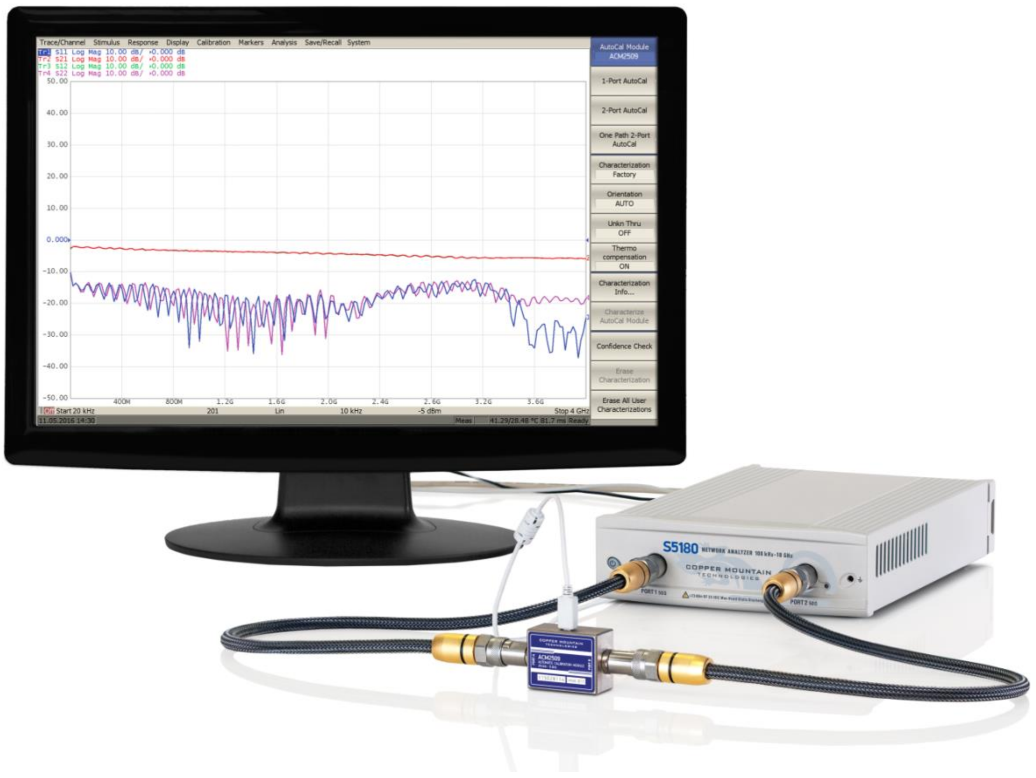
S2 and S4 series

Network Analyzer

Programming Manual

COM/DCOM



Revision 20.2
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1 Introduction

This Programming Manual corresponds to S2VNA and S4VNA software version 20.3.3.

This Manual contains information on Network Analyzer remote control and its data communication by means of user programs written with COM/DCOM technology.

COM technology is used when a user program runs together with an external measurement instrument program on one PC. DCOM technology is used when a user program runs on a PC connected with the measurement instrument by LAN.

Methods and techniques for writing of user programs are same for the both technologies. The only difference between the technologies is that the DCOM technology requires additional LAN setting performed by the LAN administrator.

Before reading this Manual, read the Analyzer Operating Manual first.

2 Scope of Manual

This programmer's manual covers the 2-port and 4-port models of the CMT network analyzers listed below.

The 2-port network analyzers controlled by the S2VNA softwar are:

- Planar 304/1
- Planar 804/1
- Planar 814/1
- S5045
- S5048
- S5065
- S5085
- S5180
- S5243
- S7530
- SC5065
- SC5090
- C1209
- C1220
- C2220
- C2209
- C4209
- C4220
- M5045
- M5065
- M5090
- M5180

The 4-port network analyzers controlled by the S4VNA software are:

- Planar 808/1
- C1409
- C1420
- C2409
- C2420
- C4409

- C4420

Except where specifically noted, all commands and descriptions apply across all models covered by this document.

3 Registering COM Server

To register COM server of the analyzer run the executable module from command prompt with the */regserver* keyword. To unregister COM server of the analyzer run the executable module from command prompt with the */unregserver* keyword. Administrative rights is required to register/unregister COM server. Also user has ability to register COM server during the software installation procedure.

Example of the COM server registration command:

```
S2VNA.exe /regserver

S4VNA.exe /regserver
```

4 COM Technology Overview

COM stands for *Component Object Model*. This programming technology was developed by Microsoft for two purposes:

- the model provides the specification for interaction of binary modules created in different programming languages;
- the model defines the interfacing between a client application and a server application running either on the same PC or on two different PCs. In the latter case, the technology has DCOM abbreviation – Distributed COM.

5 Automation Server

The network analyzer executable module contains a built-in COM server that enables other programs to access its functionality. The COM server was developed in conformity with the *COM automation* specification. COM automation is a technology allowing control over the COM server by the programs written in both traditional compiling programming languages and interpreting programming languages, such as VBScript. This enables the server applications to make their functionality accessible to many more clients.

6 Automation Controllers

Automation controllers are client programs, which use internal functionality of COM servers. Automation controller programs are developed by users for writing their own add-ons for the system.

User programs can be written in different languages:

- programming languages with built-in COM support, such as Visual Basic®, Delphi, Java;
- universal programming languages, such as C, C++;
- Microsoft Excel and Word office applications as they include built-in programming language Visual Basic for Applications®;
- program generators, such as National Instruments LabVIEW®, MathWorks MATLAB®.

Examples written in VBA (Excel) , C++, MATLAB, Python, and other languages are available at www.coppermountaintech.com; source code of examples are also located in the Examples\COM\ folder of the application installation folder.

A Labview Driver is also included in the Labview subfolder of the Examples\COM\ folder, and can be downloaded separately from www.coppermountaintech.com. The Labview Driver contains examples of its use.

7 Local and Remote Server

The network analyzer executable module can function either as a *local* server or as a *remote* server of COM automation.

Local server runs on the same PC with the automation controller and each of the programs is executed as an individual application in a separate window. COM technology is used in this case (Figure 1).

Remote server and the automation controller run on different PCs connected by LAN. DCOM (Distributed COM) technology is used in this case (Figure 2). When using DCOM it is necessary to configure the local network by means of DCOM Windows tools.

The same automation controller is used for the both COM and DCOM technology. Some changes to the user program may be required in operators, which establish connection with the server. Moreover, DCOM technology requires additional settings of the LAN performed by the LAN administrator.

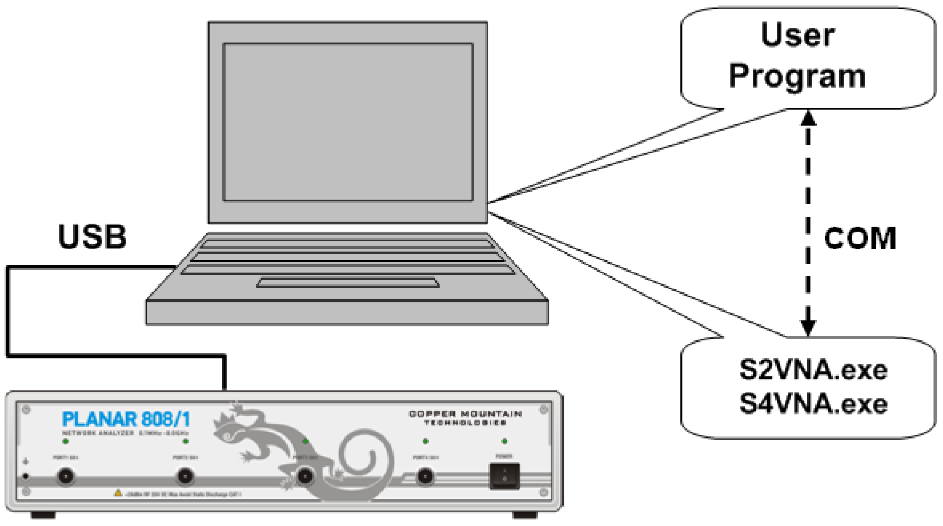


Figure 1. COM technology

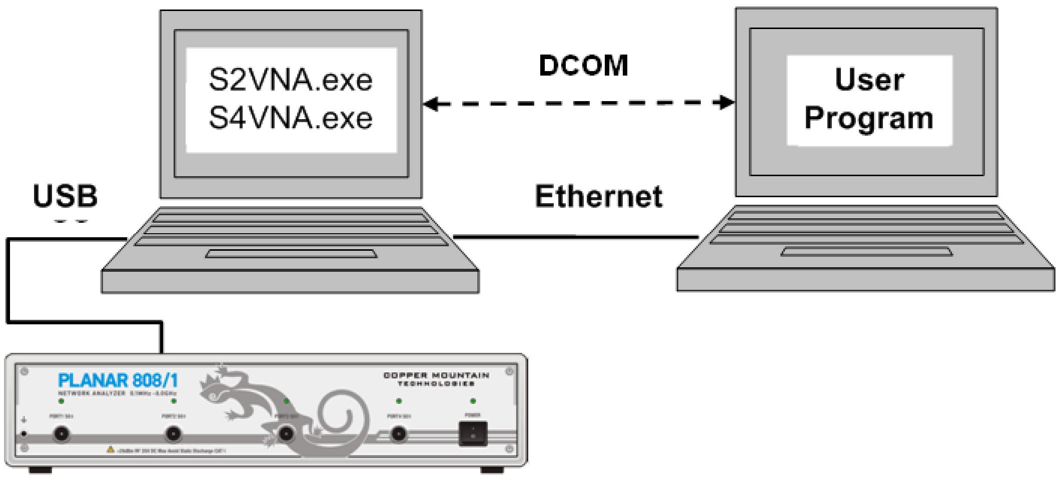


Figure 2. DCOM technology

8 Structure of COM Objects

COM server contains several *objects*, which provide different functionality of the server. The COM objects of the network analyzer executable module are organized in a hierarchical structure. Figure 3 shows the main COM objects, which comprise the first three levels of the hierarchical structure of the COM server. COM objects provide various *methods* and *properties*, which allow access to the server functions; besides, they allow access to the objects of the lower levels, which are not shown in Figure 3.

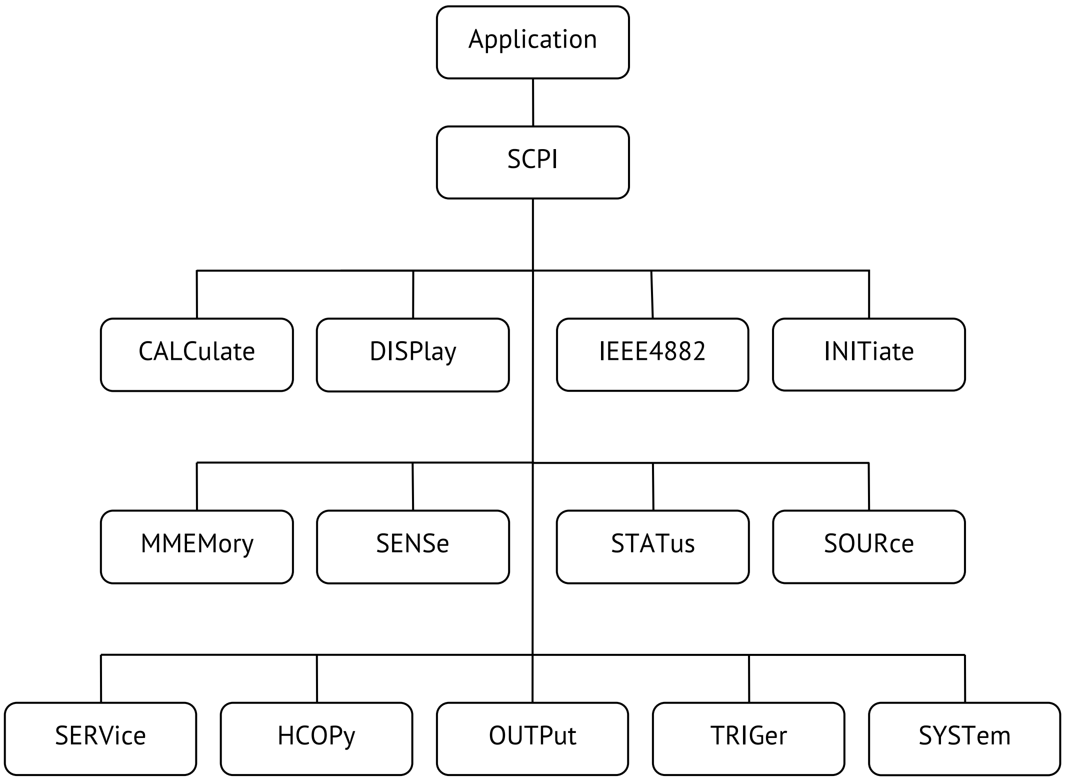


Figure 3. The structure of COM objects

The Object *Application* is in the top of the hierarchy of the COM server. Access to the lower level objects is implemented via higher level objects.

Note	The hierarchy of COM objects and their names are borrowed from the SCPI command system, an alternative remote control technology of the analyzer. Commands in SCPI have a chain hierarchical structure, for example: `CALCulate:PARameter:DEFine S11` The same command in COM is as follows: `app.SCPI.CALCulate.PARameter.DEFine = "S11"`

9 Accessing the Application Object

To establish connection with the COM server application, create an object reference in the client program. In COM programming the object reference needs to be acquired preliminarily, to be used later to access the object functionality. To define an object perform the following:

1. Declare a variable as an object.
2. Create a COM Object and assign it to this variable.

To declare a variable, use *Dim* operator or other declaration statement (*Public, Private* or *Static*). The variables used for references should of the types *Variant, Object,* or a type of a specific object. For example, the following three operators declare app variable:

```
Dim app
Dim app as Object
Dim app as S2VNA.Application
```

Use *Set* operator and *CreateObject* (*ObjectName, HostName*) function to assign a specific object to a variable.

ObjectName	Object name is always equal to "*S2VNA.Applcation*" or "*S4VNA.Applcation*"
HostName	Network name of the PC hosting the COM server. This parameter is not specified in case of a local server.

For example, the following operators create *Application* object and assign it to app variable:

```
Set app = CreateObject("S2VNA.Applcation")
Set app = CreateObject("S2VNA.Applcation", "Analyzer_Name")
Set app = CreateObject("S2VNA.Applcation", "192.168.1.149")
```

```
Set app = CreateObject("S4VNA.Applcation")
Set app = CreateObject("S4VNA.Applcation", "Host_Name")
Set app = CreateObject("S4VNA.Applcation", "192.168.1.149")
```

Note	The first form of the operator is used to create the reference to the local COM server, the second and third forms are used to create the reference to the remote DCOM server.

To allow access to the objects of a lower level of the hierarchy, these objects are specified after the reference to the higher level object and separated from it by a dot. For example:

```
Dim SystObj
Set SystObj = app.SCPI.SYSTem
```

COM objects can have indices. For example, *CALCulate, INITiate, SENSe, SOURce* objects represent various aspects of the 16 measurement channels of the Analyzer. Therefore, it is necessary to write the channel index from 1 to 16 to acquire the data of these objects. For example:

```
Set SensObj1 = app.SCPI.SENSe(1)
Set SensObj2 = app.SCPI.SENSe(2)
```

Visual Basic allows omitting of such indices; in this case the indices are considered as equal to 1. For example, the following VB operators are equivalent:

```
Set SensObj = app.SCPI.SENSe(1)
Set SensObj = app.SCPI.SENSe
```

Note: The models of vector network analyzers working with the S2VNA executable module share the same COM object. The name of COM object is *S2VNA.Application*

The models of vector network analyzers working with the S4VNA executable module share the same COM object. The name of COM object is *S4VNA.Application*

For example, the commands for creating a COM server for 2-port an analyzer is:

```
Set app = CreateObject("S2VNA.Applcation")
```

For the backward compatibility the old name is preserved for creating COM object for each model. The user can use the old and new name of the COM object interchangeably, since they all create the same COM object. For example: :

```
Set app = CreateObject("S2VNA.Applcation")
Set app = CreateObject("Planar304.Applcation")
Set app = CreateObject("Planar804.Applcation")
Set app = CreateObject("S5048.Applcation")
Set app = CreateObject("S7530.Applcation")
```

10 Object Methods

Objects have methods. Methods are actions that can be applied to objects. The object methods are specified after the object name and separated from it by a dot.

The following example shows the *PRESet* method of *SYSTem* object. This method performs setting of the Analyzer to the preset condition:

```
app.SCPI.SYSTem.PRESet
```

11 Object Properties

Along with methods, objects have properties. Properties are object characteristics that can be set or read out. The object properties are specified after the object name and separated from it by a dot.

To modify an object characteristic, write the value of the corresponding property. To define an object characteristic, read out the value of its property. The following example show the setting of the *POINts* property of *SWEep* object, i.e. the number of sweep points:

```
app.SCPI.SENSe.SWEp.POINts = 201
```

Note	Some object properties cannot be written, and some object properties cannot be read. In such cases, the properties are indicated as “read only” or “write only”.

12 Error Handling

Different approaches can be used to error handling in VB program:

- check the value of Err.Number variable after execution of VB operator, which contains the call to the COM server object;
- use On Error goto VB operator.

These approaches are represented in the examples below. The following operator causes an error in VB program as *"S13"* value of the *DEFine* property is incorrect.

```
app.SCPI.PARameter.DEFine = "S13"
```

In the first example, the value of the *Err.Number* variable is checked after execution of the VB operator, which contains the call to the COM server object. *On Error Resume Next* directive instructs VB not to interrupt the program execution when the error is detected but to pass control to the next operator in natural order.

```
Dim app
Public Sub HandleError1()
Set app = CreateObject("S4VNA.Application")
On Error Resume Next
app.SCPI.PARameter.DEFine = "S13"
If Err.Number <> 0 Then
  Msg = "Error # " & Str(Err.Number) & " was generated by " &_
  Err.Source & Chr(13) & Err.Description
  MsgBox Msg,,"Error"
End If
...
End Sub
```

In the second example, *On Error GoTo ErrHandler* directive instructs VB to interrupt the program execution when the error is detected and to pass control to *ErrHandler* label.

```
Dim app
Public Sub HandleError2()
Set app = CreateObject("S4VNA.Applcation")
On Error GoTo ErrHandler
app.SCPI.PARameter.DEFine = "S13"
...
Exit Sub
ErrHandler:
  Msg = "Error # " & Str(Err.Number) & " was generated by " &_
  Err.Source & Chr(13) & Err.Description
  MsgBox Msg,,"Error"
End Sub
```

13 COM Automation Data Types

In COM automation, there are the following data types, which can be used for client-to-server communication:

Long	32-bit signed integer, value range from −2147483648 to 2147483647
Double	64-bit double-precision floating point, value range from 1.79769313486232E308 to −4.94065645841247E−324 for negative values, and from 4.94065645841247E−324 to 1.79769313486232E308 for positive values
Boolean	16-bit integer, two values 0 – *false*, 1 – *true*
String	Variable-length string
Variant	Can be either a value of arbitrary type or an array of values of arbitrary type. In this case, the term “arbitrary type” means any allowed type of COM automation. A variable contains information about its type and array size (if it is an array). It is used for communication of data arrays between a client and a server.

14 Measurement Data Arrays

Measurement data can be either complex values or real values. This depends on the format selected by the user. For example, the data is real in logarithmic magnitude format and the data is complex in polar format.

The measurement data is transferred in a *Variant* type variable, which represents an array of *Double* type. To transfer one complex measurement, two adjacent array cells are used. To transfer one real measurement two adjacent array cells are used as well but the second cell is always equal to 0. Thus, measurement data array size is a double number of the measurement points.

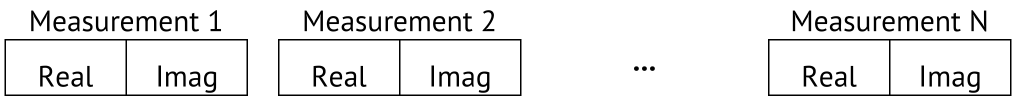


Figure 4. Array of complex measurements

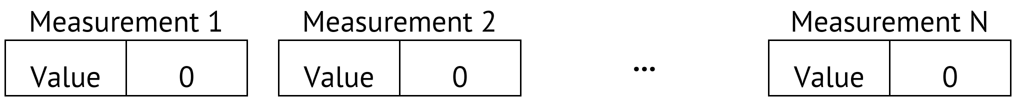


Figure 5. Array of real measurements

15 COM Server Commands

NAME

Description	Reads out the Analyzer identification string.
Type	String (read only)
Syntax	StrName = app.NAME
Reply	The identification string in format: <manufacturer>, <model>, <serial number>, <software version>/<hardware version>. For example: CMT, C1209, 08080188, 16.2/01
Equivalent Softkeys	**None**

READy

Description	Reads out the Ready state of the analyzer. The state is *True* when analyzer hardware is connected, powered and the boot process is completed (about 10 sec).
Type	Boolean (read only)
Syntax	*State* = app.READy
Equivalent Softkeys	**None**

SCPI.ABORt

Description	Aborts the sweep. The channels in the *Single* trigger initiation mode transit to the *Hold* state. The channels in the *Continuous* trigger initiation mode transit to the *trigger waiting* state, if the trigger source is set to *Internal*, the channel immediately starts a new sweep.
Type	Method
Syntax	*app*.SCPI.ABORt
Equivalent Softkeys	**Stimulus > Trigger > Restart**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.CZConversion.STATe

Description	Turns ON/OFF the common port impedance conversion function when the fixture simulator function is ON, for all the balance ports of selected channel (*Ch*). (S4VNA only)
Type	Boolean (read/write)
Parameter	True: common port impedance conversion function is ON False: common port impedance conversion function is OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.CZConversion.STATe app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.CZConversion.STATe = True
Equivalent Softkeys	**Analysis > Fixture Simulator > Cmn ZConversion > Cmn ZConversion [ON/OFF]**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.CZConversion.BPORt(*Bpt*).Z0.R

Description	Sets the impedance value for the common port impedance conversion function, for the balance ports 1 or 2 (*Bpt*) of the selected channel (*Ch*). (S4VNA only)
Type	Double (read/write)
Range	from 1e−3 to 1e7
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	25
Unit	Ω (Ohm)
Target	Balanced Port *Bpt* of channel *Ch*, *Ch:* channel number 1−16 *Bpt:* balanced port number 1 or 2 for the Bal-Bal topology, always 1 for the SE-Bal, SE-SE-Bal and Bal topology.
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.CZConversion.BPORt(*Bpt*).Z0.R app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.CZConversion.BPORt(*Bpt*).Z0.R = 20
Equivalent Softkeys	**Analysis > Fixture Simulator > Cmn ZConversion > Bal Port 1 or 2**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.DEVice

Description	Selects the type of the balanced device for the fixture simulation function. (S4VNA only)
Type	String (read/write)
Parameter	"**SBALanced**" : Specifies the unbalance-balance (3 ports) "**BBALanced**" : Specifies the balance-balance (4 ports) "**SSBalanced**" : Specifies the unbalance-unbalance-balance (4 ports) "**BALanced**" : Specifies the unbalance (2 ports)
Preset Value	"BBAL"
Target	Channel *Ch* from 1 to 16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DEVice *app*.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DEVice = "SBAL"
Equivalent Softkeys	**Analysis > Fixture Simulator > Topolgy > Device {SE-Bal | Bal-Bal | SE-SE-Bal | Bal}**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(*Bpt*).PARameters.C

Description	Sets the capacitance value of the C element of the differential matching circuit of the fixture simulation function. (S4VNA only)
Type	Double (read/write)
Range	from 1e−18 to 1e18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	F (Farad)
Target	Balanced Port *Bpt* of channel *Ch*, *Ch:* channel number 1−16 *Bpt:* balanced port number 1 or 2 for the Bal-Bal topology, always 1 for the SE-Bal, SE-SE-Bal and Bal topology.
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(*Bpt*).PARameters.C app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(*Bpt*).PARameters.C = 1e-12
Equivalent Softkeys	**Analysis > Fixture Simulator > Diff Matching > Bal Port n > C**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(Bpt).PARameters.G

