElay:STATe ON /*Enables the IF power trigger delay function.*/
:TRIGger:SEquence:IF:DElay:STATe? /*The query returns 1.*/
```

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

```
:TRIGger:SEquence:IF:LEVel 10 /*Sets the trigger level of the IF power trigger to 10 dBm.*/  
:TRIGger:SEquence:IF:LEVel? /*The query returns 1.0E+01.*/
```

: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	0 μ s to 500 ms	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

```
:TRIGger:SEquence:HOLDoff 0.1 /*Sets the trigger holdoff time to 100 ms.*/  
:TRIGger:SEquence:HOLDoff? /*The query returns 10.0E-02.*/
```

:TRIGger[:SEquence]:HOLDoff:STATe

Syntax

:TRIGger[:SEquence]:HOLDoff:STATe <bool>

:TRIGger[:SEquence]:HOLDoff:STATe?

Description

Enables or disables 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

```
:TRIGger:SEQuence:HOLDoff:STATe ON /*Enables the trigger holdoff function.*/
:TRIGger:SEQuence:HOLDoff:STATe? /*The query returns 1.*/
```

:TRIGger[:SEQuence]:OUTPut

Syntax

:TRIGger[:SEQuence]:OUTPut <bool>

:TRIGger[:SEQuence]:OUTPut?

Description

Sets the trigger output state.

Queries the on/off status of trigger output.

Parameter

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

Return Format

The query returns 1 or 0.

Example

```
:TRIGger:SEQuence:OUTPut 1 /*Enables the external trigger output.*/
:TRIGger:SEQuence:OUTPut? /*The query returns 1.*/
```

:TRIGger[:SEQuence]:OUTPut:POLarity

Syntax

:TRIGger[:SEQuence]:OUTPut:POLarity <type>

:TRIGger[:SEQuence]:OUTPut:POLarity?

Description

Set the external trigger output polarity.

Queries the external trigger output polarity.

Parameter

Name	Type	Range	Default
<type>	Discrete	POSitive NEGative	POSitive

Remarks

POSitive: indicates positive polarity.

NEGative: indicates negative polarity.

Return Format

The query returns POS or NEG.

Example

```
:TRIGger:SEQuence:OUTPut:POLarity POSitive /*Sets the output polarity of external trigger to POSitive.*/
```

```
:TRIGger:SEQuence:OUTPut:POLarity? /*The query returns POS.*/
```

: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

```
:TRIGger:SEQuence:PORT:MODE OUT /* Sets the trigger port mode to OUT.*/
```

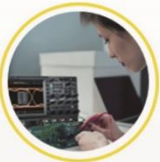
```
:TRIGger:SEQuence:PORT:MODE? /* The query returns OUT.*/
```

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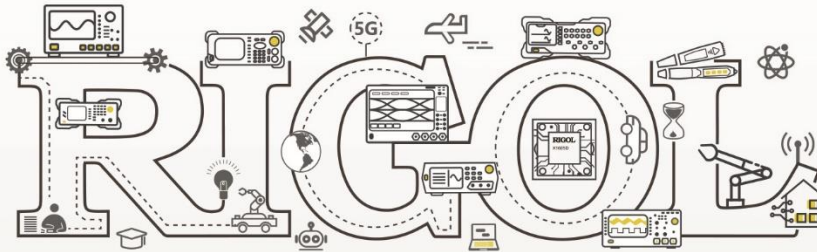
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Manufacturing



Semiconductors



Education &
Research



Communication

System Integration



New Energy



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- UWB/RFID/ ZIGBEE
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HEADQUARTER

RIGOL TECHNOLOGIES CO., LTD.
No.8 Keling Road, New District,
Suzhou, Jiangsu, P.R.China
Tel: +86-400620002
Email: info-cn@rigol.com

JAPAN

RIGOL JAPAN CO., LTD.
5F, 3-45-6, Minamitsuka, Toshima-Ku,
Tokyo, 170-0005, Japan
Tel: +81-3-6262-8932
Fax: +81-3-6262-8933
Email: info.jp@rigol.com

EUROPE

RIGOL TECHNOLOGIES EU GmbH
Friedrichshafener Str. 5c
82205 Gilching
Germany
Tel: +49-(0)8105-27292-22
Email: johannes.kroiher@rigol.com

KOREA

RIGOL KOREA CO., LTD.
5F, 222, Gonghang-daero,
Gangseo-gu, Seoul, Republic of Korea
Tel: +82-2-6953-4466
Fax: +82-2-6953-4422
Email: info.kr@rigol.com

NORTH AMERICA

RIGOL TECHNOLOGIES, USA INC.
10220 SW Nimbus Ave.
Suite K-7
Portland, OR 97223
Tel: +1-877-4-RIGOL-1
Email: sales@rigol.com

For Assistance in Other Countries

Email: info.int@rigol.com

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