Description	Sets the conductance value of the G element of the differential matching circuit of the fixture simulation function. (S4VNA only)
Type	Double (read/write)
Range	from 1e–18 to 1e18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	S (Siemens)
Target	Balanced Port *Bpt* of channel *Ch*, *Ch:* channel number 1–16 *Bpt:* balanced port number 1 or 2 for the Bal-Bal topology, always 1 for the SE-Bal, SE-SE-Bal and Bal topology.
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(*Bpt*).PARameters.G app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(*Bpt*).PARameters.G = 0.1
Equivalent Softkeys	**Analysis > Fixture Simulator > Diff Matching > Bal Port n > G**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(Bpt).PARameters.L

Description	Sets the inductance value of the L element of the differential matching circuit of the fixture simulation function. (S4VNA only)
Type	Double (read/write)
Range	from 1e−18 to 1e18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	H (Henry)
Note	If both elements L and R are equal to zero, then L and R elements are omited in the sheme. If any element L or R is not zero, then zero value of the rest element means short circuit.
Target	Balanced Port *Bpt* of channel *Ch*, *Ch:* channel number 1–16 *Bpt:* balanced port number 1 or 2 for the Bal-Bal topology, always 1 for the SE-Bal, SE-SE-Bal and Bal topology.
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(*Bpt*).PARameters.L app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(*Bpt*).PARameters.L = 12e-9
Equivalent Softkeys	**Analysis > Fixture Simulator > Diff Matching > Bal Port n > L**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(Bpt).PARameters.R

Description	Sets the resistance value of the R element of the differential matching circuit of the fixture simulation function. (S4VNA only)
Type	Double (read/write)
Range	from 1e−18 to 1e18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	Ω (Ohm)
Note	If both elements L and R are equal to zero, then L and R elements are omited in the sheme. If any element L or R is not zero, then zero value of the rest element means short circuit.
Target	Balanced Port *Bpt* of channel *Ch*, *Ch:* channel number 1−16 *Bpt:* balanced port number 1 or 2 for the Bal-Bal topology, always 1 for the SE-Bal, SE-SE-Bal and Bal topology.
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(*Bpt*).PARameters.R app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(*Bpt*).PARameters.R = 100
Equivalent Softkeys	**Analysis > Fixture Simulator > Diff Matching > Bal Port n > L**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(Bpt).TYPE

Description	Selects the type of the differential matching circuit for the specified balanced port number *Bpt* of the channel *Ch*. (S4VNA only)
Type	String (read/write)
Parameter	"NONE" : Specifies no-circuit "PLPC" : Specifies Shunt L – Shunt C circuit "USER" : Specifies user defined circuit by touchstone file
Preset Value	"NONE"
Target	Balanced Port *Bpt* of channel *Ch*, *Ch:* channel number 1–16 *Bpt:* balanced port number 1 or 2 for the Bal-Bal topology, always 1 for the SE-Bal, SE-SE-Bal and Bal topology.
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(*Bpt*).TYPE *app*.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(*Bpt*).TYPE = "PLPC"
Equivalent Softkeys	**Analysis > Fixture Simulator > Diff Matching > Bal Port n > {None | Shunt L – Shunt C | User}**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(Bpt).USER.FILename

Description	Specifies a file defining the 2-port network which is used in the differential matching circuit, for the specified balanced port number *Bpt* of the channel *Ch*. The *.s2p file contains the circuit S–parameters in Touchstone format. (S4VNA only)
Type	String (read/write)
Parameter	File Name
Target	Balanced Port *Bpt* of channel *Ch*, *Ch:* channel number 1–16 *Bpt:* balanced port number 1 or 2 for the Bal-Bal topology, always 1 for the SE-Bal, SE-SE-Bal and Bal topology.
Syntax	*File* = *app*.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(*Bpt*).USER.FILename *app*.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(*Bpt*).USER.FILename = ”circuit.s2p"
Notes	If the full path to the file is not specified, the \FixtureSim subdirectory of the main directory will be searched for the file.
Related Commands	SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.BPORt(*Bpt*).TYPE
Equivalent Softkeys	**Analysis > Fixture Simulator > Diff Matching > Bal Port n > User File**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.STATe

Description	Turns ON/OFF the differential matching circuit function. (S4VNA only)
Type	Boolean (read/write)
Parameter	True: differential matching ON False: differential matching OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.STATe app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DMCircuit.STATe = True
Equivalent Softkeys	**Analysis > Fixture Simulator > Diff Matching > Diff Matching [ON/OFF]**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.DZConversion.STATe

Description	Turns ON/OFF the differential port impedance conversion function when the fixture simulator function is ON, for all the balance ports of selected channel (*Ch*). (S4VNA only)
Type	Boolean (read/write)
Parameter	True: differential port impedance conversion function is ON False: differential port impedance conversion function is OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DZConversion.STATe app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DZConversion.STATe = True
Equivalent Softkeys	**Analysis > Fixture Simulator > Diff ZConversion > Diff ZConversion [ON/OFF]**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.DZConversion.BPORt(*Bpt*).Z0.R

Description	Sets the impedance value for the differential port impedance conversion function, for the balance ports 1 or 2 (*Bpt*) of the selected channel (*Ch*). (S4VNA only)
Type	Double (read/write)
Range	from 1e−3 to 1e7
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	100
Unit	Ω (Ohm)
Target	Balanced Port *Bpt* of channel *Ch*, *Ch:* channel number 1−16 *Bpt:* balanced port number 1 or 2 for the Bal-Bal topology, always 1 for the SE-Bal, SE-SE-Bal and Bal topology.
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DZConversion.BPORt(*Bpt*).Z0.R app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.DZConversion.BPORt(*Bpt*).Z0.R = 200
Equivalent Softkeys	**Analysis > Fixture Simulator > Diff ZConversion > Bal Port 1 or 2**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).BALanced.DEFine

Description	Sets/gets the measurement parameter when the balance-unbalance conversion function is ON and the balance device type is "BALanced", for the selected trace (*Tr*) of the selected channel (*Ch*). (S4VNA only)
Type	String (read/write)
Parameter	"SDD11" : Specifies Sdd11 "SCD11" : Specifies Scd11 "SDC11" : Specifies Sdc11 "SCC11" : Specifies Scc11
Out of Range	An error occurs. Error code: 214.
Preset Value	" SDD11"
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).BALanced.DEFine *app*.SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).BALanced.DEFine= "SDD11"
Equivalent Softkeys	**Analysis > Fixture Simulator > Measurement {SDD11 | SCD11 | SDC11 | SCC11}**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).BBALanced.DEFine

Description	Sets/gets the measurement parameter when the balance-unbalance conversion function is ON and the balance device type is "BBALanced", for the selected trace (*Tr*) of the selected channel (*Ch*). (S4VNA only)	
Type	String (read/write)	
Parameter	"SDD11" : Specifies Sdd11 "SDD21" : Specifies Sdd21 "SDD12" : Specifies Sdd12 "SDD22" : Specifies Sdd22 "SCD11" : Specifies Scd11 "SCD21" : Specifies Scd21 "SCD12" : Specifies Scd12 "SCD22" : Specifies Scd22 "SDC11" : Specifies Sdc11 "SDC21" : Specifies Sdc21	"SDC12" : Specifies Sdc12 "SDC22" : Specifies Sdc22 "SCC11" : Specifies Scc11 "SCC21" : Specifies Scc21 "SCC12" : Specifies Scc12 "SCC22" : Specifies Scc22 "IMB1" : Specifies Imbalance1 "IMB2" : Specifies Imbalance2 "CMRR" : Specifies CMRR (Sdd21/Scc21)
Preset Value	" SDD11"	
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 *Tr:* trace number 1–16	
Syntax	Param = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).BBALanced.DEFine app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).BBALanced.DEFine = "SDD11"	
Equivalent Softkeys	**Analysis > Fixture Simulator > Measurement {SDD11 | SDD21 | ... | CMRR}**	

SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).SBALanced.DEFine

Description	Sets/gets the measurement parameter when the balance-unbalance conversion function is ON and the balance device type is "SBALanced", for the selected trace (*Tr*) of the selected channel (*Ch*). (S4VNA only)	
Type	String (read/write)	
Parameter	"SSS11" : Specifies Sss11 "SDS21" : Specifies Sds21 "SSD12" : Specifies Ssd12 "SCS21" : Specifies Scs21 "SSC12" : Specifies Ssc12 "SDD22" : Specifies Sdd22 "SCD22" : Specifies Scd22	"SDC22" : Specifies Sdc22 "SCC22" : Specifies Scc22 "IMB" : Specifies Imbalance "CMRR1" : Specifies CMRR1 (Sds21/Scs21) "CMRR2" : Specifies CMRR2 (Ssd12/Ssc12)
Preset Value	" SSS11"	
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 *Tr:* trace number 1–16	
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).SBALanced.DEFine *app*.SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).SBALanced.DEFine = "SSS1"	
Equivalent Softkeys	**Analysis > Fixture Simulator > Measurement {SSS11 | SDS21 | ... | CMRR2}**	

SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).SSBalanced.DEFine

Description	Sets/gets the measurement parameter when the balance-unbalance conversion function is ON and the balance device type is "SSBalanced", for the selected trace (*Tr*) of the selected channel (*Ch*). (S4VNA only)	
Type	String (read/write)	
Parameter	"SSS11" : Specifies Sss11 "SSS21" : Specifies Sss21 "SSS12" : Specifies Sss12 "SSS22" : Specifies Sss22 "SDS31" : Specifies Sds31 "SDS32" : Specifies Sds32 "SSD13" : Specifies Ssd13 "SSD23" : Specifies Ssd23 "SCS31" : Specifies Scs31 "SCS32" : Specifies Scs32 "SSC13" : Specifies Ssc13 "SSC23" : Specifies Ssc23	"SDD33" : Specifies Sdd33 "SCD33" : Specifies Scd33 "SDC33" : Specifies Sdc33 "SCC33" : Specifies Scc33 "IMB1" : Specifies Imbalance1 "IMB2" : Specifies Imbalance2 "IMB3" : Specifies Imbalance3 "IMB4" : Specifies Imbalance4 "CMRR1" : Specifies CMRR1 (Sds31/Scs31) "CMRR2" : Specifies CMRR2 (Sds32/Scs32)
Preset Value	" SSS11"	
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 *Tr:* trace number 1–16	
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).SSBalanced.DEFine *app*.SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).SSBalanced.DEFine = "SSS1"	
Equivalent Softkeys	**Analysis > Fixture Simulator > Measurement {SSS11 | SSS21 | ... | CMRR2}**	

SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).STATe

Description	Turrns ON/OFF the state of the balance-unbalance conversion function. (S4VNA only)
Type	Boolean (read/write)
Parameter	True: balance-unbalance conversion function ON False: balance-unbalance conversion function OFF
Preset Value	False
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	Status = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).STATe app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.PARameter(*Tr*).STATe = True
Equivalent Softkeys	**Analysis > Fixture Simulator > Balun [ON/OFF]**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.PROPerty.STATe

Description	Turns ON/OFF the state of the property display for the topology setting when using the balance-unbalance conversion. (S4VNA only)
Type	Boolean (read/write)
Parameter	True: property display ON False: property display OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	Status = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.PROPerty.STATe app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.PROPerty.STATe = True
Equivalent Softkeys	**Analysis > Fixture Simulator > Topolgy > Property [ON/OFF]**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.BALanced.PPORts

Description	Assigns each port when the balance device type is "BALanced" and the balance-unbalance conversion function is ON. The array contains 2 elements: *Data(0)* specifies port number assigned to port a of balanced device; *Data(1)* specifies port number assigned to port b of balanced device. (S4VNA only)
Type	Variant: array of long (read/write)
Parameter	Port number from 1 to 4. The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16

Syntax	app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.BALanced.PPORts = Array(1,2)
	Ports = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.BALanced.PPORts

Related Commands	SCPI.CALCulate(*Ch*).FSIMulator.BALun.DEVice
Equivalent Softkeys	**Analysis > Fixture Simulator > Topolgy > Port 1 (bal)**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.BBALanced.PPORts

Description	Assigns each port when the balance device type is "BBALanced" and the balance-unbalance conversion function is ON. The array contains 4 elements: *Data(0)* specifies port number assigned to port a of balanced device; *Data(1)* specifies port number assigned to port b of balanced device. *Data(2)* specifies port number assigned to port c of balanced device. *Data(3)* specifies port number assigned to port d of balanced device. (S4VNA only)
Type	Variant: array of long (read/write)
Parameter	Port number is 1 to 4. The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16

Syntax	app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.BBALanced.PPORts = Array(1,2,3,4)
	Ports = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.BBALanced.PPORts

Related Commands	SCPI.CALCulate(*Ch*).FSIMulator.BALun.DEVice
Equivalent Softkeys	**Analysis > Fixture Simulator > Topolgy > Port 1 (bal), Port 2 (bal)**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.SBALanced.PPORts

Description	Assigns each port when the balance device type is "SBALanced" and the balance-unbalance conversion function is ON. The array contains 3 elements: *Data(0)* specifies port number assigned to port a of balanced device; *Data(1)* specifies port number assigned to port b of balanced device. *Data(2)* specifies port number assigned to port c of balanced device. (S4VNA only)
Type	Variant: array of long (read/write)
Parameter	Port number is 1 to 4. The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16

Syntax	app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.SBALanced.PPORts = Array(1,2,3)
	Ports = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.SBALanced.PPORts

Related Commands	SCPI.CALCulate(*Ch*).FSIMulator.BALun.DEVice
Equivalent Softkeys	**Analysis > Fixture Simulator > Topolgy > Port 1 (se), Port 2 (bal)**

SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.SSBalanced.PPORts

Description	Assigns each port when the balance device type is "SSBalanced" and the balance-unbalance conversion function is ON. The array contains 3 elements: *Data(0)* specifies port number assigned to port a of balanced device; *Data(1)* specifies port number assigned to port b of balanced device. *Data(2)* specifies port number assigned to port c of balanced device. *Data(3)* specifies port number assigned to port d of balanced device. (S4VNA only)
Type	Variant: array of long (read/write)
Parameter	Port number is 1 to 4. The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16

Syntax	app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.SSBalanced.PPORts = Array(1,2,3,4)
	Ports = app.SCPI.CALCulate(*Ch*).FSIMulator.BALun.TOPology.SSBalanced.PPORts

Related Commands	SCPI.CALCulate(*Ch*).FSIMulator.BALun.DEVice
Equivalent Softkeys	**Analysis > Fixture Simulator > Topolgy > Port 1 (se), Port 2 (se), Port 3 (bal)**

SCPI.CALCulate(*Ch*).FSIMulator.EMBed.NETWork(*Nwk*).FILename

Description	Specifies a file defining the 4-port network which is used in the 4-port network embedding/de-embedding function. The file is a 4-port touchstone file with the ".s4p" extension. The network number (*Nwk*) is 1 or 2 depending on the selected topology: SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TYPE (S4VNA only)
Type	String (read/write)
Parameter	File Name
Target	Channel *Ch* from 1 to 16
Syntax	File = app.SCPI.CALCulate(*Ch*).FSIMulator.EMBed.NETWork(*Nwk*).FILename app.SCPI.CALCulate(*Ch*).FSIMulator.EMBed.NETWork(*Nwk*).FILename= ”network.s4p"
Notes	If the full path to the file is not specified, the \FixtureSim subdirectory of the main directory will be searched for the file.
Related Commands	SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TYPE
Equivalent Softkeys	**Analysis > Fixture Simulator > De−Embedding s4p > File (Nwk1), File (Nwk2)**

SCPI.CALCulate(*Ch*).FSIMulator.EMBed.NETWork(*Nwk*).TYPE

Description	Sets/gets the processing type for network (*Nwk*), for the 4-port network embedding/de-embedding feature. The network number (*Nwk*) is 1 or 2 depending on the selected topology: SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TYPE (S4VNA only)
Type	String (read/write)
Parameter	"NONE" : Specifies no-processing "EMBed" : Specifies embedding "DEEMbed" : Specifies de-embedding
Preset Value	"NONE"
Target	Channel *Ch* from 1 to 16
Syntax	Param = app.SCPI.CALCulate(*Ch*).FSIMulator.EMBed.NETWork(*Nwk*).TYPE app.SCPI.CALCulate(*Ch*).FSIMulator.EMBed.NETWork(*Nwk*).TYPE = "EMBed"
Related Commands	SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TYPE
Equivalent Softkeys	**Analysis > Fixture Simulator > De−Embedding s4p > Type (Nwk1), Type (Nwk2)**

SCPI.CALCulate(*Ch*).FSIMulator.EMBed.STATe

Description	Turns ON/OFF the state of the 4-port network embedding/de-embedding feature when the fixture simulator feature is ON. (S4VNA only)
Type	Boolean (read/write)
Parameter	True: 4-port network embedding/de-embedding feature ON False: 4-port network embedding/de-embedding feature OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	Status = app.SCPI.CALCulate(*Ch*).FSIMulator.EMBed.STATe app.SCPI.CALCulate(*Ch*).FSIMulator.EMBed.STATe = True
Related Commands	SCPI.CALCulate(*Ch*).FSIMulator.STATe
Equivalent Softkeys	**Analysis > Fixture Simulator > De−Embedding s4p > De−Embedding s4p [ON/OFF]**

SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TOPology.A.PORTs

Description	Sets/gets the test port assignment when the connection type (Topology) is set to A, for the 4-port network embedding/de-embedding feature. The array contains 2 elements: *Data(0)* Port number assigned to port a; *Data(1)* Port number assigned to port b. (S4VNA only)
Type	Variant: array of long (read/write)
Parameter	Port number is 1 to 4. The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16

Syntax	app.SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TOPology.A.PORTs = Array(1,2)
	Ports = app.SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TOPology.A.PORTs

Related Commands	SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TYPE
Equivalent Softkeys	**Analysis > Fixture Simulator > De−Embedding s4p > Ports**

SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TOPology.B.PORTs

Description	Sets/gets the test port assignment when the connection type (Topology) is set to B, for the 4-port network embedding/de-embedding feature. The array contains 3 elements: *Data(0)* Port number assigned to port a; *Data(1)* Port number assigned to port b; *Data(2)* Port number assigned to port c. (S4VNA only)
Type	Variant: array of long (read/write)
Parameter	Port number is 1 to 4. The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16

Syntax	app.SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TOPology.B.PORTs = Array(1,2,3)
	Ports = app.SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TOPology.B.PORTs

Related Commands	SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TYPE
Equivalent Softkeys	**Analysis > Fixture Simulator > De–Embedding s4p > Ports**

SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TOPology.C.PORTs

Description	Sets/gets the test port assignment when the connection type (Topology) is set to C, for the 4-port network embedding/de-embedding feature. The array contains 3 elements: *Data(0)* Port number assigned to port a; *Data(1)* Port number assigned to port a; *Data(2)* Port number assigned to port b; *Data(3)* Port number assigned to port c. (S4VNA only)
Type	Variant: array of long (read/write)
Parameter	Port number is 1 to 4. The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16

Syntax	app.SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TOPology.C.PORTs = Array(1,2,3,4)
	Ports = app.SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TOPology.C.PORTs

Related Commands	SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TYPE
Equivalent Softkeys	**Analysis > Fixture Simulator > De−Embedding s4p > Ports**

SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TYPE

Description	Sets/gets the connection type (Topology), for the 4-port network embedding/de-embedding feature (S4VNA only)
Type	String (read/write)
Parameter	" A " : Specifies connection type A " B " : Specifies connection type B " C " : Specifies connection type C
Preset Value	"A"
Target	Channel *Ch* from 1 to 16
Syntax	Param = app.SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TYPE app.SCPI.CALCulate(*Ch*).FSIMulator.EMBed.TYPE = "A"
Equivalent Softkeys	**Analysis > Fixture Simulator > De–Embedding s4p > Topology {A | B | C}**

SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).USER.FILename

Description	Sets/gets the de-embedding network file (*.s2p). The file contains the circuit S−parameters in Touchstone format.
Type	String (read/write)
Parameter	File Name
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1−16 *Pt:* port number 1−2 (4 for S4VNA)
Syntax	File = app.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).USER.FILename app.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).USER.FILename = "network.s2p"
Notes	If the full path to the file is not specified, the \FixtureSim subdirectory of the main directory will be searched for the file.
Equivalent Softkeys	**Analysis > Fixture Simulator > De−Embedding > User File**

SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).STATe

Description	Turns ON/OFF the state of the 2-port network de-embedding function for specified port (s2p).
Type	Boolean (read/write)
Parameter	True: De-embedding function ON False: De-embedding function OFF
Preset Value	False
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1−16 *Pt:* port number 1−2 (4 for S4VNA)
Syntax	Status = app.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).STATe app.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).STATe = True
Equivalent Softkeys	**Analysis > Fixture Simulator > De−Embedding > Port n**

SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.STATe

Description	Turns ON/OFF the state of the 2-port network de-embedding function.
Type	Boolean (read/write)
Parameter	True: De-embedding function ON False: De-embedding function OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	Status = app.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.STATe app.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.STATe = True
Equivalent Softkeys	**Analysis > Fixture Simulator > De−Embedding > De−Embedding**

SCPI.CALCulate(*Ch*).FSIMulator.SENDed.PMCircuit.PORT(*Pt*).USER.FILename

Description	Sets/gets the embedding network file (*.s2p). The file contains the circuit S−parameters in Touchstone format.
Type	String (read/write)
Parameter	File Name
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1−16 *Pt:* port number 1−2 (4 for S4VNA)
Syntax	*File* = *app*.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.PMCircuit.PORT(*Pt*).USER.FILename *app*.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.PMCircuit.PORT(*Pt*).USER.FILename = "network.s2p"
Notes	If the full path to the file is not specified, the \FixtureSim subdirectory of the main directory will be searched for the file.
Equivalent Softkeys	**Analysis > Fixture Simulator > Embedding > User File**

SCPI.CALCulate(*Ch*).FSIMulator.SENDed.PMCircuit.PORT(*Pt*).STATe

Description	Turns ON/OFF the state of the 2-port network embedding function for specified port.
Type	Boolean (read/write)
Parameter	True: Embedding function ON False: Embedding function OFF
Preset Value	False
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	Status = app.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).STATe app.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).STATe = True
Equivalent Softkeys	**Analysis > Fixture Simulator > Embedding > Port n**

SCPI.CALCulate(*Ch*).FSIMulator.SENDed.PMCircuit.STATe

Description	Turns ON/OFF the state of the 2-port network embedding function.
Type	Boolean (read/write)
Parameter	True: Embedding function ON False: Embedding function OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).STATe *app*.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).STATe = True
Equivalent Softkeys	**Analysis > Fixture Simulator > Embedding > Embedding**

SCPI.CALCulate(*Ch*).FSIMulator.SENDed.ZCONversion.PORT(*Pt*).Z0.R

Description	Sets/gets the value of the impedance for port impedance conversion function.
Type	Double (read/write)
Range	from 1e−6 to 1e6
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	50
Unit	Ω (Ohm)
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1−16 *Pt:* port number 1−2 (4 for S4VNA)
Syntax	Value = app.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.ZCONversion.PORT(*Pt*).Z0.R app.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.ZCONversion.PORT(*Pt*).Z0.R = 50
Equivalent Softkeys	**Analysis > Fixture Simulator > Port Z Conversion > Port n Z0**

SCPI.CALCulate(*Ch*).FSIMulator.SENDed.ZCONversion.STATe

Description	Turns ON/OFF the state of the port impedance conversion function.
Type	Boolean (read/write)
Parameter	True: Port Z conversion function ON False: Port Z conversion function OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	Status = app.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.ZCONversion.STATe app.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.ZCONversion.STATe = True
Equivalent Softkeys	**Analysis > Fixture Simulator > Port Z Conversion > Port Z Conversion**

SCPI.CALCulate(*Ch*).FSIMulator.STATe

Description	Turns ON/OFF the state of the fixture simulator function for specified channel.
Type	Boolean (read/write)
Parameter	True: fixture simulator function ON False: fixture simulator function OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).FSIMulator.STATe *app*.SCPI.CALCulate(*Ch*).FSIMulator.STATe = True
Equivalent Softkeys	**Analysis > Fixture Simulator > Fixture Simulator**

SCPI.CALCulate(*Ch*).PARameter(1).COUNt

Description	Sets/gets the number of traces in the channel.
Type	Long (read/write)
Range	from 1 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Target	Channel *Ch* from 1 to 16
Syntax	*TraceNum* = app.SCPI.CALCulate(*Ch*).PARameter.COUNt *app*.SCPI.CALCulate(*Ch*).PARameter.COUNt = 2
Warning	Object *PARameter* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**Display > Num of Traces**

SCPI.CALCulate(*Ch*).PARameter(*Tr*).DEFine

Description	Sets/gets the measurement parameter of the trace.
Type	String (read/write)
Parameter	"S11", "S12", "S13", "S14", "S21", "S22", "S23", "S24", "S31", "S32", "S33", "S34", "S41", "S42", "S43", "S44" : S – parameter "T1", "T2", "T3", "T4" : Test receiver "R1", "R2", "R3", "R4" : Reference receiver "A", "B", "C", "D" : Alias for T1, T2, T3, T4
Related Commands	SCPI.CALCulate(*Ch*).PARameter(*Tr*).SPORt
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	*StrMeas* = app.SCPI.CALCulate(*Ch*).PARameter(*Tr*).DEFine *app*.SCPI.CALCulate(*Ch*).PARameter(*Tr*).DEFine = "S11"

Equivalent Softkeys	(S2VNA)
	Measurement > {S11 | S21 | S12 | S22}
	Measurement > Absolute > {A(1) | B(1) | R1(1) | A(2) | B(2) | R2(2)}
	(S4VNA)
	Measurement > S-parameter > {S11 | S12 | ... S44}
	Measurement > Test Receiver > {T1(1) | T1(2) | ... T4(4)}
	Measurement > Reference Receiver > {R1(1) | R1(2) | ... R4(4)}

SCPI.CALCulate(*Ch*).PARameter(*Tr*).SELect

Description	Sets the active channel and trace.
Type	Method
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	app.SCPI.CALCulate(*Ch*).PARameter(*Tr*).SELect
Notes	If the channel number is greater than the number of the channels displayed, an error occurs and the command is ignored. If the trace number is greater than the number of the traces displayed in the channel, an error occurs and the command is ignored.
Equivalent Softkeys	**Display > Active Trace/Channel > Active Channel** **Display > Active Trace/Channel > Active Trace**

SCPI.CALCulate(*Ch*).PARameter(*Tr*).SPORt

Description	Sets/gets the number of the source port for absolute measurements.
Type	Long (read/write)
Parameter	Port number from 1 to 2 (4 for S4VNA)
Out of Range	An error occurs. Error code: 208.
Preset Value	1
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	*StimPort* = app.SCPI.CALCulate(*Ch*).PARameter(*Tr*).SPORt *app*.SCPI.CALCulate(*Ch*).PARameter(*Tr*).SPORt = 1

Equivalent Softkeys	(S2VNA)
	Measurement > Measurement > Absolute > {A(1) | B(1) | R1(1) | A(2) | B(2) | R2(2)}
	(S4VNA)
	Measurement > Test Receiver > {T1(1) | T1(2) | ... T4(4)}
	Measurement > Reference Receiver > {R1(1) | R1(2) | ... R4(4)}

SCPI.CALCulate(*Ch*).SELected.CONVersion.FUNCtion

Description	Sets/gets the S−parameter conversion function type.
Type	String (read/write)
Parameter	"ZREFlection" : Reflection equivalent impedance "ZTRansmit" : Transmission equivalent impedance "YREFlection" : Reflection equivalent admittance "YTRansmit" : Transmission equivalent admittance "INVersion" : Inverse S−parameter "ZTSHunt" : Shunt equivalent impedance "YTSHunt" : Shunt equivalent admittance "CONJugation" : S−parameter conjugate
Preset Value	"ZREF"
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.CONVersion.FUNCtion *app*.SCPI.CALCulate(*Ch*).SELected.CONVersion.FUNCtion = "ZTR"
Equivalent Softkeys	**Analysis > Conversion > {Zr | Zt | Yr | Yt | 1/S | Z Trans−Shunt | Y Trans−Shunt | Conjugation}**

SCPI.CALCulate(*Ch*).SELected.CONVersion.STATe

Description	Turns ON/OFF the state of the S-parameter conversion function.
Type	Boolean (read/write)
Parameter	True: S–parameter conversion function ON False: S–parameter conversion function OFF
Preset Value	False
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.CONVersion.STATe *app*.SCPI.CALCulate(*Ch*).SELected.CONVersion.STATe = true
Related Commands	SCPI.CALCulate(*Ch*).SELected.CONVersion.FUNCtion
Equivalent Softkeys	**Analysis > Conversion > Conversion**

SCPI.CALCulate(*Ch*).SELected.CORRection.EDELay.TIME

Description	Sets/gets the value of the electrical delay.
Type	Double (read/write)
Range	from −10 to 10
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	s (second)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.CORRection.EDELay.TIME *app*.SCPI.CALCulate(*Ch*).SELected.CORRection.EDELay.TIME = 1e−9
Equivalent Softkeys	**Scale > Electrical Delay**

SCPI.CALCulate(*Ch*).SELected.CORRection.OFFSet.PHASe

Description	Sets/gets the value of the phase offset.
Type	Double (read/write)
Range	from −360 to 360
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	° (degree)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.CORRection.OFFSet.PHASe *app*.SCPI.CALCulate(*Ch*).SELected.CORRection.OFFSet.PHASe = 360
Equivalent Softkeys	**Scale > Phase Offset**

SCPI.CALCulate(*Ch*).SELected.CORRection.STATus

Description	Gets the active trace correction status.
Type	String (read only)
Parameter	If active trace represents a S-parameter: "COR" : Correction is enabled. "C?" : Correction is enabled. Interpolation is applied. "C!" : Correction is enabled. Extrapolation is applied. "" : Correction is disabled. If active trace represents an Absolute measurement: "RC" : Correction is enabled. "RC?" : Correction is enabled. Interpolation is applied. "RC!" : Correction is enabled. Extrapolation is applied. "" : Correction is disabled.
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Param* = *app*.SCPI.CALCulate(*Ch*).SELected.CORRection.STATus
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.DATA.FDATa

Description	Gets/sets the formatted data array. The array elements contain measurements in the current format, for example, in logarithmic magnitude format (Log Mag). Also, see section 14 The array size is 2N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(2n−2)* real number in rectangular format, real part in polar and Smith chart formats; *Data(2n−1)* 0 in rectangular format, imaginary part in polar and Smith chart formats.
Type	Variant: array of double (read/write)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.DATA.FDATa *app*.SCPI.CALCulate(*Ch*).SELected.DATA.FDATa = *Data*
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.DATA.FMEMory

Description	Gets/sets the formatted memory array. The array elements contain saved measurements in the current format, for example, in logarithmic magnitude format (Log Mag). Also, see section 14. The array size is 2N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(2n−2)* real number in rectangular format, real part in polar and Smith chart formats; *Data(2n−1)* 0 in rectangular format, imaginary part in polar and Smith chart formats.
Type	Variant: array of double (read/write)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.DATA.FMEMory *app*.SCPI.CALCulate(*Ch*).SELected.DATA.FMEMory = *Data*
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.DATA.SDATa

Description	Gets/Sets the corrected data array. The corrected measurements are complex numbers. Also, see section 14. The array size is 2N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(2n−2)* the real part of corrected measurement; *Data(2n−1)* the imaginary part of corrected measurement.
Type	Variant: array of double (read/write)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.DATA.SDATa *app*.SCPI.CALCulate(*Ch*).SELected.DATA.SDATa = *Data*
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.DATA.SMEMory

Description	Gets/sets the corrected memory array. The corrected measurements are complex numbers. Also, see section 14. The array size is 2N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(2n−2)* the real part of corrected measurement memory; *Data(2n−1)* the imaginary part of corrected measurement memory.
Type	Variant: array of double (read/write)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.DATA.SMEMory *app*.SCPI.CALCulate(*Ch*).SELected.DATA.SMEMory = *Data*
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.DATA.XAXis

Description	Gets the X axis data array. The array size is N, where N is the number of measurement points. For the n–th point, where n from 0 to N–1: *Data(n)* the X axis value;
Type	Variant: array of double (read only)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.DATA.XAXis
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.CENTer

Description	Sets/gets the gate center value of the gating function.
Type	Double (read/write)
Range	Varies depending on the frequency span and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	s (second)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	Value = app.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.CENTer app.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.CENTer = 1e–8
Equivalent Softkeys	**Analysis > Gating > Center**

SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.SHAPe

Description	Sets/gets the gate shape of the gating function.
Type	String (read/write)
Parameter	**"MAXimum"** : Maximum shape **"WIDE"** : Wide shape **"NORMal"** : Normal shape **"MINimum"** : Minimum shape
Preset Value	"NORM"
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.SHAPe *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.SHAPe = "MAX"
Equivalent Softkeys	**Analysis > Gating > Shape > {Maximum | Wide | Normal | Minimum}**

SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.SPAN

Description	Sets/gets the gate span value of the gating function.
Type	Double (read/write)
Range	Varies depending on the frequency span and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	2e−8
Unit	s (second)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.SPAN *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.SPAN = 1e−8
Equivalent Softkeys	**Analysis > Gating > Span**

SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STARt

Description	Sets/gets the gate start value of the gating function.
Type	Double (read/write)
Range	Varies depending on the frequency span and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	`−1e−8`
Unit	s (second)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STARt *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STARt = 1e−7
Equivalent Softkeys	**Analysis > Gating > Start**

SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STATe

Description	Turns ON/OFF the state of the gating function.
Type	Boolean (read/write)
Parameter	True: Gating function ON False: Gating function OFF
Preset Value	False
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STATe *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STATe = *Status*
Equivalent Softkeys	**Analysis > Gating > Gating**

SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STOP

Description	Sets/gets the gate stop value of the gating function.
Type	Double (read/write)
Range	Varies depending on the frequency span and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1e−8
Unit	s (second)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STOP *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STOP = 1e−7
Equivalent Softkeys	**Analysis > Gating > Stop**

SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.TYPE

Description	Sets/gets the gate type of the gating function.
Type	String (read/write)
Parameter	"BPASs" : Bandpass type "NOTCh" : Notch type
Preset Value	"BPAS"
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.TYPE *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.TYPE = "bpas"
Equivalent Softkeys	**Analysis > Gating > Type**

SCPI.CALCulate(*Ch*).SELected.FORMat

Description	Sets/gets the data format for the trace.
Type	String (read/write)
Parameter	"MLOGarithmic" : Logarithmic magnitude "PHASe" : Phase "GDELay" : Group delay time "SLINear" : Smith chart format (Lin) "SLOGarithmic" : Smith chart format (Log) "SCOMplex" : Smith chart format (Real/Imag) "SMITh" : Smith chart format (R + jX) "SADMittance" : Smith chart format (G + jB) "PLINear" : Polar format (Lin) "PLOGarithmic" : Polar format (Log) "POLar" : Polar format (Real/Imag) "MLINear" : Linear magnitude "SWR" : Voltage standing wave ratio "REAL" : Real part "IMAGinary" : Imaginary part "UPHase" : Expanded phase
Preset Value	"MLOG"
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.FORMat *app*.SCPI.CALCulate(*Ch*).SELected.FORMat = "PHAS"

Equivalent Softkeys	**Format > {Log Mag | Phase | Group Delay | Lin Mag | SWR | Real | Imag | Phase} > 1**
	Format > Smith > {Log/Phase | Lin/Phase | Real/Imag | R+jX | G+jB}
	Format > Polar > {Log/Phase | Ling/Phase | Real/Imag}

SCPI.CALCulate(*Ch*).SELected.FUNCtion.DATA

Description	Gets the data array - result of analysis executed by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute method. The array size is 2N, where N is the number of points defined by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.POINts command. For the n–th point, where n from 1 to N: *Data(2n–2)* the response value in the n–th measurement point; *Data(2n–1)* the stimulus value in the n–th measurement point. Always set to 0 for the analysis of mean value, standard deviation, and peak–to–peak value.
Type	Variant: array of double (read only)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DATA
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.COUPle

Description	Turns ON/OFF the coupling state of the analysis range for the SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute method.
Type	Boolean (read/write)
Parameter	True: Coupling state ON False: Coupling state OFF
Preset Value	True
Target	All traces of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.COUPle *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.COUPle = *Status*
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STARt

Description	Sets/gets the start value of the analysis range set by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute method.
Type	Double (read/write)
Range	From the stimulus current start value to the stimulus current stop value.
Preset Value	0
Unit	Hz | s | dBm
Target	All traces of channel *Ch* (if the coupling is set to ON by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.COUPle command), the active trace of channel *Ch* (if otherwise), *Ch:* channel number 1–16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STARt *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STARt = 1e9
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STATe

Description	Turns ON/OFF the state of the arbitrary range when executing the analysis by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute method.
Type	Boolean (read/write)
Parameter	True: Arbitrary range ON False: Arbitrary range OFF (entire sweep range)
Preset Value	False
Target	All traces of channel *Ch* (if the coupling is set to ON by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.COUPle command), the active trace of channel *Ch* (if otherwise), *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STATe *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STATe = *true*
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STOP

Description	Sets/gets the stop value of the analysis range set by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute method.
Type	Double (read/write)
Range	From the stimulus current start value to the stimulus current stop value.
Preset Value	0
Unit	Hz | s | dBm
Target	All traces of channel *Ch* (if the coupling is set to ON by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.COUPle command), the active trace of channel *Ch* (if otherwise), *Ch:* channel number 1–16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STOP *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STOP = 2e9
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute

Description	Executes the analysis specified with the SCPI.CALCulate(*Ch*).SELected.FUNCtion.TYPE command. The analysis result can then be read out with the SCPI.CALCulate(*Ch*).SELected.FUNCtion.DATA command.
Type	Method
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.PEXCursion

Description	Sets/gets the lower limit for the peak excursion value when executing the peak search by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute method.
Type	Double (read/write)
Range	Varies depending on the trace format.
Preset Value	3
Unit	dB | ° | s
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.FUNCtion.PEXCursion *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.PEXCursion = 1.5
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.POINts

Description	Gets the number of points (data pairs) of the analysis result by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute method. Always equal to 1, when the search is executed for the maximum, minimum, mean, standard deviation, peak, and peak–to–peak values. The actual number of points is read out, when the search is executed for all peaks or all targets.
Type	Long (read only)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.FUNCtion.POINts
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.PPOLarity

Description	Sets/gets the polarity selection when performing the peak search by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute method.
Type	String (read/write)
Parameter	"**POSitive**" : Positive peaks **"NEGative"** : Negative peaks **"BOTH"** : Both positive peaks and negative peaks
Preset Value	"POS"
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.FUNCtion.PPOLarity *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.PPOLarity = "NEG"
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.TARGet

Description	Sets/gets the target level when performing the search for the trace and the target level crosspoints by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute method.
Type	Double (read/write)
Range	Varies depending on the trace format.
Preset Value	0
Unit	dB | ° | s
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.FUNCtion.TARGet *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.TARGet = −10
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.TTRansition

Description	Sets/gets the transition type selection when performing the search for the trace and the target level crosspoints by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute method.
Type	String (read/write)
Parameter	**"POSitive"** : Positive peaks **"NEGative"** : Negative peaks **"BOTH"** : Both positive peaks and negative peaks
Preset Value	"POS"
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.FUNCtion.TTRansition *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.TTRansition = "both"
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.TYPE

Description	Sets/gets the selection of the type of analysis executed by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute method.
Type	String (read/write)
Parameter	**"PTPeak"** : Peak–to–peak (difference between the maximum value and the minimum value) **"STDEV"** : Standard deviation **"MEAN"** : Mean value **"MAXimum"** : Maximum value **"MINimum"** : Minimum value **"PEAK"** : Search for the peak **"APEak"** : Search for all the peaks **"ATARget"** : Search for all targets
Preset Value	"PTP"
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.FUNCtion.TYPE *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.TYPE = "STDEV"
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.LIMit.DATA

Description	Sets/gets the data array, which is the limit line in the limit test function. The array size is 1 + 5N, where N is the number of measuring points. For the n−th point, where n from 1 to N: *Data(0)* The number of limit line segments N is from 0 to 100. Setting 0 clears the limit line; *Data(5n−4)* type of the n−th limit line segment; 0: OFF 1: Upper limit 2: Lower limit 3: Single point limit *Data(5n−3)* the stimulus value in the start point of the n−th segment; *Data(5n−2)* the stimulus value in the end point of the n−th segment; *Data(5n−1)* the response value in the start point of the n−th segment; *Data(5n−0)* the response value in the end point of the n−th segment.
Type	Variant: array of double (read/write)
Notes	If the array size is not 1 + 5N, where N is *Data(0)*, an error occurs (error code 214). If *Data(5n − 4)* is less than 0 or more than 2, an error occurs (error code 214). When *Data(5n−3), Data(5n−2), Data(5n−1)* and *Data(5n−0)* elements are out of allowable range, the value is set to the limit, which is closer to the specified value.
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.LIMit.DATA *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.DATA = Array(1,2,800,900,−10,−10)
Equivalent Softkeys	**Analysis > Limit Test > Edit Limit Line**

SCPI.CALCulate(*Ch*).SELected.LIMit.DISPlay.STATe

Description	Turns ON/OFF the state of the limit line display of the limit test function.
Type	Boolean (read/write)
Parameter	True: Limit line display ON False: Limit line display OFF
Preset Value	False
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.LIMit.DISPlay.STATe *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.DISPlay.STATe = true
Equivalent Softkeys	**Analysis > Limit Test > Limit Line**

SCPI.CALCulate(*Ch*).SELected.LIMit.FAIL

Description	Gets the limit test result.
Type	Boolean (read only)
Parameter	True: Fail False: Pass
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.LIMit.FAIL
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.AMPLitude

Description	Sets/gets the value of the limit line offset along Y–axis.
Type	Double (read/write)
Range	Varies depending on the trace format.
Preset Value	0
Unit	dB | ° | s
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.AMPLitude *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.AMPLitude = –10
Equivalent Softkeys	**Analysis > Limit Test > Limit Line Offsets > Response Offset**

SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.MARKer

Description	Sets the value of the limit line offset along Y–axis to the active marker value.
Type	Method
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*app*.SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.MARKer
Equivalent Softkeys	**Analysis > Limit Test > Limit Line Offsets > Marker > Response Ofs**

SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.STIMulus

Description	Sets/gets the value of the limit line offset along X–axis.
Type	Double (read/write)
Range	From the stimulus current start value to the stimulus current stop value.
Preset Value	0
Unit	Hz | s | dBm
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.STIMulus *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.STIMulus = 1e6
Equivalent Softkeys	**Analysis > Limit Test > Limit Lines Offsets > Stimulus Offset**

SCPI.CALCulate(*Ch*).SELected.LIMit.REPort.ALL

Description	Gets the data array, which is the limit test results. The array size is 4N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(4n−3)* the stimulus value in the n−th point *Data(4n−2)* the limit test result in the n−th point −1: No limit 0: Fail 1: Pass *Data(4n−1)* the upper limit value in the n−th point (0 – if there is no limit) *Data(4n−0)* the lower limit value in the n−th point (0 – if there is no limit)
Type	Variant: array of double (read only)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.LIMit.REPort.ALL
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.LIMit.REPort.DATA

Description	Gets the data array, which is the stimulus values at all the measurement points that failed the limit test. The array size is defined by the SCPI.CALCulate(*Ch*).SELected.LIMit.REPort.POINts command.
Type	Variant: array of double (read only)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.LIMit.REPort.DATA
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.LIMit.REPort.POINts

Description	Gets the number of the measurement points that failed the limit test. The array of stimulus values of the points can be read out by the SCPI.CALCulate(*Ch*).SELected.LIMit.REPort.DATA command.
Type	Long (read only)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Cnt* = app.SCPI.CALCulate(*Ch*).SELected.LIMit.REPort.POINts
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.LIMit.STATe

Description	Turns ON/OFF the state of the limit test function.
Type	Boolean (read/write)
Parameter	True: Limit test function ON False: Limit test function OFF
Preset Value	False
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.LIMit.STATe *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.STATe = true
Equivalent Softkeys	**Analysis > Limit Test > Limit Test**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).ACTivate

Description	Sets the active marker. If a marker is OFF this function will turn it ON. Turning ON a marker with the number from 1 to 15 will turn ON all the markers of smaller numbers. Turning ON the reference marker with number 16 does not turn ON the markers with the numbers from 1 to 15, but switches these markers to the relative measurement mode.
Type	Method
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1−16 *Mk:* marker number 1−15, or reference marker number 16
Syntax	*app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).ACTivate
Equivalent Softkeys	**Markers > Select > Marker n** **Markers > Reference Marker**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).BWIDth.DATA

Description	Gets the bandwidth search result. The bandwidth search can be performed relatively to the marker *Mk*, or relatively to the absolute maximum value of the trace (in this case the marker number is ignored), what is set by the SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).BWIDth.REFerence command.
	The array contains 4 elements:
	Data(0) Bandwidth;
	Data(1) Center frequency;
	Data(2) Q value;
	Data(3) Loss.

Type	Variant: array of double (read only)
Notes	If the bandwidth search is impossible, all the read out values are 0. If the search is performed relatively to a maker, which is OFF, an error occurs (error code 204).
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 *Mk:* marker number 1–15, or reference marker number 16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).BWIDth.DATA
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).BWIDth.REFerence

Description	Sets/gets the selection of the reference point for the bandwidth search function: reference marker or absolute maximum value of the trace.
Type	String (read/write)
Parameter	**"MARKer"** : Bandwidth search relative to the reference marker **"MAXimum"** : Bandwidth search relative to the absolute maximum of the trace
Preset Value	"MAX"
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.REFerence *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.REFerence = "marker"
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**Markers > Marker Math > Bandwidth Search > Search Ref To**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).BWIDth.STATe

Description	Turns ON/OFF the state of the bandwidth search function.
Type	Boolean (read/write)
Parameter	True: Bandwidth search function ON False: Bandwidth search function OFF
Preset Value	False
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.STATe *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.STATe = true
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**Markers > Marker Math > Bandwidth Search > Bandwidth Search**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).BWIDth.THReshold

Description	Sets/gets the bandwidth definition value for the bandwidth search function.
Type	Double (read/write)
Range	Varies depending on the trace format.
Preset Value	−3
Unit	dB | ° | s
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).BWIDth.THReshold *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).BWIDth.THReshold = −6.0
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**Markers > Marker Math > Bandwidth Search > Bandwidth Value**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).BWIDth.TYPE

Description	Sets/gets the type of the bandwidth search function.
Type	String (read/write)
Parameter	**"BPASs"** : Bandpass **"NOTCh"** : Notch
Preset Value	"BPAS"
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.TYPE *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.TYPE = "notc"
Equivalent Softkeys	**Markers > Marker Math > Bandwidth Search > Type**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).COUPle

Description	Turns ON/OFF the state of the marker coupling between traces.
Type	Boolean (read/write)
Parameter	True: Marker coupling ON False: Marker coupling OFF
Preset Value	True
Target	All traces of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.COUPle *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.COUPle = false
Equivalent Softkeys	**Marker > Properties > Marker Couple**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).COUNt

Description	Sets/gets the number of the turned ON markers. Writing value from 1 to 15 will turn ON regular markers. Writing value 16 will turn ON 15 regular markers and the reference marker. Turning ON the reference marker switches all markers to the relative measurement mode.
Type	Long (read/write)
Range	from 0 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*MarkerCnt* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.COUNt *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.COUNt = 5
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).DISCrete

Description	Turns ON/OFF the state of the marker discrete mode.
Type	Boolean (read/write)
Parameter	True: Marker discrete mode ON False: Marker discrete mode OFF
Preset Value	False
Target	All traces of channel *Ch* (if the coupling is set to ON by the SCPI.CALCulate(*Ch*).SELected.MARKer(1).COUPle command), the active trace of channel *Ch* (if otherwise), *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.DISCrete *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.DISCrete = false
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**Marker > Properties > Discrete**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).DATA

Description	Gets the response and stimulus value of the marker. If the reference marker is turned ON, the values of the markers from 1 to 15 are read out as relative values to the reference marker. The array includes 3 elements: *Data(0)* real number in rectangular format, real part in polar and Smith chart formats; *Data(1)* 0 in rectangular format, imaginary part in polar and Smith chart formats. *Data(2)* Stimulus value at the marker position. (S4VNA Only)
Type	Variant: array of double (read only)
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 *Mk:* marker number 1–15, or reference marker number 16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).DATA
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).DATA

Description	Gets the data array of all turned ON markers. The array size is 3N + 1, where N is the number of turned ON markers including the reference marker. If reference marker is turned ON the last three elements of array contain the reference marker data and the rest elements of array contain the relative values. For the n−th marker, where n from 1 to N: *Data(0)* the number of turned ON markers including the reference marker; *Data(3n−2)* the stimulus value of the n−th marker; *Data(3n−1)* the real data in rectangular format, real part in polar and Smith chart formats of the n−th marker; *Data(3n−0)* 0 in rectangular format, imaginary part in polar and Smith chart formats of the n−th marker; (S2VNA only)
Type	Variant: array of double (read only)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Data* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.DATA
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).FUNCtion.DOMain.COUPle

Description	Turns ON/OFF the state of the marker search range coupling for different traces.
Type	Boolean (read/write)
Parameter	True: Marker search range coupling ON False: Marker search range coupling OFF
Preset Value	True
Target	All traces of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain. COUPle *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.COUPle = false
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**Markers > Marker Search > Couple**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).FUNCtion.DOMain.STARt

Description	Sets/gets the start value of the marker search range.
Type	Double (read/write)
Range	From the stimulus current start value to the stimulus current stop value.
Preset Value	Minimum frequency
Unit	Hz | s | dBm
Target	All traces of channel *Ch* (if the marker search range coupling is set to ON by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.COUPle command), the active trace of channel *Ch* (if otherwise), *Ch:* channel number 1–16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STARt *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STARt = 1e6
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**Markers > Marker Search > Search Start**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).FUNCtion.DOMain.STATe

Description	Turns ON/OFF the state of the arbitrary range when executing the marker search.
Type	Boolean (read/write)
Parameter	True: Marker search range ON False: Marker search range OFF (entire sweep range)
Preset Value	False
Target	All traces of channel *Ch* (if the marker search range coupling is set to ON by the SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.COUPle command), the active trace of channel *Ch* (if otherwise), *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STATe *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STATe = true
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**Markers > Marker Search > Search Range**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).FUNCtion.DOMain.STOP

Description	Sets/gets the stop value of the marker search range.
Type	Double (read/write)
Range	From the stimulus current start value to the stimulus current stop value.
Preset value	Maximum frequency
Unit	Hz | s | dBm
Target	All traces of channel *Ch* (if the marker search range coupling is set to ON by the SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.COUPle command), the active trace of channel *Ch* (if otherwise), *Ch:* channel number 1–16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STOP *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STOP = 1e6
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**Markers > Marker Search > Search Stop**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.EXECute

Description	Executes the marker search according to the specified criterion. The type of the marker search is set by the SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TYPE command.
Type	Method
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 *Mk:* marker number 1–15, or reference marker number 16
Syntax	*app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.EXECute

Equivalent Softkeys	**Markers > Marker Search > {Maximum | Minimum}**
	
	Markers > Marker Search > Peak > {Search Peak | Search Max Peak | Search Peak Left | Search Peak Right}
	
	Markers > Marker Search > Target > {Search Target | Search Target Left | Search Target Right}

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.PEXCursion

Description	Sets/gets the peak excursion value, when the marker search for peak is performed by the SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.EXECute method.
Type	Double (read/write)
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 *Mk:* marker number 1–15, or reference marker number 16
Range	Varies depending on the trace format.
Preset Value	1
Unit	dB (decibel) | ° (degree) | s (second)
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.PEXCursion *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.PEXCursion = 3.0
Equivalent Softkeys	**Markers > Marker Search > Peak > Peak Excursion**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.PPOLarity

Description	Sets/gets the peak polarity selection, when the marker search for peak is performed by the SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.EXECute method.
Type	String (read/write)
Parameter	**"POSitive"** : Positive polarity **"NEGative"** : Negative polarity **"BOTH"** : Both positive polarity and negative polarity
Preset Value	"POS"
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 *Mk:* marker number 1–15, or reference marker number 16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.PPOLarity *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.PPOLarity = "neg"
Equivalent Softkeys	**Markers > Marker Search > Peak > Peak Polarity > {Positive | Negative | Both}**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TARGet

Description	Sets/gets the target value, when the marker search for target is performed by the SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.EXECute method.
Type	Double (read/write)
Range	Varies depending on the trace format.
Preset Value	0
Unit	dB (decibel) | ° (degree) | s (second)
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1−16 *Mk:* marker number 1−15, or reference marker number 16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TARGet *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TARGet = −10
Equivalent Softkeys	**Markers > Marker Search > Target > Target Value**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TRACking

Description	Turns ON/OFF the state of the marker search tracking function.
Type	Boolean (read/write)
Parameter	True: Marker search tracking ON False: Marker search tracking OFF
Preset Value	False
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 *Mk:* marker number 1–15, or reference marker number 16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TRACking *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TRACking = true
Equivalent Softkeys	**Markers > Marker Search > Tracking**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TTRansition

Description	Sets/gets the selection of the type of the target transition, when the marker search for transition is performed by the SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.EXECute method.
Type	String (read/write)
Parameter	**"POSitive"** : Positive target transition **"NEGative"** : Negative target transition **"BOTH"** : Both positive target transition and negative target transition
Preset Value	"POS"
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 *Mk:* marker number 1–15, or reference marker number 16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TTRansition *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TTRansition = "neg"
Equivalent Softkeys	**Marker > Marker Search > Target > Target Transition**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TYPE

Description	Sets/gets the selection of the type of the marker search, which is performed by the SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.EXECute method.
Type	String (read/write)
Parameter	**"MAXimum"** : Maximum value search **"MINimum"** : Minimum value search **"PEAK"** : Peak search **"LPEak"** : Peak search to the left from the marker **"RPEak"** : Peak search to the right from the marker **"TARGet"** : Target search **"LTARget"** : Target search to the left from the marker **"RTARget"** : Target search to the right from the marker
Preset Value	"MAX"
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 *Mk:* marker number 1–15, or reference marker number 16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TYPE *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TYPE = "MIN"

Equivalent Softkeys	**Markers > Marker Search > {Maximum | Minimum}**
	
	Markers > Marker Search > Peak > {Search Peak | Search Max Peak | Search Peak Left | Search Peak Right}
	
	Markers > Marker Search > Target > {Search Target | Search Target Left | Search Target Right}

SCPI.CALCulate(*Ch*).SELected.MARKer(1).MATH.FLATness.DATA

Description	Reads out the FLATNESS function data array. The FLATNESS function is applied within the range determined by two markers (see SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DOMain.STARt and SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DOMain.STOP properties).
	The array includes 4 elements:
	Data(0) Span;
	Data(1) Gain;
	Data(2) Slope;
	Data(3) Flatness.

Type	Variant: array of double (read only)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DATA
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).MATH.FLATness.DOMain.STARt

Description	Sets/gets the number of the marker, which specifies the start frequency of the FLATNESS function range.
Type	Long (read/write)
Range	from 1 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*MkrNum* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DOMain.STARt *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DOMain.STARt = 1
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**Markers > Marker Math > Flatness > Flatness Start**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).MATH.FLATness.DOMain.STOP

Description	Sets/gets the number of the marker, which specifies the stop frequency of the FLATNESS function range.
Type	Long (read/write)
Range	from 1 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*MkrNum* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DOMain.STOP *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DOMain.STOP = 1
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**Markers > Marker Math > Flatness > Flatness Stop**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).MATH.FLATness.STATe

Description	Turns ON/OFF the state of the FLATNESS function.
Type	Boolean (read/write)
Parameter	True: FLATNESS function ON False: FLATNESS function OFF
Preset Value	False
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.STATe app.SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.STATe = true
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**Markers > Marker Math > Flatness > Flatness**

SCPI.CALCulate(*Ch*).SELected.MARKer(1).REFerence.STATe

Description	Turns ON/OFF the state of the reference marker. When the reference marker is turned ON, all the values of the other markers turn to relative values.
Type	Boolean (read/write)
Parameter	True: Reference marker ON False: Reference marker OFF
Preset Value	False
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.REFerence.STATe *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.REFerence.STATe = true
Warning	Object *MARKer* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**Markers > Reference Marker**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).SET

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).POSition

Description	Sets the value of the specified item to the value of the position of the marker.
Type	String (write only)
Parameter	**"STARt"** : Sweep start value set to the stimulus value of the marker position. **"STOP"** : Sweep stop value set to the stimulus value of the marker position. **"CENTer"** : Sweep center value set to the stimulus value of the marker position. **"RLEVel"** : Reference value set to the response value of the marker position. **"DELay"** : Delay value set to the response value of the marker position.
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1−16 *Mk:* marker number 1−15, or reference marker number 16
Syntax	*app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).POSition = "STOP" *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).SET = "STOP"
Equivalent Softkeys	**Markers > Marker Functions > {Marker−>Start | Marker−>Stop | Marker −>Center | Marker−>Ref Value | Marker−>Delay}**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).STATe

Description	Turns ON/OFF the marker. Turning ON a marker with the number from 1 to 15 will turn ON all the markers of smaller numbers. Turning OFF a marker with the number from 1 to 15 will turn OFF all the markers of greater numbers (except for the reference marker). Turning ON/OFF the reference marker with number 16 does not turn ON/OFF the markers with the numbers from 1 to 15, but switches these markers to the relative measurement mode.
Type	Boolean (read/write)
Parameter	True: Marker ON False: Marker OFF
Preset Value	False
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 *Mk:* marker number 1–15, or reference marker number 16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).STATe *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).STATe = true
Equivalent Softkeys	**Markers > {Add Marker | Remove Marker}** **Markers > Reference Marker**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).X

Description	Sets/gets the stimulus value of the marker.
Type	Double (read/write)
Range	From the stimulus current start value to the stimulus current stop value.
Out of Value	Sets the value of the limit, which is closer to the specified value.
Preset Value	Stimulus center value
Unit	Hz | s | dBm
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 *Mk:* marker number 1–15, or reference marker number 16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).X *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).X = 1e9
Equivalent Softkeys	**Markers > Edit Stimulus**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).Y

Description	Reads out the response value of the marker. If the reference marker is turned ON, the values of the markers from 1 to 15 are read out as relative values to the reference marker. The array includes 2 elements: *Data(0)* real number in rectangular format, real part in polar and Smith chart formats; *Data(1)* 0 in rectangular format, imaginary part in polar and Smith chart formats.
Type	Variant: array of double (read only)
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1−16 *Mk:* marker number 1−15, or reference marker number 16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).Y
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.MATH.FUNCtion

Description	Sets/gets the selection of the math operation between the measurement data and the memory trace data. The math result replaces the data trace. If the data trace is not saved, the command is ignored.
Type	String (read/write)
Parameter	**"DIVide"** : Division *Data / Mem.* **"MULTiply"** : Multiplication *Data x Mem.* **"ADD"** : Addition *Data* + *Mem.* **"SUBTract"** : Subtraction *Data* – *Mem.* **"NORMal"** : No math
Preset Value	"NORM"
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.MATH.FUNCtion *app*.SCPI.CALCulate(*Ch*).SELected.MATH.FUNCtion= "DIV"
Equivalent Softkeys	**Display > Data Math > {Data/Mem | Data*Mem | Data+Mem | Data–Mem | OFF}**

SCPI.CALCulate(*Ch*).SELected.MATH.MEMorize

Description	Saves the measurement data to the memory trace. Automatically turns on the display of the memory trace.
Type	Method
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*app*.SCPI.CALCulate(*Ch*).SELected.MATH.MEMorize
Equivalent Softkeys	**Display > Data–>Memory**

SCPI.CALCulate(*Ch*).SELected.MSTatistics.DATA

Description	Read out the math statistics data array. The statistics function is applied either over the whole range (for all the trace), or within the range specified by the SCPI.CALCulate(*Ch*).SELected.MSTatistics.DOMain.STATe command (the range limits are determined by two markers). The array includes 3 elements: *Data(0)* Mean value; *Data(1)* Standard deviation; *Data(2)* Peak–to–peak (difference between the maximum value and the minimum value).
Type	Variant: array of double (read only)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.MSTatistics.DATA
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.MSTatistics.DOMain.MARKer.STARt

Description	Sets/gets the number of the marker, which specifies the start frequency of the math statistics range.
Type	Long (read/write)
Range	from 1 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*MkrNum* = app.SCPI.CALCulate(*Ch*).SELected.MSTatistics.DOMain.MARKer.STARt *app*.SCPI.CALCulate(*Ch*).SELected.MSTatistics.DOMain.MARKer.STARt = 3
Equivalent Softkeys	**Markers > Marker Math > Statistics > Statistics Start**

SCPI.CALCulate(*Ch*).SELected.MSTatistics.DOMain.MARKer.STOP

Description	Sets/gets the number of the marker, which specifies the stop frequency of the math statistics range.
Type	Long (read/write)
Range	from 1 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	2
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*MarkerNum* = *app*.SCPI.CALCulate(*Ch*).SELected.MSTatistics.DOMain.MARKer.STOP *app*.SCPI.CALCulate(*Ch*).SELected.MSTatistics.DOMain.MARKer.STOP = 4
Equivalent Softkeys	**Markers > Marker Math > Statistics > Statistics Stop**

SCPI.CALCulate(*Ch*).SELected.MSTatistics.DOMain.STATe

Description	Turns ON/OFF the state of the math statistics range.
Type	Boolean (read/write)
Parameter	True: Statistics range ON False: Statistics range OFF
Preset Value	False
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.MSTatistics.DOMain.STATe *app*.SCPI.CALCulate(*Ch*).SELected. MSTatistics.DOMain.STATe = true
Equivalent Softkeys	**Markers > Marker Math > Statistics > Statistics Range**

SCPI.CALCulate(*Ch*).SELected.MSTatistics.STATe

Description	Turns ON/OFF the state of the math statistics display.
Type	Boolean (read/write)
Parameter	True: Statistics display ON False: Statistics display OFF
Preset Value	False
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.MSTatistics.STATe *app*.SCPI.CALCulate(*Ch*).SELected.MSTatistics.STATe = true
Equivalent Softkeys	**Markers > Marker Math > Statistics > Statistics**

SCPI.CALCulate(*Ch*).SELected. RLIMit.DATA

Description	Sets/gets the data array, which is the limit line for the ripple limit function. The array size is 1 + 4N, where N is the number of limit line segments. For the n−th point, where n from 1 to N: *Data(0)* the number of limit line segments N is the integer from 0 to 12. Setting 0 clears the limit line; *Data(4n−3)* type of the n−th limit line segment; 0: Off 1: On *Data(4n−2)* the stimulus value in the beginning point of the n−th segment; *Data(4n−2)* the stimulus value in the end point of the n−th segment; *Data(4n−0)* the ripple limit value of the n−th segment.
Type	Variant: array of double (read/write)
Notes	If the array size is not 1 + 4N, where N is *Data(0)*, an error occurs (error code 214). If *Data(4n − 3)* is less than 0 or more than 1, an error occurs (error code 214). When *Data(4n−2), Data(4n−1),* and *Data(4n−0)* elements are out of allowable range, the value is set to the limit, which is closer to the specified value.
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.RLIMit.DATA *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.DATA = Array(1,1,800,900,10)
Equivalent Softkeys	**Analysis > Ripple Limit > Edit Ripple Limit**

SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.LINE

Description	Turns ON/OFF the state of the ripple limit line display.
Type	Boolean (read/write)
Parameter	True: Ripple limit line ON False: Ripple limit line OFF
Preset Value	False
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.LINE *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.LINE = true
Equivalent Softkeys	**Analysis > Ripple Limit > Ripple Limit**

SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.SELect

Description	Sets/gets the number of the ripple limit test band selected for the ripple value display.
Type	Long (read/write)
Range	from 1 to 12
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.SELect *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.SELect = 2
Equivalent Softkeys	**Analysis > Ripple Limit > Ripple Value Band**

SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.VALue

Description	Sets/gets the selection of the display type of the ripple value in the specified band.
Type	String (read/write)
Parameter	**"OFF"** : Ripple value display OFF **"ABSolute"** : Absolute value **"MARgin"** : Margin (difference between the ripple limit and the absolute value)
Preset Value	"OFF"
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.VALue *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.VALue = "ABS"
Equivalent Softkeys	**Analysis > Ripple Limit > Ripple Value**

SCPI.CALCulate(*Ch*).SELected.RLIMit.FAIL

Description	Reads out the Ripple limit test result.
Type	Boolean (read only)
Parameter	True: Fail False: Pass
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.RLIMit.FAIL
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.RLIMit.REPort.DATA

Description	Reads out the data array, which is the ripple limit test results. The array size is 1+3N, where N is the number of ripple limit bands. For the n–th point, where n from 1 to N: *Data(0)* N total number of the bands; *Data(3n–2)* n number of the band; *Data(3n–1)* Ripple value in the n–th band; *Data(3n–0)* Ripple limit test result in the n–th band: 0: Pass 1: Fail
Type	Variant: array of double (read only)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).SELected.RLIMit.REPort.DATA
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.RLIMit.STATe

Description	Turns ON/OFF the state of the ripple limit test.
Type	Boolean (read/write)
Parameter	True: Ripple limit test ON False: Ripple limit test OFF
Preset Value	False
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.RLIMit.STATe *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.STATe = true
Equivalent Softkeys	**Analysis > Ripple Limit > Ripple Test**

SCPI.CALCulate(*Ch*).SELected.SMOothing.APERture

Description	Sets/gets the smoothing aperture for the smoothing function.
Type	Double (read/write)
Range	from 0.01 to 20
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Unit	%
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.SMOothing.APERture *app*.SCPI.CALCulate(*Ch*).SELected.SMOothing.APERture = 1.5
Equivalent Softkeys	**Average > Smo Aperture**

SCPI.CALCulate(*Ch*).SELected.SMOothing.STATe

Description	Turns ON/OFF the state of the trace smoothing function.
Type	Boolean (read/write)
Parameter	True: Trace smoothing ON False: Trace smoothing OFF
Preset Value	False
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.SMOothing.STATe *app*.SCPI.CALCulate(*Ch*).SELected.SMOothing.STATe = true
Equivalent Softkeys	**Average > Smoothing**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.CENTer

Description	Sets/gets the time (distance) domain center value, when the time domain transformation function is turned ON.
Type	Double (read/write)
Range	Varies depending on the specified frequency range and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	s (second) m (meters) or ft (feet)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.CENTer *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.CENTer = 1e−8
RelatedComands	`SCPI.CALCulate(Ch).SELected.TRANsform.TIME.UNIT`
Equivalent Softkeys	**Analysis > Time Domain > Center**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.IMPulse.WIDTh

Description	Sets/gets the impulse width (time domain transformation resolution), coupled with the Kaiser−Bessel window shape β parameter. The impulse width setting changes the β parameter, and setting of β parameter changes the impulse width.
Type	Double (read/write)
Range	Varies depending on the specified frequency range and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Unit	s (second)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.IMPulse.WIDTh *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.IMPulse.WIDTh = 1e−8
Equivalent Softkeys	**Analysis > Time Domain > Window > Impulse Width** (when the transformation type is set to Bandpass or Lowpass Impulse)

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.KBESsel

Description	Sets/gets the β parameter, which controls the Kaiser–Bessel window shape, when performing time domain transformation.
Type	Double (read/write)
Range	from 0 to 13
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	6
Unit	s (second)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.KBESsel *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.KBESsel = 13
Equivalent Softkeys	**Analysis > Time Domain > Window > Kaiser Beta**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.LPFRequency

Description	Changes the frequency range to match with the lowpass type of the time domain transformation function.
Type	Method
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.LPFRequency
Equivalent Softkeys	**Analysis > Time Domain > Set Frequency Low Pass**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.REFLection.TYPE

Description	Sets/gets the selection of the reflection distance either one way or round trip for the time domain transformation function.
Type	String (read/write)
Parameter	**"RTRip"** Round Trip **"OWAY"** One Way
Preset Value	"RTRip"
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 25)
Syntax	*Param* = *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.REFLection.TYPE *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.REFLection.TYPE = "RTR"
Equivalent Softkeys	**Analysis > Time Domain > Reflection Type > {Round Trip | One Way}**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.SPAN

Description	Sets/gets the time (distance) domain span value, when the time domain transformation function is turned ON.
Type	Double (read/write)
Range	Varies depending on the specified frequency range and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	2e−8
Unit	s (second) m (meters) or ft (feet)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.SPAN *app*. SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.SPAN = 1e−8
Related Commands	SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.UNIT
Equivalent Softkeys	**Analysis > Time Domain > Span**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STARt

Description	Sets/gets the start value used for the transformation function of the time domain function. The time (distance) domain start value, when the time domain transformation function is turned ON.
Type	Double (read/write)
Range	Varies depending on the specified frequency range and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	`−1e−8`
Unit	s (second) m (meters) or ft (feet)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STARt *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STARt = 1e−8
Related Commands	SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.UNIT
Equivalent Softkeys	**Analysis > Time Domain > Start**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STATe

Description	Turns ON/OFF the state of the time domain transformation function.
Type	Boolean (read/write)
Parameter	True: Time domain transformation ON False: Time domain transformation OFF
Preset Value	False
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STATe *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STATe = true
Equivalent Softkeys	**Analysis > Time Domain > Time Domain**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STEP.RTIMe

Description	Sets/gets the rise time of the step signal (time domain transformation resolution), coupled with the Kaiser–Bessel window shape β parameter. The impulse width setting changes the β parameter, and setting of β parameter changes the impulse width.
Type	Double (read/write)
Range	Varies depending on the specified frequency range and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Unit	s (second)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	Value = app.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.IMPulse.WIDTh app.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.IMPulse.WIDTh = 1e–8
Equivalent Softkeys	**Analysis > Time Domain > Window > Impulse Width** (when the transformation type is set to Lowpass Step)

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STIMulus

Description	Sets/gets the selection of the stimulus type for the time domain transformation function: impulse or step.
Type	String (read/write)
Parameter	**"IMPulse"** Impulse **"STEP"** Step
Preset Value	"IMP"
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STIMulus *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STIMulus = "STEP"
Equivalent Softkeys	**Analysis > Time Domain > Type > {Bandpass | Lowpass Step | Lowpass Impulse}**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STOP

Description	Sets/gets the time (distance) domain stop value, when the time domain transformation function is turned ON.
Type	Double (read/write)
Range	Varies depending on the specified frequency range and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1e−8
Unit	s (second) m (meters) or ft (feet)
Target	The active trace of channel *Ch*, *Ch:* channel number 1−16
Syntax	*Value* = app.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STOP *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STOP = 2e−8
Equivalent Softkeys	**Analysis > Time Domain > Stop**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.TYPE

Description	Sets/gets the selection of the transformation type for the time domain transformation function: bandpass response or direct current circuit.
Type	String (read/write)
Parameter	**"BPASs"** Bandpass **"LPASs"** Lowpass
Preset Value	"BPASs"
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Param* = app.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.TYPE *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.TYPE = "STEP"
Equivalent Softkeys	**Analysis > Time Domain > Type > {Bandpass | Lowpass Step | Lowpass Impulse}**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.UNIT

Description	Sets/gets the selection of the transformation unit for the time domain transformation function: seconds, meters, feet.
Type	String (read/write)
Parameter	**"SEConds"** Seconds **"METers"** Meters **"FEET"** Feet
Preset Value	"SEConds"
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Param* = *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.UNIT *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.UNIT = "MET"
Equivalent Softkeys	**Analysis > Time Domain > Unit > {Seconds | Meters | Feet}**

SCPI.CALCulate(*Ch*).TRACe(*Tr*).DATA.FDATa

Description	Reads out or writes the formatted data array. The array elements contain measurements in the current format, for example, in logarithmic magnitude format (Log Mag). Also, see section 14. The array size is 2N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(2n−2)* real number in rectangular format, real part in polar and Smith chart formats; *Data(2n−1)* 0 in rectangular format, imaginary part in polar and Smith chart formats.
Type	Variant: array of double (read/write)
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1−16 *Tr:* trace number 1−16
Syntax	Data = app.SCPI.CALCulate(*Ch*).Trace(*Tr*).DATA.FDATa app.SCPI.CALCulate(*Ch*).Trace(*Tr*).DATA.FDATa = Data
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).TRACe(*Tr*).DATA.FMEMory

Description	Reads out or writes the formatted memory array. The array elements contain saved measurements in the current format, for example, in logarithmic magnitude format (Log Mag). Also, see section 14. The array size is 2N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(2n−2)* real number in rectangular format, real part in polar and Smith chart formats; *Data(2n−1)* 0 in rectangular format, imaginary part in polar and Smith chart formats.
Type	Variant: array of double (read/write)
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1−16 *Tr:* trace number 1−16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).Trace(*Tr*).DATA.FMEMory *app*.SCPI.CALCulate(*Ch*).Trace(*Tr*).DATA.FMEMory = *Data*
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*). TRACe(*Tr*).DATA.SDATa

Description	Reads out or writes the corrected data array. The corrected measurements are complex numbers. Also, see section 14. The array size is 2N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(2n−2)* the real part of corrected measurement; *Data(2n−1)* the imaginary part of corrected measurement.
Type	Variant: array of double (read/write)
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1−16 *Tr:* trace number 1−16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).Trace(*Tr*).DATA.SDATa *app*.SCPI.CALCulate(*Ch*).Trace(*Tr*).DATA.SDATa = *Data*
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*). TRACe(*Tr*).DATA.SMEMory

Description	Reads out or writes the corrected memory array. The corrected measurements are complex numbers. Also, see section 14. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* the real part of corrected measurement memory; *Data(2n–1)* the imaginary part of corrected measurement memory.
Type	Variant: array of double (read/write)
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).Trace(*Tr*).DATA.SMEMory *app*.SCPI.CALCulate(*Ch*).Trace(*Tr*).DATA.SMEMory = *Data*
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*). TRACe(*Tr*).DATA.XAXis

Description	Reads out the trace X axis data array. The array size is N, where N is the number of measurement points. For the n–th point, where n from 0 to N–1: *Data(n)* the X axis value;
Type	Variant: array of double (read only)
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	*Data* = app.SCPI.CALCulate(*Ch*).Trace(*Tr*).DATA.XAXis
Equivalent Softkeys	**None**

SCPI.DISPlay.COLor.BACK

Description	Sets/gets the background color for trace display. The array contains 3 elements: *Data(0)* Red value R; *Data(1)* Green value G; *Data(2)* Blue value B.
Type	Variant: array of long (read/write)
Range	For all the array elements from 0 to 255.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0, 0, 0
Syntax	*Data* = app.SCPI.DISPlay.COLor.BACK *app*.SCPI.DISPlay.COLor.BACK = Array(255, 255, 255)
Equivalent Softkeys	**Display > Properties > Color > Background > {Red | Green | Blue}**

SCPI.DISPlay.COLor.GRATicule

Description	Sets/gets the grid and the graticule label color for trace display. The array contains 3 elements: *Data(0)* Red value R; *Data(1)* Green value G; *Data(2)* Blue value B.
Type	Variant: array of long (read/write)
Range	For all array elements from 0 to 255.
Out of Range	Sets the value of the limit, which is closer to the specified value.

Preset Value	*Data(0)* 160;
	Data(1) 160;
	Data(2) 164.

Syntax	*Data* = app.SCPI.DISPlay.COLor.GRATicule *app*.SCPI.DISPlay.COLor. GRATicule = Array(128, 128, 128)
Equivalent Softkeys	**Display > Properties > Color > Grid > {Red | Green | Blue}**

SCPI.DISPlay.COLor.RESet

Description	Restores the display settings to the default values.
Type	Method
Syntax	*app*.SCPI.DISPlay.COLor.RESet
Equivalent Softkeys	**Display > Properties > Set Defaults**

SCPI.DISPlay.COLor.TRACe(*Tr*).DATA

Description	Sets/gets the data trace color. The array contains 3 elements: *Data(0)* Red value R; *Data(1)* Green value G; *Data(2)* Blue value B.
Type	Variant: array of long (read/write)
Range	For all array elements from 0 to 255.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Target	Trace number *Tr* in all channels, *Tr:* trace number 1–16
Syntax	*Data* = app.SCPI.DISPlay.COLor.TRACe(*Tr*).DATA *app*.SCPI.DISPlay.COLor.TRACe(*Tr*).DATA = Array(255, 255, 0)
Equivalent Softkeys	**Display > Properties > Color > Data Trace > {Red | Green | Blue}**

SCPI.DISPlay.COLor.TRACe(*Tr*).MEMory

Description	Sets/gets the memory trace color. The array contains 3 elements: *Data(0)* Red value R; *Data(1)* Green value G; *Data(2)* Blue value B.
Type	Variant: array of long (read/write)
Range	For all array elements from 0 to 255.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Target	Trace number *Tr* in all channels *Tr:* trace number 1–16
Syntax	*Data* = app.SCPI.DISPlay.COLor.TRACe(*Tr*).MEMory *app*.SCPI.DISPlay.COLor.TRACe(*Tr*).MEMory = Array(255, 255, 0)
Equivalent Softkeys	**Display > Properties > Color > Data Trace > {Red | Green | Blue}**

SCPI.DISPlay.ENABle

Description	Turns ON/OFF the display update.
Type	Boolean (read/write)
Parameter	True: Display update ON False: Display update OFF
Preset Value	True
Syntax	*Status* = app.SCPI.DISPlay.ENABle *app*.SCPI.DISPlay.ENABle = true
Equivalent Softkeys	**Display > Update**

SCPI.DISPlay.FSIGn

Description	Turns ON/OFF the state of the *Fail* sign display, when performing limit test or ripple limit test.
Type	Boolean (read/write)
Parameter	True: *Fail* sign display ON False: *Fail* sign display OFF
Preset Value	False
Syntax	*Status* = app.SCPI.DISPlay.FSIGn *app*.SCPI.DISPlay.FSIGn = true
Equivalent Softkeys	**Analysis > Limit Test > Fail Sign** **Analysis > Ripple Limit > Fail Sign**

SCPI.DISPlay.GLABel

Description	Sets/gets the Graticule Label state. (S2VNA only)
Type	String (read/write)
Parameter	**"OFF"** : Graticule label is OFF **"ACTive"** : Only active trace has graticule label **"ALL"** : All traces have graticule label
Preset Value	"ACTive"
Syntax	*Param* = *app*.SCPI.DISPlay.GLABel *app*.SCPI.DISPlay.GLABel = "OFF"
Equivalent Softkeys	**Display > Properties > Graticule Label**

SCPI.DISPlay.IMAGe

Description	Sets/gets the inverted color display of the data traces.
Type	String (read/write)
Parameter	**"NORMal"** : Normal display **"INVert"** : Inverted color display
Preset Value	"NORM"
Syntax	*Param* = app.SCPI.DISPlay.IMAGe *app*.SCPI.DISPlay.IMAGe = "INV"
Equivalent Softkeys	**Display > Properties > Invert Color**

SCPI.DISPlay.HIDE

Description	Hides the analyzer GUI. Blanks the main window and outputs "Remote Control".
Type	Method
Syntax	*app*.SCPI.DISPlay.HIDE
Related Commands	SCPI.DISPlay.SHOW
Equivalent Softkeys	**None**

SCPI.DISPlay.MAXimize

Description	Turns ON/OFF the state of the maximization of the active channel window.
Type	Boolean (read/write)
Parameter	True: maximization ON False: maximization OFF
Preset Value	False
Target	The active channel window
Syntax	*Status* = app.SCPI.DISPlay.MAXimize *app*.SCPI.DISPlay.MAXimize = true
Equivalent Softkeys	**Display > Active Trace/Channel > Maximize Channel**

SCPI.DISPlay.PARTition.FONT.SIZE*(Param)*

Description	Sets/gets the font size of the item specified by Parameter. (S2VNA only)
Type	Long (read/write)
Parameter	**"CHANnel"** : Channel window **"BUTTon"** : Soft buttons **"MENU"** : Menu bar **"CSTatus"** : Channel status **"ASTatus"** : Analyzer status
Range	Fron 10 to 22.
Preset Value	"11"
Syntax	*Size* = *app*.SCPI.DISPlay.PARTition.FONT.SIZE(“CHAN”) *app*.SCPI.DISPlay.PARTition.FONT.SIZE(“CHAN”) = 20
Equivalent Softkeys	**Display > Properties > Font > Size**

SCPI.DISPlay.PARTition.VISible(*Param*)

Description	Shows or hides the display patition specified by Parameter. (S2VNA only)
Type	Boolean (read/write)
Parameter	**"BUTTon"** : Soft buttons **"MENU"** : Menu bar **"CSTatus"** : Channel status **"ASTatus"** : Analyzer status **"TITLe"** : Main window title **"FLABel"** : Frequency label **"MTABle"** : Marker table
Syntax	*State* = *app*.SCPI.DISPlay.PARTition.VISible(“MENU”) *app*.SCPI.DISPlay.PARTition.VISible(“MENU”) = true
Equivalent Softkeys	**Display > Properties > Menu Bar** **Display > Display Properties > Frequency Label** **Markers > Properties > Marker Table** **or None**

SCPI.DISPlay.POSition

Description	Sets/gets the application window position on the screen and its dimension. The array contains 4 elements: Data(0) Specifies the coordinate of the left side of the window; Data(1) Specifies the coordinate of the top of the window; Data(2) Specifies the width of the window; Data(3) Specifies the height of the window. (S2VNA only)
Type	Variant: array of long (read/write)
Range	from 0 to the screen resolution;
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Data(0) – (screen width – 800) / 2, Data(1) – (screen height – 600) / 2, Data(2) – 800, Data(3) – 600, Preset: **Display > Properties > Set Defaults**
Syntax	*Pos* = *app*.SCPI.DISPlay.POSition *app*.SCPI.DISPlay.POSition = Array(0, 0, 800, 600)
Equivalent Softkeys	**None**

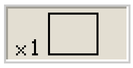
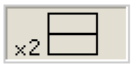
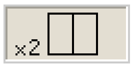
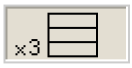
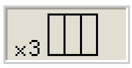
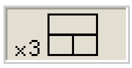
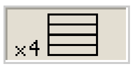
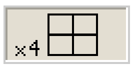
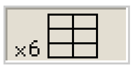
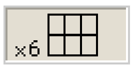
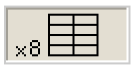
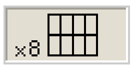
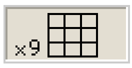
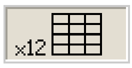
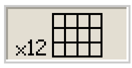
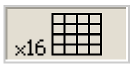
SCPI.DISPlay.SHOW

Description	Shows the analyzer GUI hidden by the SCPI.DISPlay.HIDE command.
Type	Method
Syntax	*app*.SCPI.DISPlay.SHOW
Related Commands	SCPI.DISPlay.HIDE
Equivalent Softkeys	**None**

SCPI.DISPlay.SPLit

Description	Sets/gets the number and layout of the channel windows on the screen. The channel window layout is in Table 1 below.
Type	Long (read/write)
Range	from 1 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Syntax	*Value* = app.SCPI.DISPlay.SPLit *app*.SCPI.DISPlay.SPLit = 2
Equivalent Softkeys	**Display > Allocate channels**

Table 1. Channel Window Layout on the Screen

1: 	2: 	3: 	4: 
5: 	6: 	7: 	8: 
9: 	10: 	11: 	12: 
13: 	14: 	15: 	16: 

SCPI.DISPlay.REFResh.IMMediate

SCPI.DISPlay.UPDate.IMMediate

Description	Updates the display once, when the display update is set to OFF (SCPI.DISPlay.ENABle is set to *False*).
Type	Method
Syntax	*app*.SCPI.DISPlay.REFResh.IMMediate *app*.SCPI.DISPlay.UPDate.IMMediate
Equivalent Softkeys	**None**

SCPI.DISPlay.WINDow(*Ch*).ACTivate

Description	Selects the active channel.
Type	Method
Notes	The channel window must be displayed. In attempt to set to the active channel the channel, which is not displayed, an error occurs.
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.DISPlay.WINDow(*Ch*).ACTivate
Equivalent Softkeys	**Display > Active Trace / Channel > Active Channel**

SCPI.DISPlay.WINDow(*Ch*).ANNotation.MARKer.ALIGn.TYPE

Description	Sets/gets the alignment mode of the marker display position of each trace, when the only active trace display feature is turned OFF (SCPI.DISPlay.WINDow(*Ch*).ANNotation.MARKer.SINGle.STATe property is set to *False*).
Type	String (read/write)
Parameter	**"VERTical"** : Vertical alignment **"HORizontal"** : Horizontal alignment **"NONE"** : No alignment
Preset Value	"NONE"
Target	Channel *Ch* from 1 to 16
Syntax	*Param* = app.SCPI.DISPlay.WINDow(*Ch*).ANNotation.MARKer.ALIGn.TYPE *app*.SCPI.DISPlay.WINDow(*Ch*).ANNotation.MARKer.ALIGn.TYPE = "VERT"
Equivalent Softkeys	**Markers > Properties > Align > {Vertical | Horizontal | OFF}**

SCPI.DISPlay.WINDow(*Ch*).ANNotation.MARKer.SINGle.STATe

Description	Turns ON/OFF the state of the marker display for the active trace only.
Type	Boolean (read/write)
Parameter	True: Only active trace markers display False: Markers of All traces display
Preset Value	True
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI SCPI.DISPlay.WINDow(*Ch*).ANNotation.MARKer.SINGle.STATe *app*.SCPI SCPI.DISPlay.WINDow(*Ch*).ANNotation.MARKer.SINGle.STATe = true
Equivalent Softkeys	**Markers > Properties > Active Only**

SCPI.DISPlay.WINDow(*Ch*).MAXimize

Description	Turns ON/OFF the state of the active trace maximization of the specified channel
Type	Boolean (read/write)
Parameter	True: maximization ON False: maximization OFF
Preset Value	False
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16
Syntax	*Status* = app.SCPI.DISPlay.WINDow*(Ch)*.MAXimize *app*.SCPI.DISPlay.WINDow*(Ch)*.MAXimize = true
Equivalent Softkeys	**Display > Active Trace/Channel > Maximize Trace**

SCPI.DISPlay.WINDow(*Ch*).SPLit

Description	Sets/gets the code of the graph layout of channels. The channel window layout is in Table 1 above.
Type	Long (read/write)
Range	from 1 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Notes	This command does not define the number of traces in the channel window, the number of traces is defined by the SCPI.CALCulate(*Ch*).PARameter.COUNt command.
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.DISPlay.WINDow(*Ch*).SPLit *app*.SCPI.DISPlay.WINDow(*Ch*).SPLit = 2
Equivalent Softkeys	**Display > Allocate Traces**

SCPI.DISPlay.WINDow(*Ch*).TITLe.DATA

Description	Sets/gets the channel title label.
Type	String (read/write)
Target	Channel *Ch* from 1 to 16
Syntax	*Text* = app.SCPI.DISPlay.WINDow(*Ch*).TITLe.DATA *app*.SCPI.DISPlay.WINDow(*Ch*).TITLe.DATA = "Network 1"
Equivalent Softkeys	**Display > Edit Title Label**

SCPI.DISPlay.WINDow(*Ch*).TITLe.STATe

Description	Turns ON/OFF the state of the title label display.
Type	Boolean (read/write)
Parameter	True: Title label display ON False: Title label display OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI.DISPlay.WINDow(*Ch*).TITLe.STATe *app*.SCPI.DISPlay.WINDow(*Ch*).TITLe.STATe = true
Equivalent Softkeys	**Display > Title Label**

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer. MEMory

Description	Turns ON/OFF the state of the memory value display on the marker.
Type	Boolean (read/write)
Parameter	True: Memory value display ON False: Memory value display OFF
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	*Status* = *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer.MEMory *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer.MEMory = true
Equivalent Softkeys	**Markers > Properties > Memory Value**

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer.POSition.X

Description	Sets/gets the display position of the marker value on the X−axis by a percentage of the display width.
Type	Double (read/write)
Range	from 0 to 100
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	%
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1−16 *Tr:* trace number 1−16
Syntax	*Value* = app.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer.POSition.X *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer.POSition.X = 50
Equivalent Softkeys	**Markers > Properties > Data X Position**

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer.POSition.Y

Description	Sets/gets the display position of the marker value on the Y–axis by a percentage of the display height.
Type	Double (read/write)
Range	from 0 to 100
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	%
Target	Trace *Tr* of channel *Ch,* *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	*Value* = app.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer.POSition.Y *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer.POSition.Y = 50
Equivalent Softkeys	**Markers > Properties > Data Y Position**

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).MEMory. STATe

Description	Turns ON/OFF the state of the memory trace display.
Type	Boolean (read/write)
Parameter	True: Memory trace display ON False: Memory trace display OFF
Preset Value	False
Notes	If the memory is empty, an error occurs and the object is ignored.
Target	Trace *Tr* of channel *Ch,* *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	*Status* = app.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).MEMory.STATe *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).MEMory.STATe = true
Equivalent Softkeys	**Display > Display > {Memory | Data & Memory}** (ON) **Display > Display > {Data | OFF}** (OFF)

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).STATe

Description	Turns ON/OFF the state of the data trace display.
Type	Boolean (read/write)
Parameter	True: Data trace display ON False: Data trace display OFF
Preset Value	True
Target	Trace *Tr* of channel *Ch,* *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	*Status* = app.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).STATe *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).STATe = false
Equivalent Softkeys	**Display > Display > {Data | Data & Memory}** (ON) **Display > Display > {Memory | OFF}** (OFF)

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.AUTO

Description	Executes the auto scale function for the trace.
Type	Method
Target	Trace *Tr* of channel *Ch,* *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	*app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.AUTO
Equivalent Softkeys	**Scale > Auto Scale**

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.PDIVision

Description	Sets/gets the trace scale. Sets the scale per division, when the data format is the rectangular format. Sets the full scale value, when the data format is the Smith chart format or the polar format.
Type	Double (read/write)
Range	from 10E−18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Varies depending on the format. Logarithmic Magnitude: 10 dB/Div Phase: 40 °/Div Expand Phase: 100 °/Div Group Delay: 10e−9 s/Div Smith Chart, Polar, SWR: 1 /Div Linear Magnitude: 0.1 /Div Real part, Imaginary part: 0.2 /Div
Unit	dB/Div (decibel per division), °/Div (degree per division), s/Div (second per division)
Target	Trace *Tr* of channel *Ch,* *Ch:* channel number 1−16 *Tr:* trace number 1−16
Syntax	*Value* = app.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.PDIVision *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.PDIVision = 20
Equivalent Softkeys	**Scale > Scale**

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.RLEVel

Description	Sets/gets the value of the reference line (response value on the reference line). For the rectangular format only.
Type	Double (read/write)
Range	from −1E−18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0 (except for SWR: 1)
Unit	dB (decibel) | ° (degree) | s (second)
Target	Trace *Tr* of channel *Ch,* *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	*Value* = app.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.RLEVel *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.RLEVel = 10
Equivalent Softkeys	**Scale > Ref Value**

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.RPOSition

Description	Sets/gets the position of the reference line. For the rectangular format only.
Type	Long (read/write)
Range	From 0 to the number of the scale divisions (set by the SCPI.DISPlay.WINDow(*Ch*).Y.SCALe.DIVisions command, 10 by default).
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	5 (except for SWR: 0)
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	*Value* = app.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.RPOSition *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.RPOSition = 10
Equivalent Softkeys	**Scale > Ref Position**

SCPI.DISPlay.WINDow(*Ch*).X.SPACing

Description	Sets/gets the selection of the display method of the graph horizontal axis for the segment sweep.
Type	String (read/write)
Parameter	**"LINear"** : Frequency base (linear frequency axis) **"OBASe"** : Order base (linear axis of the point numbers)
Preset Value	"LIN"
Target	Channel *Ch* from 1 to 16
Syntax	*Param* = app.SCPI.DISPlay.WINDow(*Ch*).X.SPACing *app*.SCPI.DISPlay.WINDow(*Ch*).X.SPACing = "OBAS"
Equivalent Softkeys	**Stimulus > Segment Table > Segment Display**

SCPI.DISPlay.WINDow(*Ch*).Y.SCALe.DIVisions

Description	Sets/gets the number of the vertical scale divisions. For the rectangular format only.
Type	Long (read/write)
Range	from 4 to 30
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	10
Resolution	2
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.DISPlay.WINDow(*Ch*).Y.SCALe.DIVisions *app*.SCPI.DISPlay.WINDow(*Ch*).Y.SCALe.DIVisions = 12
Equivalent Softkeys	**Scale > Divisions**

SCPI.HCOPy.ABORt

Description	Aborts the printout.
Type	Method
Syntax	*app*.SCPI.HCOPy.ABORt
Equivalent Softkeys	**None**

SCPI.HCOPy.DATE.STAMp

Description	Sets/gets the ON/OFF state of the current date and time printout in the upper right corner.
Type	Boolean (read/write)
Parameter	True: Date & time printout ON False: Date & time printout OFF
Preset Value	True
Syntax	*Status* = app.SCPI.HCOPy.DATE.STAMp *app*.SCPI.HCOPy.DATE.STAMp = False
Equivalent Softkeys	**System > Print > Print Date & Time**

SCPI.HCOPy.IMAGe

Description	Sets/gets the inverted color image printout.
Type	String (read/write)
Parameter	**"NORMal"** : Normal printout **"INVert"** : Inverted color printout
Preset Value	"NORM"
Syntax	*Param* = app.SCPI.HCOPy.IMAGe *app*.SCPI.HCOPy.IMAGe = "INV"
Equivalent Softkeys	**System > Print > Invert Image**

SCPI.HCOPy.IMMediate

Description	Prints out the image displayed on the screen without previewing.
Type	Method
Syntax	*app*.SCPI.HCOPy.IMMediate
Equivalent Softkeys	**System > Print > Print Embedded**

SCPI.HCOPy.PAINt

Description	Sets/gets the color chart for the image printout.
Type	String (read/write)
Parameter	**"COLor"** : Color printout **"GRAY"** : Grayscale printout **"BW"** : Black&white printout
Preset Value	"BW"
Syntax	*Param* = app.SCPI.HCOPy.PAINt *app*.SCPI.HCOPy.PAINt = "COL"
Equivalent Softkeys	**System > Print > Print Color**

SCPI.IEEE4882.CLS

Description	Clears the following: • Error Queue • Status Byte Register • Standard Event Status Register • Operation Status Event Register • Questionable Status Event Register • Questionable Limit Status Event Register • Questionable Limit Channel Status Event Register
Type	Method
Target	Status Reporting System
Syntax	*app*.SCPI.IEEE4882.CLS
Equivalent Softkeys	**None**

SCPI.IEEE4882.IDN

Description	Reads out the Analyzer identification string.
Type	String (read only)
Syntax	StrName = app.NAME
Reply	The identification string in format: <manufacturer>, <model>, <serial number>, <software version>/<hardware version>. For example: CMT, C1209, 08080188, 16.2/01
Equivalent Softkeys	**None**

SCPI.IEEE4882.OPC

Description	Reads out the "1" at the completion of all pending operations. Write form of the command sets 1 the OPC bit (bit 0) of the Standard Event Status Register when all of pending operations complete. *Note*: since COM server executes commands sequentially and any operation is complete before COM server returns control the OPC read command doesn't wait anything.
Type	Long (read/write)
Target	Status Reporting System
Syntax	*Value* = *app*.SCPI.IEEE4882.OPC *app*.SCPI.IEEE4882.OPC = Dummy
Equivalent Softkeys	**None**

SCPI.IEEE4882.RST

Description	Restores the default settings of the instrument. There is difference from presetting the instrument with the SCPI.SYSTem.PRESet method – in this case the trigger mode is set to *Hold*.
Type	Method
Target	Analyzer
Syntax	*app*.SCPI.IEEE4882.RST
Equivalent Softkeys	**None**

SCPI.IEEE4882.TRG

Description	Generates a trigger signal and initiates a sweep under the following conditions. • Trigger source is set to the *BUS* (set by the command SCPI.TRIGger.SEQuence.SOURce = BUS), otherwise an error occurs and the command is ignored. • Analyzer must be in the *trigger waiting* state, otherwise (the analyzer is in the *measurement* state or *hold* state) an error occurs and the command is ignored. The command is completed immediately after the generation of the trigger signal (does not wait the end of a sweep).
Type	Method
Target	Analyzer
Syntax	*app*.SCPI.IEEE4882.TRG
Related Commands	SCPI.TRIGger.SEQuence.SOURce SCPI.INITiate(*Ch*).CONTinuous SCPI.INITiate(*Ch*).IMMediate
Equivalent Softkeys	**None**

SCPI.IEEE4882.WAI

Description	Waits for the execution of all commands sent before this command. *Note*: since COM server executes commands sequentially and any operation is complete before COM server returns control the `WAI` command doesn't wait anything.
Type	Method
Target	Analyzer
Syntax	*app*.SCPI.IEEE4882.WAI
Equivalent Softkeys	**None**

SCPI.INITiate(*Ch*).CONTinuous

Description	Turns ON/OFF the *continuous trigger initiation* mode. When the *continuous initiation* mode turned **ON**: • If the *Internal* trigger source is selected by the command SCPI.TRIGger.SEQuence.SOURce = "INT", then the channel continuously sweeps; • If the trigger source other than the internal is selected, then the channel goes to the *trigger waiting* state. Upon receipt of a trigger from the selected source, the sweep starts for the channels awaiting trigger. On completion of the sweep the channel goes to the *trigger waiting* state. When the *continuous trigger initiation* mode turned **OFF** the channel is in the *Hold* state, to initiate a sweep one should use the INIT command.
Type	Boolean (read/write)
Parameter	True: Continuous trigger initiation mode ON False: Continuous trigger initiation mode OFF
Preset Value	True
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI.INITiate(*Ch*).CONTinuous *app*.SCPI.INITiate(*Ch*).CONTinuous = False
Notes	The sweep start in continuous trigger initiation mode depends on the trigger source. If the trigger is set to internal, the sweeps will go immediately one after another. If the trigger is set otherwise, the sweep will start when the trigger signal is received.
Equivalent Softkeys	**Stimulus > Trigger > Continuous** **Stimulus > Trigger > Hold**

SCPI.INITiate(*Ch*).IMMediate

Description	Puts the channel to the *Trigger Waiting* state for the one trigger event. The channel should be in the *hold* state, otherwise an error occurs and the command is ignored. The channel goes into the *Hold* as a result of the command SCPI.INITiate(*Ch*).CONTinuous = False. If the *Internal* trigger source is selected by the command TRIG:SOUR INT, then the command initiates a sweep in the single channel, otherwise the channel goes to the *Waiting for a* S*ingle Trigger* mode. Upon receipt of a trigger from the selected source, the sweep starts for the channels awaiting trigger. On completion of the sweep the channel goes to the *Hold* state. The method returns control immediately (does not wait the end of the sweep).
Type	Method
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.INITiate(*Ch*).IMMediate
Notes	The sweep start in the single trigger mode depends on the trigger source. If the trigger is set to internal, the sweep will start immediately after the method is called. If the trigger is set otherwise, the sweep will start when the trigger signal is received.
Equivalent Softkeys	**Stimulus > Trigger > Single**

SCPI.MMEMory.CATalog*(Dir)*

Description	This command reads out the following information on the hard drive: • Space in use • Available space • Name and size of all files (including directories) in the specified directory Format: ("{A},{B},{Name 1},,{Size 1},{Name 2},,{Size 2}, … ,{Name N},,{Size N}") Where N is the number of all files in the specified directory and n is an integer between 1 and N. {A}: Space in use of the hard drive (byte). {B}: Available space of the hard drive (byte). {Name n}: Name of the n-th file (directory). {Size n}: Size (byte) of the n-th file (directory). Always 0 for directories.
Type	String (read only)
Parameter	*Dir* – Directory name whose information is to read out
Syntax	Cat = app.SCPI.MMEMory.CATalog("\.")
Equivalent Softkeys	**None**

SCPI.MMEMory.COPY(*Src*, *Dst*)

Description	Copies a file.
Type	Method
Syntax	*app*.SCPI.MMEMory.COPY(*Src*, *Dst*)
Parameter	*Src* – Source file name. String data type. *Dst* – Destination file name. String data type.
Equivalent Softkeys	**None**

SCPI.MMEMory.DELete(*File*)

Description	Deletes a file.
Type	Method
Syntax	*app*.SCPI.MMEMory.DELete(*File*)
Parameter	*File* – File name. String data type.
Equivalent Softkeys	**None**

SCPI.MMEMory.LOAD.CHANnel.STATe

Description	Recalls the analyzer state for the active channel, saved in one of the four memory registers by the SCPI.MMEMory.STORe.CHANnel.STATe command.
Type	String (write only)
Parameter	"A" : Recall from register A "B" : Recall from register B "C" : Recall from register C "D" : Recall from register D
Target	Active channel
Syntax	*app*.SCPI.MMEMory.LOAD.CHANnel.STATe = "A"
Equivalent Softkeys	**Save/Recall > Recall Channel > State {A | B | C | D}**

SCPI.MMEMory.LOAD.CKIT(*Ck*)

Description	Recalls the definition file for the calibration kit. The file must be saved by the SCPI.MMEMory.STORe.CKIT(Ck) command.
Type	String (write only)
Parameter	File Name
Target	Calibration kit Ck, *Ck:* calibration kit number 1−50
Syntax	*app*.SCPI.MMEMory.LOAD.CKIT(*Ck*) = *File*
Notes	If the full path to the file is not specified, the \CalKit subdirectory of the main directory will be searched for the file. The calibration kit definition file has **.ckd* extension by default.
Equivalent Softkeys	**None**

SCPI.MMEMory.LOAD.LIMit

Description	Recalls the specified limit table file. The file must be saved by the SCPI.MMEMory.STORe.LIMit command.
Type	String (write only)
Parameter	File Name
Target	Active trace of the active channel.
Syntax	*app*.SCPI.MMEMory.LOAD.LIMit = *File*
Notes	If the full path to the file is not specified, the \Limit subdirectory of the main directory will be searched for the file. The limit table files have **.lim* extension by default.
Equivalent Softkeys	**Analysis > Limit Test > Edit Limit Line > Restore Limit Table**

SCPI.MMEMory.LOAD.PLOSs(*Pt*)

Description	Recalls the specified loss compensation table file. The file must be saved by the SCPI.MMEMory.STORe.PLOSs(*Pt*) command.
Type	String (write only)
Parameter	File Name
Target	Port *Pt* of the active channel, *Pt:* port number 1–2 (4 for S4VNA) .
Syntax	*app*.SCPI.MMEMory.LOAD.PLOSs(*Pt*) = *File*
Notes	If the full path to the file is not specified, the \CalKit subdirectory of the main directory will be searched for the file. The loss compensation file has **.lct* extension by default.
Equivalent Softkeys	**Calibration > Power Calibration > Loss Compen > Import Loss Table**

SCPI.MMEMory.LOAD.RLIMit

Description	Recalls the ripple limit table file. The file must be saved by the SCPI.MMEMory.STORe.RLIMit command.
Type	String (write only)
Parameter	File Name
Target	Active trace of the active channel.
Syntax	*app*.SCPI.MMEMory.LOAD.RLIMit = *File*
Notes	If the full path to the file is not specified, the \Limit subdirectory of the main directory will be searched for the file. The ripple limit files have **.rlm* extension by default.
Equivalent Softkeys	**Analysis > Ripple Limit > Edit Ripple Limit > Restore Ripple Limit Table**

SCPI.MMEMory.LOAD.SEGMent

Description	Recalls the segment table file. The file must be saved by the SCPI.MMEMory.STORe.SEGMent command.
Type	String (write only)
Parameter	File Name
Target	Active channel
Syntax	*app*.SCPI.MMEMory.LOAD.SEGMent = *File*
Notes	If the full path to the file is not specified, the \Segment subdirectory of the main directory will be searched for the file. The segment files have **.seg* extension by default.
Equivalent Softkeys	**Stimulus > Segment Table > Recall...**

SCPI.MMEMory.LOAD.SNP.DATA

Description	Loads the Touchstone file with the specified name to the measured S−parameters of the active channel. The Touchstone file types s1p, s2p, s3p and s4p are supported. The *.s1p file loads the S11 parameter only. *.s2p file loads all S11, S21, S12 and S22 parameters and so on. On completion of the command, the channel goes to the hold state.
Type	String (write only)
Parameter	File Name
Target	Active channel
Syntax	*app*.SCPI.MMEMory.LOAD.SNP.DATA = *File*
Equivalent Softkeys	**Save/Recall > Load Data From Touchstone File > To S-parameters...**

SCPI.MMEMory.LOAD.SNP.TRACe(*Tr*).MEMory

Description	Loads the Touchstone file with the specified name to the memory trace. The Touchstone file types s1p, s2p, s3p and s4p are supported. The current measured S-parameter of data trace selects the appropriate S-parameter from Touchstone file. After successful load the display of memory trace is automatically switched on.
Type	String (write only)
Parameter	File Name
Target	Trace *Tr* of active channel, *Tr:* trace number 1−16 Active channel set by command SCPI.DISPlay.WINDow(*Ch*).ACTivate
Syntax	*app*.SCPI.MMEMory.LOAD.SNP.TRACe(*Tr*).MEMory = *File*
Equivalent Softkeys	**Save/Recall > Load Data From Touchstone File > To Active Trace Memory**

SCPI.MMEMory.LOAD.STATe

Description	Recalls the specified analyzer state file. The file must be saved by the SCPI.MMEMory.STORe.STATe command.
Type	String (write only)
Parameter	File Name
Syntax	*app*.SCPI.MMEMory.LOAD.STATe = *File*
Notes	If the full path to the file is not specified, the \State subdirectory of the main directory will be searched for the file. The analyzer state files have **.sta* extension by default.
Equivalent Softkeys	**Save/Recall > Recall State > State...**

SCPI.MMEMory.MDIRectory

Description	Creates a new directory (folder). Contains the full path to the folder being created.
Type	String (write only)
Parameter	Directory Name
Syntax	*app*.SCPI.MMEMory.MDIRectory = *Path*
Equivalent Softkeys	**None**

SCPI.MMEMory.STORe.CHANnel.CLEar

Description	Clears the memory of the channel state saved by the SCPI.MMEMory.STORe.CHANnel.STATe command.
Type	Method
Syntax	*app*.SCPI.MMEMory.STORe.CHANnel.CLEar
Equivalent Softkeys	**Save/Recall > Save Channel > Clear States**

SCPI.MMEMory.STORe.CHANnel.STATe

Description	Saves the analyzer state of the items set for the active channel into one of the four memory registers.
Type	String (write only)
Parameter	"A" : Save to register A "B" : Save to register B "C" : Save to register C "D" : Save to register D
Target	Active channel
Syntax	*app*.SCPI.MMEMory.STORe.CHANnel.STATe = "A"
Equivalent Softkeys	**Save/Recall > Save Channel > State {A | B | C | D}**

SCPI.MMEMory.STORe.CKIT(*Ck*)

Description	Saves the definition file for the calibration kit parameters.
Type	String (write only)
Parameter	File Name
Target	Calibration kit Ck, *Ck:* calibration kit number 1–50
Syntax	*app*.SCPI.MMEMory.STORe.CKIT(*Ck*) = *File*
Notes	If the full path to the file is not specified, the file will be saved to the \CalKit subdirectory of the main directory. The calibration kit definition file has *.*ckd* extension by default.
Equivalent Softkeys	**None**

SCPI.MMEMory.STORe.FDATa

Description	Saves the CSV formatted data into a file.
Type	String (write only)
Parameter	File Name
Target	Active trace of the active channel
Syntax	*app*.SCPI.MMEMory.STORe.FDATa = *File*
Notes	If the full path to the file is not specified, the file will be saved to the \CSV subdirectory of the main directory. The files have *.*csv* extension by default.
Equivalent Softkeys	**Save/Recall > Save Trace Data**

SCPI.MMEMory.STORe.IMAGe

Description	Saves the display image in BMP or PNG format into a file.
Type	String (write only)
Parameter	File Name
Syntax	*app*.SCPI.MMEMory.STORe.IMAGe = *File*
Notes	If the full path to the file is not specified, the file will be saved to the \Image subdirectory of the main directory. If the file has **.png* extension, the file has PNG format, in all the other cases the file has BMP format.
Equivalent Softkeys	**System > Print > Print Windows > Save as...**

SCPI.MMEMory.STORe.LIMit

Description	Saves the limit table into a file with the specified name.
Type	String (write only)
Parameter	File Name
Target	Active trace of the active channel
Syntax	*app*.SCPI.MMEMory.STORe.LIMit = *File*
Notes	If the full path to the file is not specified, the file will be saved to the \Limit subdirectory of the main directory. The files have **.lim* extension by default.
Equivalent Softkeys	**Analysis > Limit Test > Edit Limit Line > Save Limit Table**

SCPI.MMEMory.STORe.PLOSs(*Pt*)

Description	Saves the loss compensation table into a file with the specified name.
Type	String (write only)
Parameter	File Name
Target	Port *Pt* of the active channel, *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*app*.SCPI.MMEMory.STORe.PLOSs(*Pt*) = *File*
Notes	If the full path to the file is not specified, the file will be saved to the \CalKit subdirectory of the main directory. The loss compensation files have **.lct* extension by default.
Equivalent Softkeys	**Calibration > Power Calibration > Loss Compen > Export Loss Table**

SCPI.MMEMory.STORe.RLIMit

Description	Saves the ripple limit table into a file with the specified name.
Type	String (write only)
Parameter	File Name
Target	Active trace of the active channel
Syntax	*app*.SCPI.MMEMory.STORe.RLIMit = *File*
Notes	If the full path to the file is not specified, the file will be saved to the \Limit subdirectory of the main directory. The ripple limit files have **.rlm* extension by default.
Equivalent Softkeys	**Analysis > Ripple Limit > Edit Ripple Limit > Save Ripple Limit Table**

SCPI.MMEMory.STORe.SEGMent

Description	Saves the segment table in a file with the specified name.
Type	String (write only)
Parameter	File Name
Target	Active channel
Syntax	*app*.SCPI.MMEMory.STORe.SEGMent = *File*
Notes	If the full path to the file is not specified, the file will be saved to the \Segment subdirectory of the main directory. The segment files have **.seg* extension by default.
Equivalent Softkeys	**Stimulus > Segment Table > Save...**

SCPI.MMEMory.STORe.SNP.DATA

Description	Saves the measured S−parameters of the active channel into a Touchstone file with the specified name. The file type (s1p, s2p, s3p or s4p) is set by the SCPI.MMEMory.STORe.SNP.TYPE.S1P to SCPI.MMEMory.STORe.SNP.TYPE.S4P properties. The 1−port type file saves one reflection parameter: S11 or S22. The 2−port type file saves all the four parameters: S11, S21, S12, S22 and so on.
Type	String (write only)
Parameter	File Name
Target	Active channel
Syntax	*app*.SCPI.MMEMory.STORe.SNP.DATA = *File*
Notes	If the full path to the file is not specified, the file will be saved to the \FixtureSim subdirectory of the main directory.
Equivalent Softkeys	**Save/Recall > Save Data to Touchstone File > Save File...**

SCPI.MMEMory.STORe.SNP.FORMat

Description	Sets/gets the data format for the S−parameters saving by the SCPI.MMEMory.STORe.SNP.DATA command.
Type	String (read/write)
Parameter	" MA" : Logarithmic Magnitude / Angle format " DB" : Linear Magnitude / Angle format " RI" : Real part /Imaginary part format
Preset Value	"RI"
Syntax	*Param* = app.SCPI.MMEMory.STORe.SNP.FORMat *app*.SCPI.MMEMory.STORe.SNP.FORMat = "DB"
Equivalent Softkeys	**Save/Recall > Save Data to Touchstone File > Format**

SCPI.MMEMory.STORe.SNP.SEParator

Description	Sets/gets the Touchstone file separator symbol when the S−parameters are saved by the SCPI.MMEMory.STORe.SNP.DATA command.
Type	String (read/write)
Parameter	" TAB" : Tab symbol (0x09) " SPACe" : Space symbol (0x20)
Preset Value	"TAB"
Syntax	*Param* = app.SCPI.MMEMory.STORe.SNP.SEParator *app*.SCPI.MMEMory.STORe.SNP.SEParator = "SPACe"
Equivalent Softkeys	**Save/Recall > Save Data to Touchstone File > Separator**

SCPI.MMEMory.STORe.SNP.TYPE.S1P

Description	Selects s1p save type (1-port measurements) and sets port numbers (selects S11, S22, S33 or S44 parameter) when saving the measured S-parameters by the SCPI.MMEMory.STORe.SNP.DATA command.
Type	Long (read/write)
Range	Port number from 1 to 2 (4 for S4VNA)
Out of Range	An error occurs. Error code 222.
Preset Value	1
Syntax	*Value* = app.SCPI.MMEMory.STORe.SNP.TYPE.S1P *app*.SCPI.MMEMory.STORe.SNP.TYPE.S1P = 2
Equivalent Softkeys	**Save/Recall > Save Data to Touchstone File > Type > 1–Port (s1p)** **Save/Recall > Save Data to Touchstone File > Select Port (s1p)**

SCPI.MMEMory.STORe.SNP.TYPE.S2P

Description	Selects s2p save type (2-port measurements) and sets port numbers when saving the measured S-parameters by the SCPI.MMEMory.STORe.SNP.DATA command. The array contains 2 elements: *Data(0)* First port number from 1 to 2 (4 for S4VNA); *Data(1)* Second port number from 1 to 2 (4 for S4VNA).
Type	Variant: array of long (read/write)
Syntax	*Data* = app.SCPI.MMEMory.STORe.SNP.TYPE.S2P *app*.SCPI.MMEMory.STORe.SNP.TYPE.S2P = Array(1, 2)
Equivalent Softkeys	**Save/Recall > Save Data to Touchstone File > Type > 2–Port (s2p)** **Save/Recall > Save Data to Touchstone File > Select Ports (s2p)**

SCPI.MMEMory.STORe.SNP.TYPE.S3P

Description	Selects s3p save type and sets port numbers when saving the measured S-parameters by the SCPI.MMEMory.STORe.SNP.DATA command. The array contains 3 elements: *Data(0)* First port number; *Data(1)* Second port number; *Data(2)* Third port number. (S4VNA only)
Type	Variant: array of long (read/write)
Syntax	*Data* = app.SCPI.MMEMory.STORe.SNP.TYPE.S3P *app*.SCPI.MMEMory.STORe.SNP.TYPE.S3P = Array(1, 2, 3)
Equivalent Softkeys	**Save/Recall > Save Data to Touchstone File > Type > 3–Port (s3p)** **Save/Recall > Save Data to Touchstone File > Select Ports (s3p)**

SCPI.MMEMory.STORe.SNP.TYPE.S4P

Description	Selects s4p save type and sets port numbers when saving the measured S-parameters by the SCPI.MMEMory.STORe.SNP.DATA command. The array contains 3 elements: *Data(0)* First port number; *Data(1)* Second port number; *Data(2)* Third port number; *Data(3)* Forth port number. (S4VNA only)
Type	Variant: array of long (read/write)
Syntax	*Data* = app.SCPI.MMEMory.STORe.SNP.TYPE.S4P *app*.SCPI.MMEMory.STORe.SNP.TYPE.S4P = Array(1, 2, 3, 4)
Equivalent Softkeys	**Save/Recall > Save Data to Touchstone File > Type > 4–Port (s4p)**

SCPI.MMEMory.STORe.STATe

Description	Saves the analyzer state into a file with the specified name.
Type	String (write only)
Parameter	File Name
Syntax	*app*.SCPI.MMEMory.STORe.STATe = *File*
Notes	If the full path to the file is not specified, the file will be saved to the \State subdirectory of the main directory. The state files have **.sta* extension by default.
Equivalent Softkeys	**Save/Recall > Save State > State...**

SCPI.MMEMory.STORe.STYPe

Description	Selects the type of the analyzer or channel state saving by the SCPI.MMEMory.STORe.STATe or SCPI.MMEMory.STORe.CHANnel.STATe command.
Type	String (read/write)
Parameter	"**STATe**": Measurement conditions "**CSTate**": Measurement conditions and calibration tables "**DSTate**": Measurement conditions and data traces "**CDSTate**": Measurement conditions, calibration tables and data traces **"CMSTate"**: Measurement conditions, calibration and memory
Preset Value	"CST"
Syntax	*Param* = app.SCPI.MMEMory.STORe.STYPe *app*.SCPI.MMEMory.STORe.STYPe = "STATe"
Equivalent Softkeys	**Save/Recall > Save Type**

SCPI.OUTPut.STATe

Description	Turns ON/OFF the stimulus signal output. Measurements cannot be performed when the stimulus signal output is set to OFF.
Type	Boolean (read/write)
Parameter	True: Stimulus signal output ON False: Stimulus signal output OFF
Preset Value	True
Target	Analyzer
Syntax	*Status* = app.SCPI.OUTPut.STATe *app*.SCPI.OUTPut.STATe = False
Equivalent Softkeys	**Stimulus > Power > RF Out**

SCPI.SENSe(*Ch*).AVERage.CLEar

Description	Resets the averaging count to 0. Restarts the averaging process.
Type	Method
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).AVERage.CLEar
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).AVERage.COUNt

Description	Sets/gets the averaging factor, when the averaging function is set to ON by the SCPI.SENSe(*Ch*).AVERage.STATe command.
Type	Long (read/write)
Range	from 1 to 999
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	10
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SENSe(*Ch*).AVERage.COUNt *app*.SCPI.SENSe(*Ch*).AVERage.COUNt = 2
Equivalent Softkeys	**Average > Avg Factor**

SCPI.SENSe(*Ch*).AVERage.STATe

Description	Turns ON/OFF the state of the averaging function.
Type	Boolean (read/write)
Parameter	True: Averaging ON False: Averaging OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI.SENSe(*Ch*).AVERage.STATe *app*.SCPI.SENSe(*Ch*).AVERage.STATe = False
Equivalent Softkeys	**Average > Averaging**

SCPI.SENSe(*Ch*).BANDwidth.RESolution

Description	Sets/gets the IF bandwidth value. Less IF bandwidth reduces noise and increases measurement time.
Type	Double (read/write)
Range	from 1 to 30000
Resolution	In steps of 1, 1.5, 2, 3, 5, 7.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	10000
Unit	Hz (Hertz)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SENSe(*Ch*).BANDwidth.RESolution *app*.SCPI.SENSe(*Ch*).BANDwidth.RESolution = 100
Equivalent Softkeys	**Average > IF Bandwidth**

SCPI.SENSe(*Ch*).CORRection.CLEar

Description	Clears the calibration coefficient table.
Type	Method
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.CLEar
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.DATA(*Str, Pt_r, Pt_s*)

Description	Sets/gets the calibration coefficient data array set by the type of the corrected error term *Str,* the number of the receiver port *Pt_r* and the number of the source port *Pt_s*, *Str :* error term (see below) *Pt_r:* the number of the receiver port 1-2 (4 for S4VNA) *Pt_s:* the number of the source port 1-2 (4 for S4VNA) The array size is 2N, where N is the number of measurement points. For the n-th point, where n from 1 to N: *Data(2n-2)* real part of the calibration coefficients *Data(2n-1)* imaginary part of the calibration coefficients
Type	Variant: array of double (read/write)
Parameter	String *Str* – corrected error term: "ES": Source match "ER": Reflection tracking "ED": Directivity "EL": Load match "ET": Transmission tracking "EX": Isolation When ES, ER, or ED is used, the numbers of the ports *Pt_r* and *Pt_s* must be the same. When EL, ET, or EX is used, the numbers of the ports *Pt_r* and *Pt_s* must be different.
Target	Channel *Ch* from 1 to 16
Syntax	*Data* = app.SCPI.SENSe(*Ch*).CORRection.COEFficient.DATA(*Str, Pt_r, Pt_s*) *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.DATA(*Str, Pt_r, Pt_s*) = *Data*
Notes	When sets, this command writes the calibration coefficient data array to a temporary storage. Written calibration coefficients become effective after the `SCPI.SENSe(`*`Ch`*`).CORRection.COEFficient.SAVE` method is invoked.
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.ERESponse

Description	Selects the port numbers and sets the *1–path 2–port calibration* type, when the written calibration coefficients are made effective by the SCPI.SENSe(*Ch*).CORRection.COEFficient.SAVE method. The array contains 2 elements: *Data(0)* the number of the receiver port; *Data(1)* the number of the source port.
Type	Variant: array of long (write only)
Range	Port number is 1–2 (4 for S4VNA). Array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*Ports* = Array(2, 1) *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.ERESponse = *Ports*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.OPEN

Description	Selects the port and sets the *response calibration (Open)* type, when the written calibration coefficients are made effective by the SCPI.SENSe(*Ch*).CORRection.COEFficient.SAVE method.
Type	Long (write only)
Range	Port number from 1 to 2 (4 for S4VNA)
Out of Range	An error occurs. Error code: 222.
Target	Channel *Ch* from 1 to 16
Syntax	*Port* = 1 *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.OPEN = *Port*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.SHORt

Description	Selects the port and sets the *response calibration (Short)* type, when the written calibration coefficients are made effective by the SCPI.SENSe(*Ch*).CORRection.COEFficient.SAVE method.
Type	Long (write only)
Range	from 1–2 (4 for S4VNA)
Out of Range	An error occurs. Error code: 222.
Target	Channel *Ch* from 1 to 16
Syntax	*Port* = 1 *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.SHORt = *Port*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.THRU

Description	Selects the ports and sets the *response calibration (Thru)* type, when the written calibration coefficients are made effective by the SCPI.SENSe(*Ch*).CORRection.COEFficient.SAVE method. The array contains 2 elements: *Data(0)* the number of the receiver port; *Data(1)* the number of the source port.
Type	Variant: array of long (write only)
Range	Port number is 1 to 2 (or 4 for S4VNA). The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*Ports* = Array(2, 1) *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.THRU = *Ports*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT1

Description	Selects the port and sets the *full 1–port calibration* type, when the written calibration coefficients are made effective by the SCPI.SENSe(*Ch*).CORRection.COEFficient.SAVE method.
Type	Long (write only)
Range	Port number from 1 to 2 (4 for S4VNA)
Out of Range	An error occurs. Error code: 222.
Target	Channel *Ch* from 1 to 16
Syntax	*Port* = 1 *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT1= *Port*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT2

Description	Selects the ports and sets the *full 2–port calibration* type, when the written calibration coefficients are made effective by the SCPI.SENSe(*Ch*).CORRection.COEFficient.SAVE method. The array contains 2 elements: *Data(0)* specifies a port for full 2-port calibration 1-4; *Data(1)* specifies a port for full 2-port calibration 1-4.
Type	Variant: array of long (write only)
Range	Port number is 1 to 2 (or 4 for S4VNA). The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*Ports* = Array(1,2) *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT2 = *Ports*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT3

Description	Selects the ports and sets the *full 3–port calibration* type, when the written calibration coefficients are made effective by the SCPI.SENSe(*Ch*).CORRection.COEFficient.SAVE method. The array contains 3 elements: *Data(0)* specifies a port for full 3-port calibration; *Data(1)* specifies a port for full 3-port calibration; *Data(2)* specifies a port for full 3-port calibration. (S4VNA only)
Type	Variant: array of long (write only)
Range	Port number is 1 to 4. The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*Ports* = Array(1,2,4) *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT2 = *Ports*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT4

Description	Selects the ports and sets the *full 4–port calibration* type, when the written calibration coefficients are made effective by the SCPI.SENSe(*Ch*).CORRection.COEFficient.SAVE method. The array contains 4 elements: *Data(0)* specifies a port for full 4-port calibration; *Data(1)* specifies a port for full 4-port calibration; *Data(2)* specifies a port for full 4-port calibration; *Data(3)* specifies a port for full 4-port calibration. (S4VNA only)
Type	Variant: array of long (write only)
Range	Port number is 1 to 4. The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*Ports* = Array(1,2,3,4) *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT2 = *Ports*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.SAVE

Description	Enables the written calibration coefficients depending on the selected calibration type. On completion of the method the written calibration coefficients are cleared, the error correction automatically turns ON. At the attempt to execute this method before all the needed calibration coefficients are written, an error occurs and the method is ignored.
Type	Method
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.SAVE
Related Commands	Calibration type selection: SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.ERESponse SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse. OPEN SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse. SHORt SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse. THRU SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT1 SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT2 SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT3 SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT4 Calibration coefficient writing: SCPI.SENSe(*Ch*).CORRection.COEFficient.DATA (*Str, Pt_r, Pt_s*)
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.ISOLation

Description	Measures the isolation calibration data between the source port and the receiver port. The array contains 2 elements: *Data(0)* the number of the receiver port; *Data(1)* the number of the source port.
Type	Variant: array of long (write only)
Range	Port number is 1 to 2 (or 4 for S4VNA). The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.ISOLation = Array(1, 2)
Notes	The command starts the measurement immediately if the trigger source for calibration set to the "Internal" by the command SENS:CORR:TRIG:FREE, otherwise waits for the trigger signal. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Calibrate > Response (Thru) > Isolation (Optional)** **Calibration > Calibrate > One Path 2–Port Cal > Isolation (Optional)** **Calibration > Calibrate > 2–Port SOLT Cal > Port x-y Isol (Optional)** **Calibration > Calibrate > 3–Port SOLT Cal > Port x-y Isol (Optional)** **Calibration > Calibrate > 4–Port SOLT Cal > Port x-y Isol (Optional)**

SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.LOAD

Description	Measures the calibration data of the *load* standard for the specified port.
Type	Long (write only)
Range	Port number is 1 to 2 (4 for S4VNA).
Out of Range	An error occurs (error code: 222).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.LOAD = 1
Notes	The command starts the measurement immediately if the trigger source for calibration set to the "Internal" by the command SENS:CORR:TRIG:FREE, otherwise waits for the trigger signal. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Calibrate > Response (Open) > Load (Optional)** **Calibration > Calibrate > Response (Short) > Load (Optional)** **Calibration > Calibrate > 1−Port SOL Cal > Load** **Calibration > Calibrate > One Path 2−Port Cal > Load** **Calibration > Calibrate > 2−Port SOLT Cal > Port n Load** **Calibration > Calibrate > 3−Port SOLT Cal > Reflection Port n > Load** **Calibration > Calibrate > 4−Port SOLT Cal > Reflection Port n > Load**

SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.OPEN

Description	Measures the calibration data of the *open* standard for the specified port.
Type	Long (write only)
Range	Port number is 1 to 2 (4 for S4VNA).
Out of Range	An error occurs (error code: 222).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.OPEN= 1
Notes	The command starts the measurement immediately if the trigger source for calibration set to the "Internal" by the command SENS:CORR:TRIG:FREE, otherwise waits for the trigger signal. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Calibrate > Response (Open) > Open** **Calibration > Calibrate > 1–Port SOL Cal > Open** **Calibration > Calibrate > One Path 2–Port Cal > Open** **Calibration > Calibrate > 2–Port SOLT Cal > Port n Open** **Calibration > Calibrate > 3–Port SOLT Cal > Reflection Port n > Open** **Calibration > Calibrate > 4–Port SOLT Cal > Reflection Port n > Open**

SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.SHORt

Description	Measures the calibration data of the *short* standard for the specified port.
Type	Long (write only)
Range	Port number is 1 to 2 (4 for S4VNA).
Out of Range	An error occurs (error code: 222).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.SHORt = 1
Notes	The command starts the measurement immediately if the trigger source for calibration set to the "Internal" by the command SENS:CORR:TRIG:FREE, otherwise waits for the trigger signal. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Calibrate > Response (Short) > Short** **Calibration > Calibrate > 1–Port SOL Cal > Short** **Calibration > Calibrate > One Path 2–Port Cal > Short** **Calibration > Calibrate > 2–Port SOLT Cal > Port n Short** **Calibration > Calibrate > 3–Port SOLT Cal > Reflection Port n > Short** **Calibration > Calibrate > 4–Port SOLT Cal > Reflection Port n > Short**

SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.SUBClass

Description	Sets/gets the subclass number which is used for the calibration of the selected channel (*Ch*). For example, if two different subclasses are set in advance, say Thru 1 & Thru 2, which are visible at the calibration softkey, this command can select either Thru1 or Thru2. When performing Thru cal, either Thru 1 or Thru 2 set with this command is used for the calibration.
Type	Long (read/write)
Range	1 to 8
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.SUBClass = 2 *Subclass* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.SUBClass
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.THRU

Description	Measures the calibration data of the *thru* standard between the source port and the receiver port. The array contains 2 elements: *Data(0)* the number of the receiver port; Data*(1)* the number of the source port.
Type	Variant: array of long (write only)
Range	Port number is 1 to 2 (or 4 for S4VNA). The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.THRU= Array(1, 2)
Notes	The command starts the measurement immediately if the trigger source for calibration set to the "Internal" by the command SENS:CORR:TRIG:FREE, otherwise waits for the trigger signal. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Calibrate > Response (Thru) > Thru** **Calibration > Calibrate > One Path 2–Port Cal > Thru** **Calibration > Calibrate > 2–Port SOLT Cal > Port x–y Thru** **Calibration > Calibrate > 3–Port SOLT Cal > x–y Thru** **Calibration > Calibrate > 4–Port SOLT Cal > Transmission > x–y Thru**

SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.TRLLine

Description	Measures the calibration data of the *TRL Line/Match* standard between the source port and the receiver port. Line standard is measured in both directions. Match standard requires two commands to measure forward and reverse directions. Match is connected to the stimulus port (second port). The array contains 2 elements: *Data(0)* the number of the receiver port; *Data(1)* the *number* of the source port.
Type	Variant: array of long (write only)
Range	Port number is 1 to 4. The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.TRLLine= Array(1, 2)
Notes	The command starts the measurement immediately if the trigger source for calibration set to the "Internal" by the command SENS:CORR:TRIG:FREE, otherwise waits for the trigger signal. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Calibrate > 2–Port TRL Cal > x–y Line/Match** **Calibration > Calibrate > 3–Port TRL Cal > Line/Match > x–y Line/Match** **Calibration > Calibrate > 4–Port TRL Cal > Line/Match > x–y Line/Match**

SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.TRLReflect

Description	Measures the calibration data of the *TRL Reflect* standard for the specified port.
Type	Long (write only)
Range	Port number is 1 to 4.
Out of Range	An error occurs (error code: 222).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.TRLReflect = 1
Notes	The command starts the measurement immediately if the trigger source for calibration set to the "Internal" by the command SENS:CORR:TRIG:FREE, otherwise waits for the trigger signal. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Calibrate > 2–Port TRL Cal > Port x Reflect** **Calibration > Calibrate > 3–Port TRL Cal > Reflect > Port x** **Calibration > Calibrate > 4–Port TRL Cal > Reflect > Port x**

SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.TRLThru

Description	Measures the calibration data of the *TRL Thru/Line* standard between two ports. Thru/line standard is measured in both directions. The array contains 2 elements: *Data(0)* the number of the first port; *Data(1)* the number of the second port.
Type	Variant: array of long (write only)
Range	Port number is 1 to 4. The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.TRLThru= Array(1, 2)
Notes	The command starts the measurement immediately if the trigger source for calibration set to the "Internal" by the command SENS:CORR:TRIG:FREE, otherwise waits for the trigger signal. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Calibrate > 2–Port TRL Cal > x–y Thru/Line** **Calibration > Calibrate > 3–Port TRL Cal > Thru/Line > x–y Thru/Line** **Calibration > Calibrate > 4–Port TRL Cal > Thru/Line > x–y Thru/Line**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.LABel

Description	Sets/gets the calibration kit label.
Type	String (read/write)
Parameter	Label
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16
Syntax	*Lab* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.LABel *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.LABel = "User1"
Equivalent Softkeys	**Calibration > Cal Kit > Label**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.LOAD(*Pt*)

Description	Sets/gets the number of the calibration standard of the load type, used for the measurement of the specified port *Pt*, *Pt:* port number 1–2 (4 for S4VNA)
Type	Long (read/write)
Range	From 1 to the number of standards in the calibration kit.
Out of Range	If the specified standard number is greater than the number of standards in the kit, an error occurs (error code: 222). If the specified standard number is not the load standard number, an error occurs (error code: 220).
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16
Syntax	*Num* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.LOAD(*Pt*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.LOAD(*Pt*) = 1
Equivalent Softkeys	**Calibration > Cal Kit > Specify CLSs > Load Port n (Row)**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.OPEN(*Pt*)

Description	Sets/gets the number of the calibration standard of the open type, used for the measurement of the specified port *Pt,* *Pt:* port number 1–2 (4 for S4VNA)
Type	Long (read/write)
Range	From 1 to the number of standards in the calibration kit.
Out of Range	If the specified standard number is greater than the number of standards in the kit, an error occurs (error code: 222). If the specified standard number is not the open standard number, an error occurs (error code: 220).
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16
Syntax	*Num* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.OPEN(*Pt*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.OPEN(*Pt*) = 1
Equivalent Softkeys	**Calibration > Cal Kit > Specify CLSs > Open Port x (Row)**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.SELect

Description	Sets/gets the subclass used to specify classes of calbration standards by the commands SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.XXXX.
Type	Long (read/write)
Range	1 to 8.
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16
Syntax	*Num* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.SELect *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.SELect = 1
Equivalent Softkeys	**Calibration > Cal Kit > Specify CLSs > Subclass n (Column)**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.SHORt(*Pt*)

Description	Sets/gets the number of the calibration standard of the short type, used for the measurement of the specified port *Pt,* *Pt:* port number 1–2 (4 for S4VNA)
Type	Long (read/write)
Range	From 1 to the number of standards in the calibration kit.
Out of Range	If the specified standard number is greater than the number of standards in the kit, an error occurs (error code: 222). If the specified standard number is not the short standard number, an error occurs (error code: 220).
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16
Syntax	*Num* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.SHORt(*Pt*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.SHORt(*Pt*) = 1
Equivalent Softkeys	**Calibration > Cal Kit > Specify CLSs > Short Port x (Row)**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.THRU(*Pt_m, Pt_n*)

Description	Sets/gets the number of the calibration standard of the thru type, used for the measurement between the *Pt_m* and *Pt_n* ports, *Pt_m:* port number 1–2 (4 for S4VNA) *Pt_n:* port number 1–2 (4 for S4VNA)
Type	Long (read/write)
Range	From 1 to the number of standards in the calibration kit.
Out of Range	If the specified standard number is greater than the number of standards in the kit, an error occurs (error code: 222). If the specified standard number is not the thru standard number, an error occurs (error code: 220).
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16
Syntax	*Num* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.THRU(1, 2) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.THRU(1, 2) = 1
Equivalent Softkeys	**Calibration > Cal Kit > Specify CLSs > Thru Port x-y (Row)**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.TRLLine(*Pt_m, Pt_n*)

Description	Sets/gets the number of the calibration standard of the TRL Line/Match type, used for the measurement between the *Pt_m* and *Pt_n* ports, *Pt_m:* port number 1−2 (4 for S4VNA) *Pt_n:* port number 1−2 (4 for S4VNA)
Type	Long (read/write)
Range	From 1 to the number of standards in the calibration kit.
Out of Range	If the specified standard number is greater than the number of standards in the kit, an error occurs (error code: 222). If the specified standard number is not the thru standard number, an error occurs (error code: 220).
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1−16
Syntax	*Num* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.TRLLine(1, 2) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.TRLLine(1, 2) = 1
Equivalent Softkeys	**Calibration > Cal Kit > Specify CLSs > TRL Line/Match Port x-y (Row)**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.TRLReflect(*Pt*)

Description	Sets/gets the number of the calibration standard of the TRL Reflect type, used for the measurement of the specified port *Pt,* *Pt:* port number 1–2 (4 for S4VNA)
Type	Long (read/write)
Range	From 1 to the number of standards in the calibration kit.
Out of Range	If the specified standard number is greater than the number of standards in the kit, an error occurs (error code: 222). If the specified standard number is not the short standard number, an error occurs (error code: 220).
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16
Syntax	*Num* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.TRLReflect(*Pt*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.TRLReflect(*Pt*) = 1
Equivalent Softkeys	**Calibration > Cal Kit > Specify CLSs > TRL Reflect Port x (Row)**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.TRLThru(*Pt_m, Pt_n*)

Description	Sets/gets the number of the calibration standard of the TRL Thru type, used for the measurement between the *Pt_m* and *Pt_n* ports, *Pt_m:* port number 1–2 (4 for S4VNA) *Pt_n:* port number 1–2 (4 for S4VNA)
Type	Long (read/write)
Range	From 1 to the number of standards in the calibration kit.
Out of Range	If the specified standard number is greater than the number of standards in the kit, an error occurs (error code: 222). If the specified standard number is not the thru standard number, an error occurs (error code: 220).
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16
Syntax	*Num* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.TRLThru(1, 2) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.TRLThru(1, 2) = 1
Equivalent Softkeys	**Calibration > Cal Kit > Specify CLSs > TRL Thru Port x-y (Row)**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.RESet

Description	Resets the calibration kit to the factory settings.
Type	Method
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.RESet
Equivalent Softkeys	**Calibration > Cal Kit > Restore Cal Kit**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.SELect

Description	Sets/gets the selected calibration kit for the channel.
Type	Long (read/write)
Range	from 1 to 50
Out of Range	An error occurs. Error code: 222.
Preset Value	1
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.SELect *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.SELect = 3
Equivalent Softkeys	**Calibration > Cal Kit > Select n**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).ARBitrary

Description	Sets/gets the value of the arbitrary impedance for the load standard.
Type	Double (read/write)
Range	from −1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	50 or 75, depending on the selected calibration kit.
Unit	Ω (Ohm)
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 *Std:* calibration standard number 1-30
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).ARBitrary *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).ARBitrary = 50
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > Terminal Impedance**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C0

Description	Sets/gets the C0 value of the open calibration standard.
Type	Double (read/write)
Range	from −1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Unit	1E−15 F (Farad)
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1−16 *Std:* standard number 1-30
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C0 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C0 = 100
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > C0 10^{-15} F**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C1

Description	Sets/gets the C1 value of the open calibration standard.
Type	Double (read/write)
Range	from −1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Unit	1E−27 F/Hz (Farad/Hertz)
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1−16 *Std:* standard number 1-30
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C1 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C1 = 100
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > C1 10^{-27} F/Hz**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C2

Description	Sets/gets the C2 value of the open calibration standard.
Type	Double (read/write)
Range	from −1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Unit	1E−36 F/Hz^2 (Farad/Hertz^2)
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch*: channel number 1−16 *Std*: standard number 1-30
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C2 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C2 = 100
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > C2 10^{-36} F/Hz^2**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C3

Description	Sets/gets the C3 value of the open calibration standard.
Type	Double (read/write)
Range	from −1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Unit	1E−45 F/Hz^3 (Farad/Hertz^3)
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1−16 *Std:* standard number 1-30
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C3 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C3 = 100
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > C3 10^{-45} F/Hz^3**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).DELay

Description	Sets/gets the offset delay value of the calibration standard.
Type	Double (read/write)
Range	from −1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Unit	s (second)
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1−16 *Std:* standard number 1-30
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).DELay *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).DELay = 93E−12
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > Offset Delay**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).FMAXimum

Description	Sets/gets the maximum frequency value of the calibration standard.
Type	Double (read/write)
Range	from 0 to 1E14
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	999GHz
Unit	Hz (Hertz)
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 *Std:* standard number 1-30
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).FMAXimum *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).FMAXimum = 3E9
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > Frequency max**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(Std).FMINimum

Description	Sets/gets the minimum frequency value of the calibration standard.
Type	Double (read/write)
Range	from 0 to 1E14
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0 Hz
Unit	Hz (Hertz)
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 *Std:* standard number 1-30
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).FMINimum *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).FMINimum = 3E9
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > Frequency min**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L0

Description	Sets/gets the L0 value of the short calibration standard.
Type	Double (read/write)
Range	from −1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Unit	1E−12 H (Henry)
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1−16 *Std:* standard number 1-30
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L0 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L0 = 100
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > L0 10^{-12} H**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L1

Description	Sets/gets the L1 value of the short calibration standard.
Type	Double (read/write)
Range	from −1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Unit	1E−24 H/Hz (Henry/Hertz)
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1−16 *Std:* standard number 1-30
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L1 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L1 = 100
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > L1 10^{-24} H/Hz**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L2

Description	Sets/gets the L2 value of the short calibration standard.
Type	Double (read/write)
Range	from −1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Unit	1E−33 H/Hz^2 (Henry/Hertz^2)
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1−16 *Std:* standard number
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L2 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L2 = 100
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > L2 10^{-33} H/Hz^2**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L3

Description	Sets/gets the L3 value of the short calibration standard.
Type	Double (read/write)
Range	from −1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Unit	1E−42 H/Hz^3 (Henry/Hertz^3)
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1−16 *Std:* standard number 1-30
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L3 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L3 = 100
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > L3 10^{-42} H/Hz^3**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).LABel

Description	Sets/gets the label of the calibration standard.
Type	String (read/write)
Parameter	Label
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1−16 *Std:* standard number 1-30
Syntax	*Lab* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).LABel *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).LABel = "Open"
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > Standard Label**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).LOSS

Description	Sets/gets the offset loss value of the calibration standard.
Type	Double (read/write)
Range	from −1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Unit	Ω/s (Ohm/second)
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1−16 *Std:* standard number 1-30
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).LOSS *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).LOSS = 700E6
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > Offset Loss**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).TYPE

Description	Sets/gets the type of the calibration standard.
Type	String (read/write)
Parameter	"OPEN" : Open "SHORt" : Short "LOAD" : Load "THRU" : Thru "UTHRu" : Unknown Thru "SLID" : Sliding load "DATA" : Data based standard "NONE" : Not defined
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 *Std:* standard number 1-30
Syntax	*Param* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).TYPE *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).TYPE = "OPEN"
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > Standard Type**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).Z0

Description	Sets/gets the offset Z0 value of the calibration standard.
Type	Double (read/write)
Range	from 0 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	50 or 75, depending on the selected calibration kit.
Unit	Ω (Ohm)
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 *Std:* standard number 1-30
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).Z0 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).Z0 = 50
Equivalent Softkeys	**Calibration > Cal Kit > Define STDs > Offset Z0**

SCPI.SENSe(*Ch*).CORRection.COLLect.CLEar

Description	Clears the measurement values of the calibration standards.
Type	Method
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CLEar
Equivalent Softkeys	**Calibration > Calibrate > {Response (Open) | Response (Short) | Response (Thru) | One Path 2–Port Cal | 1–Port SOL Cal | 2–Port SOLT Cal | 3–Port SOLT Cal | 4–Port SOLT Cal | 2–Port TRL Cal | 3–Port TRL Cal | 4–Port TRL Cal} > Cancel > OK**

SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.ISOLation(*Pt_r*, *Pt_s*)

Description	Sets/gets the array of the isolation calibration measurements performed between the receiver port *Pt_r* and the source port *Pt_s*, *Pt_r:* the number of the receiver port 1−2 (4 for S4VNA) *Pt_s:* the number of the source port 1−2 (4 for S4VNA) The array elements are complex numbers. Also see section 14. The array size is 2N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(2n−2)* real part of the measurement; *Data(2n−1)* imaginary part of the measurement.
Type	Variant: array of double (read/write)
Target	Channel *Ch* from 1 to 16
Syntax	*Data* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.ISOLation(*Pt_r*, *Pt_s*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.ISOLation(*Pt_r*, *Pt_s*) = *Data*
Related Commands	SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.ISOLation
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.LOAD(*Pt*)

Description	Sets/gets the array of the *load* calibration standard measurements for the port *Pt*, *Pt:* port number 1–2 (4 for S4VNA) The array elements are complex numbers. Also see section 14. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* real part of the measurement; *Data(2n–1)* imaginary part of the measurement.
Type	Variant: array of double (read/write)
Target	Channel *Ch* from 1 to 16
Syntax	*Data* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.LOAD(*Pt*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.LOAD(*Pt*) = *Data*
Related Commands	SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.LOAD
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.OPEN(*Pt*)

Description	Sets/gets the array of the *open* calibration standard measurements for the port *Pt*, *Pt:* port number 1−2 (4 for S4VNA) The array elements are complex numbers. Also see section 14. The array size is 2N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(2n−2)* real part of the measurement; *Data(2n−1)* imaginary part of the measurement.
Type	Variant: array of double (read/write)
Target	Channel *Ch* from 1 to 16
Syntax	*Data* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.OPEN(*Pt*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.OPEN(*Pt*) = *Data*
Related Commands	SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.OPEN
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.SHORt(*Pt*)

Description	Sets/gets the array of the *short* calibration standard measurements for the port *Pt*, *Pt:* port number 1–2 (4 for S4VNA) The array elements are complex numbers. Also see section 14. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* real part of the measurement; *Data(2n–1)* imaginary part of the measurement.
Type	Variant: array of double (read/write)
Target	Channel *Ch* from 1 to 16
Syntax	*Data* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.SHORt(*Pt*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.SHORt(*Pt*) = *Data*
Related Commands	SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.SHORt
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.THRU.MATCh(*Pt_r*,*Pt_s*)

Description	Sets/gets the array of the reflection measurements of the *thru* standard connected between the receiver port *Pt_r* and the source port *Pt_s*, *Pt_r:* the number of the receiver port 1−2 (4 for S4VNA) *Pt_s:* the number of the source port 1−2 (4 for S4VNA) The array elements are complex numbers. Also see section 14. The array size is 2N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(2n−2)* real part of the measurement; *Data(2n−1)* imaginary part of the measurement.
Type	Variant: array of double (read/write)
Target	Channel *Ch* from 1 to 16
Syntax	*Data* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.THRU.MATCh(*Pt_r*, *Pt_s*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.THRU.MATCh(*Pt_r*, *Pt_s*) = *Data*
Related Commands	SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.THRU
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.THRU.TRANsmission(*Pt_r*, *Pt_s*)

Description	Sets/gets the array of the transmission measurements performed between the receiver port *Pt_r* and the source port *Pt_s*, using the *thru* standard, *Pt_r*: the number of the receiver port 1–2 (4 for S4VNA) *Pt_s*: the number of the source port 1–2 (4 for S4VNA) The array elements are complex numbers. Also see section 14. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* real part of the measurement; *Data(2n–1)* imaginary part of the measurement.
Type	Variant: array of double (read/write)
Target	Channel *Ch* from 1 to 16
Syntax	*Data* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.THRU.TRANsmission(*Pt_r*, *Pt_s*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.THRU.TRANsmission(*Pt_r*, *Pt_s*) = *Data*
Related Commands	SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.THRU
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.CCHeck.ACQuire

Description	Executes the confidence check of the calibration coefficients of specified channel using the AutoCal module. The command sets the AutoCal Module to the special internal state, reads the S-parameters of this state from the AutoCal Module and sets memory traces so that they can be compared with actual measured data. Comparison is carried out visually by the user.
Type	Method
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.CCHeck.ACQuire
Equivalent Softkeys	**Calibration > AutoCal > Confidence Check**

SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.ERESponse

Description	Executes one path 2-port calibration between the specified 2 ports of selected channel (*Ch*) using the AutoCal module.
Type	Variant: array of long (write only)
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.ERESponse = Array(2, 1)
Equivalent Softkeys	**Calibration > AutoCal > One Path 2–Port Cal > Port x-y**

SCPI.SENSe(*1*).CORRection.COLLect.ECAL.INFormation

Description	Gets information about the AutoCal Module connected to the Network Analyzer in a string with comma separated fields. Autocal Module Information: Model Name, Serial Number, Current Temperature of AutoCal Module, Selected Characterization Information: Characterization Name, Characterization Date and Time, Min Frequency, Max Frequency, Number of Points, Characterization Temperature, PortA Connector, PortB Connector, PortA Adapter, PortB Adapter, Analyzer, Location, Operator.
Type	String (read only)
Target	AutoCal module
Syntax	*ID* = app.SCPI.SENSe(*1*).CORRection.COLLect.ECAL.INFormation
Equivalent Softkeys	**Calibration > AutoCal > Characterization Info...**

SCPI.SENSe(*1*).CORRection.COLLect.ECAL.ORIenation.STATe

Description	Turns ON/OFF the state of the Auto-Orientation function used when executing AutoCal.
Type	Boolean (read/write)
Parameter	True: Auto-Orientation function ON False: Auto-Orientation function OFF
Preset Value	False
Target	AutoCal
Syntax	*Status* = app.SCPI.SENSe(*1*).CORRection.COLLect.ECAL.ORIentation.STATe *app*.SCPI.SENSe(*1*).CORRection.COLLect.ECAL.ORIentation.STATe = False
Equivalent Softkeys	**Calibration > AutoCal > Orientation > Auto-Orientation**

SCPI.SENSe(*1*).CORRection.COLLect.ECAL.PATH(*Pt*)

Description	Sets or reads out the AutoCal module port number which is connected to a selected Network Analyzer port (*Pt*).
Type	Long (read/write)
Parameter	1: Port A of AutoCal Module 2: Port B of AutoCal Module 3: Port C of AutoCal Module (4 port AutoCal module only) 4: Port D of AutoCal Module (4 port AutoCal module only)
Target	AutoCal
Syntax	*Value* = app.SCPI.SENSe(*1*).CORRection.COLLect.ECAL.PATH(*Pt*) *app*.SCPI.SENSe(*1*).CORRection.COLLect.ECAL.PATH(*Pt*) = 2
Equivalent Softkeys	**Calibration > AutoCal > Orientation > Port x**

SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.SOLT1

Description	Executes 1-port calibration of the specified port of selected channel (*Ch*) using the AutoCal module.
Type	Long (write only)
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.SOLT1 = *Port*
Equivalent Softkeys	**Calibration > AutoCal > 1-Port Cal > Port x**

SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.SOLT2

Description	Executes full 2-port calibration between the specified 2 ports of selected channel (*Ch*) using the AutoCal module.
Type	Variant: array of long (write only)
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.SOLT2 = Array(2, 1)
Equivalent Softkeys	**Calibration > AutoCal > 2-Port Cal > Port x-y**

SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.SOLT3

Description	Executes full 3-port calibration between the specified 3 ports of selected channel (*Ch*) using the AutoCal module (4-port AutoCal module only).
Type	Variant: array of long (write only)
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.SOLT3 = Array(1, 2,3)
Equivalent Softkeys	**Calibration > AutoCal > 3-Port Cal > Select Ports [x-y-z]** **Calibration > AutoCal > 3-Port Cal > 4-Port Autocal Module**

SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.SOLT4

Description	Executes full 4-port calibration between the specified 4 ports of selected channel (*Ch*) using the AutoCal module (4-port AutoCal module only).
Type	Variant: array of long (write only)
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.SOLT4 = Array(1,2,3,4)
Equivalent Softkeys	**Calibration > AutoCal > 3-Port Cal > 4-Port Autocal Module**

SCPI.SENSe(*1*).CORRection.COLLect.ECAL.UCHar

Description	Sets or reads out the Characteristic number used when executing AutoCal (factory or user characterization).
Type	String (read/write)
Parameter	"CHAR0" : Factory characterization "CHAR1" : User characterization 1 "CHAR2" : User characterization 2 "CHAR3" : User characterization 3
Preset Value	CHAR0
Target	AutoCal
Syntax	*Param* = app.SCPI.SENSe(*1*).CORRection.COLLect.ECAL.UCHar *app*.SCPI.SENSe(*1*).CORRection.COLLect.ECAL.UCHar = "CHAR0"
Equivalent Softkeys	**Calibration > AutoCal > Characterization**

SCPI.SENSe(*1*).CORRection.COLLect.ECAL.UTHRu.STATe

Description	Turns ON/OFF the state of the Unknown Thru feature used when executing AutoCal.
Type	Boolean (read/write)
Parameter	True: Unknown Thru feature ON False: Unknown Thru feature OFF
Preset Value	False
Target	AutoCal
Syntax	*Status* = app.SCPI.SENSe(*1*).CORRection.COLLect.ECAL.UTHRu.STATe *app*.SCPI.SENSe(*1*).CORRection.COLLect.ECAL.UTHRu.STATe = False
Note	PLANAR 304/1 does not support
Equivalent Softkeys	**Calibration > AutoCal > Unkn Thru**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.ERESponse

Description	Selects the ports and sets the *one path 2–port calibration* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method. The array contains 2 elements: *Data(0)* the number of the receiver port; *Data(1)* the number of the source port.
Type	Variant: array of long (write only)
Range	Port number is 1 to 2 (4 for S4VNA). The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.ERESponse = Array(2, 1)
Equivalent Softkeys	**Calibration > Calibrate > One Path 2–Port Cal > Select Ports**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.OPEN

Description	Selects the port and sets the *response calibration (Open)* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method.
Type	Long (write only)
Range	Port number from 1 to 2 (4 for S4VNA)
Out of Range	An error occurs. Error code: 222.
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.OPEN = 1
Equivalent Softkeys	**Calibration > Calibrate > Response (Open) > Select Port**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.SHORt

Description	Selects the port and sets the *response calibration (Short)* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method.
Type	Long (write only)
Range	Port number from 1 to 2 (4 for S4VNA)
Out of Range	An error occurs. Error code: 222.
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.HORt = 1
Equivalent Softkeys	**Calibration > Calibrate > Response (Short) > Select Port**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.THRU

Description	Selects the ports and sets the *response calibration (Thru)* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method. The array contains 2 elements: *Data(0)* the number of the receiver port; *Data(1)* the number of the source port.
Type	Variant: array of long (write only)
Range	Port number is 1 to 2 (4 for S4VNA). Array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.THRU = Array(2, 1)
Equivalent Softkeys	**Calibration > Calibrate > Response (Thru) > Select Ports**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT1

Description	Selects the port and sets the *full 1–port calibration* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method.
Type	Long (write only)
Range	Port number from 1 to 2 (4 for S4VNA)
Out of Range	An error occurs. Error code: 222.
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT1 = 1
Equivalent Softkeys	**Calibration > Calibrate > 1–Port SOL Cal > Select Port**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT2

Description	Selects the port and sets the *2–port SOLT calibration* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method. The array contains 2 elements: *Data(0)* specifies a port for full 2-port calibration 1-4; *Data(1)* specifies a port for full 2-port calibration 1-4.
Type	Variant: array of long (write only)
Range	Port number is 1 to 2 (4 for S4VNA). Array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT2 = Array(2, 1)
Equivalent Softkeys	**Calibration > Calibrate > 2–Port SOLT Cal > Select Ports**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT3

Description	Selects the port and sets the *3–port SOLT calibration* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method. The array contains 3 elements: *Data(0)* specifies a port for full 3-port calibration; *Data(1)* specifies a port for full 3-port calibration; *Data(2)* specifies a port for full 3-port calibration. (S4VNA only)
Type	Variant: array of long (write only)
Range	Port number is 1 to 4. Array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT3 = Array(1, 2, 4)
Equivalent Softkeys	**Calibration > Calibrate > 3–Port SOLT Cal > Select Ports**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT4

Description	Selects the port and sets the *4–port SOLT calibration* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method. The array contains 4 elements: *Data(0)* specifies a port for full 4-port calibration; *Data(1)* specifies a port for full 4-port calibration; *Data(2)* specifies a port for full 4-port calibration; *Data(3)* specifies a port for full 4-port calibration. (S4VNA only)
Type	Variant: array of long (write only)
Range	Port number is 1 to 4. Array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT4 = Array(1, 2, 3, 4)
Equivalent Softkeys	**Calibration > Calibrate > 4–Port SOLT Cal**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TRL2

Description	Selects the port and sets the *2–port TRL calibration* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method. The array contains 2 elements: *Data(0)* specifies a port for 2-port TRL calibration; *Data(1)* specifies a port for 2-port TRL calibration.
Type	Variant: array of long (write only)
Range	Port number is 1 to 4. Array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TRL2 = Array(1, 2)
Equivalent Softkeys	**Calibration > Calibrate > 2–Port TRL Cal > Select Ports**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TRL3

Description	Selects the port and sets the *3–port TRL calibration* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method. The array contains 3 elements: *Data(0)* specifies a port for 3-port TRL calibration; *Data(1)* specifies a port for 3-port TRL calibration; Data*(2)* specifies a port for 3-port TRL calibration. (S4VNA only)
Type	Variant: array of long (write only)
Range	Port number is 1 to 4. Array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TRL3 = Array(1, 2, 3)
Equivalent Softkeys	**Calibration > Calibrate > 3–Port TRL Cal > Select Ports**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TRL4

Description	Selects the port and sets the *4–port TRL calibration* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method. The array contains 4 elements: *Data(0)* specifies a port for 4-port TRL calibration; *Data(1)* specifies a port for 4-port TRL calibration; Data*(2)* specifies a port for 4-port TRL calibration; Data*(3)* specifies a port for 4-port TRL calibration. (S4VNA only)
Type	Variant: array of long (write only)
Range	Port number is 1 to 4. Array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TRL4 = Array(1, 2, 3, 4)
Equivalent Softkeys	**Calibration > Calibrate > 4–Port TRL Cal**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TYPE

Description	Reads out the calibration type selected for calculating of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method.
Type	String (read only)
Parameter	"RESPO" : Response (Open) "RESPS" : Response (Short) "RESPT" : Response (Thru) "1PATH" : One path 2–port calibration "SOLT1" : Full 1–port calibration "SOLT2" : Full 2–port calibration "SOLT3" : Full 3–port calibration "SOLT4" : Full 4–port calibration "TRL2" : 2–port TRL calibration "TRL3" : 3–port TRL calibration "TRL4" : 4–port TRL calibration "NONE" : Not defined
Target	Channel *Ch* from 1 to 16
Syntax	*Param* = app.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TYPE
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE

Description	Calculates the calibration coefficients from the calibration standards measurements depending on the selected calibration type. On completion of the method, all the calibration standards measurements are cleared and the error correction automatically turns ON. At the attempt to execute this method before all the needed standards are measured, an error occurs and the method is ignored. Before executing this command it is neccessery to select calibration type by one of commands SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.XXXX.
Type	Method
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE
Related Commands	Calibration type selection: SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.OPEN SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.SHORt SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.THRU SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.ERESponse SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT1 SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT2 SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT3 SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT4 SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TRL2 SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TRL3 SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TRL4 Calibration standards measurement: SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.ISOLation SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.LOAD SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.OPEN SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.SHORt SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.THRU SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.TRLLine SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.TRLReflect SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.TRLThru
Equivalent Softkeys	**Calibration > Calibrate > {Response (Open) | Response (Short) | Response (Thru) | One Path 2–Port Cal | 1–Port SOL Cal | 2–Port SOLT Cal | 3–Port SOLT Cal | 4–Port SOLT Cal | 2–Port TRL Cal | 3–Port TRL Cal | 4–Port TRL Cal} > Apply**

SCPI.SENSe(*Ch*).CORRection.COLLect.SIMPlified.SAVE

Description	Same as SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method. Allows to accomplish 3 and 4 port calibration with non complete set of standard measurements. About omissible calibration standards see user guide chapter "Simplified calibration".
Type	Method
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.SIMPlified.SAVE
Related Commands	Calibration type selection: SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT3 SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT4 SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TRL3 SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TRL4 Calibration standards measurement: SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.ISOLation SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.THRU SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.TRLLine
Equivalent Softkeys	**Calibration > Calibrate > {3–Port SOLT Cal | 4–Port SOLT Cal | 3–Port TRL Cal | 4–Port TRL Cal} > Apply**

SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).FREQuency(*Ls*)

Description	Sets/gets the value of the frequency at the point number *Ls* for calculation of the loss for the port extension function, *Ls:* point number 1–2
Type	Double (read/write)
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1E9
Unit	Hz (Hertz)
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).FREQuency(*Ls*) *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).FREQuency(*Ls*) = 100E6
Equivalent Softkeys	**Calibration > Port Extensions > Loss Port n > {Freq1 | Freq2}**

SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).INCLude(*Ls*).STATe

Description	Turns ON/OFF the state of the loss compensation at the point number *Ls* to calculate the loss for the port extension function, *Ls:* point number 1–2
Type	Boolean (read/write)
Parameter	True: Loss compensation ON False: Loss compensation OFF
Preset Value	False
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*Status* = app.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).INCLude(*Ls*).STATe *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).INCLude(*Ls*).STATe = True
Equivalent Softkeys	**Calibration > Port Extensions > Loss Port n > {Loss1 | Loss2}**

SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).LDC

Description	Sets/gets the loss value at DC for the loss calculation of the port extension function.
Type	Double (read/write)
Range	from −200 to 200
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	dB (decibel)
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1−16 *Pt:* port number 1−2 (4 for S4VNA)
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).LDC *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).LDC = 10
Equivalent Softkeys	**Calibration > Port Extensions > Loss Port n > Loss at DC**

SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).LOSS(*Ls*)

Description	Sets/gets the loss value at the point number *Ls* to calculate the loss for the port extension function, *Ls*: point number 1–2
Type	Double (read/write)
Range	from −200 to 200
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	dB (decibel)
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).LOSS(*Ls*) *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).LOSS(*Ls*) = 10
Equivalent Softkeys	**Calibration > Port Extensions > Loss Port n > {Loss1 | Loss2}**

SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).TIME

Description	Sets/gets the electrical delay value for the port extension function.
Type	Double (read/write)
Range	from −10 to 10
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	s (second)
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1−16 *Pt:* port number 1−2 (4 for S4VNA)
Syntax	*Value* = app.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).TIME *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).TIME = 10E-9
Equivalent Softkeys	**Calibration > Port Extensions > Extension Port n**

SCPI.SENSe(*Ch*).CORRection.EXTension.STATe

Description	Turns ON/OFF the state of the port extension function.
Type	Boolean (read/write)
Parameter	True: Port extension function ON False: Port extension function OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI.SENSe(*Ch*).CORRection.EXTension.STATe *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.STATe = True
Equivalent Softkeys	**Calibration > Port Extensions > Extensions**

SCPI.SENSe(*Ch*).CORRection.INFormation(rPt, sPt)

Description	Reads out the calibration information string for port pair.
Type	String (read only)
Target	Channel *Ch* from 1 to 16
Syntax	*CalInfo* = app.SCPI.SENSe(*Ch*).CORRection.INFormation(*rPt, sPt*)
Equivalent Softkeys	**None**

SCPI.SENSe*(1)*.CORRection.IMPedance.INPut.MAGNitude

Description	Sets/gets the system characteristic impedance (Z0) value.
Type	Double (read/write)
Range	from 0.001 to 1000
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	50
Unit	Ω (Ohm)
Syntax	*Value* = app.SCPI.SENSe.CORRection.IMPedance.INPut.MAGNitude *app*.SCPI.SENSe.CORRection.IMPedance.INPut.MAGNitude = 50
Warning	Object *SENSe* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**Calibration > System Z0**

SCPI.SENSe(*Ch*).CORRection.OFFSet.CLEar

Description	Clears the scalar mixer calibration coefficient table.
Type	Method
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.CLEar
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.LOAD

Description	Measures the calibration data of the load standard of the specified port when the frequency offset feature is on (scalar mixer cal). The array contains 2 elements: *Port(0)* Measurement port number; *Port(1)* Frequency port number.
Type	Variant: array of long (write only)
Range	Port number is 1 to 2 (4 for S4VNA). The array elements can contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.LOAD = Array(1, 2)
Notes	The command starts the measurement immediately if the trigger source for calibration set to the "Internal" by the command SENS:CORR:TRIG:FREE, otherwise waits for the trigger signal. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Reflection Port n > Port n Load**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.OPEN

Description	Measures the calibration data of the open standard of the specified port when the frequency offset feature is on (scalar mixer cal). The array contains 2 elements: *Port(0)* Measurement port number; *Port(1)* Frequency port number.
Type	Variant: array of long (write only)
Range	Port number is 1 to 2 (4 for S4VNA). The array elements can contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.OPEN = Array(1, 2)
Notes	The command starts the measurement immediately if the trigger source for calibration set to the "Internal" by the command SENS:CORR:TRIG:FREE, otherwise waits for the trigger signal. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Reflection Port n > Port n Open**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.SHORt

Description	Measures the calibration data of the short standard of the specified port when the frequency offset feature is on (scalar mixer cal). The array contains 2 elements: *Port(0)* Measurement port number; *Port(1)* Frequency port number.
Type	Variant: array of long (write only)
Range	Port number is 1 to 2 (4 for S4VNA). The array elements can contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.SHORt = Array(1, 2)
Notes	The command starts the measurement immediately if the trigger source for calibration set to the "Internal" by the command SENS:CORR:TRIG:FREE, otherwise waits for the trigger signal. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Reflection Port n > Port n Short**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.THRU

Description	Measures the calibration data of the thru standard of the specified port when the frequency offset feature is on (scalar mixer cal). The array contains 2 elements: *Port(0)* Response port number; *Port(1)* Stimulus port number.
Type	Variant: array of long (write only)
Range	Port number is 1 to 2 (4 for S4VNA). The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.THRU = Array(1, 2)
Notes	The command starts the measurement immediately if the trigger source for calibration set to the "Internal" by the command SENS:CORR:TRIG:FREE, otherwise waits for the trigger signal. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Reflection Port n > Port n Thru**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.PMETer

Description	Measures the scalar-mixer calibration data using the power meter when the frequency offset feature is ON. The array contains 3 elements: *Port(0)* Measurement port number; *Port(1)* Frequency port number. *Port(2)* Reserved.
Type	Variant: array of long (write only)
Range	Port number is 1 to 2 (4 for S4VNA). The array elements can contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.PMETer = Array(1, 2, 0)
Notes	The command starts the measurement for the channel independently of the trigger initiation and trigger source settings. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Power > Port n**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.CLEar

Description	Clears the calibration measurement data when the frequency offset feature is ON (scalar mixer calibration).
Type	Method
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.CLEar
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Cancel**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.METHod.SMIX2

Description	Selects the ports and sets the *scalar mixer calibration* type when the frequency offset feature is on for the calculation of the calibration coefficients on completion of the calibration executed by the `SCPI.SENSe(`*Ch*`).CORRection.OFFSet.COLLect.SAVE` method. The array contains 2 elements: *Port(0)* Port number 1; *Port(1)* Port number 2.
Type	Variant: array of long (write only)
Range	Port number is 1 to 2 (4 for S4VNA). The array elements can not contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.METHod.SMIX2 = Array(2, 1)
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.SAVE

Description	Calculates the calibration coefficient for the selected calibration type (scalar mixer calibration only) from the calibration data measured with the frequency offset feature is ON. If this command is executed before all necessary calibration data for calculating the calibration coefficient is measured, an error occurs when executed.
Type	Method
Target	Channel *Ch* from 1 to 16
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.SAVE
Related Commands	SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.METHod.SMIX2 SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.LOAD SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.OPEN SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.SHORt SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.THRU SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.PMETer
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Apply**

SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).COLLect.ACQuire

Description	The port number *Src* writing executes the receiver calibration (T – channel) for the specified port *Pt*, using the specified source port *Src* to the right of the equal sign. Then executes the receiver calibration (R – channel) for the specified port *Pt*, using port *Pt* as source (the specified source port *Src* is ignored).
Type	Long (write only)
Range	The number of the source port from 1 to 2 (4 for S4VNA).
Out of Range	Error occurs. Error code: 222.
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).COLLect.ACQuire = *Src*
Notes	The command starts the measurement for the channel independently of the trigger initiation and trigger source settings. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Receiver Calibration > Calibrate Both**

SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).COLLect.RCHannel.ACQuire

Description	Method executes the receiver calibration (R – channel) for the specified port *Pt*, using port *Pt* as source.
Type	Method
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).COLLect.ACQuire
Notes	The command starts the measurement for the channel independently of the trigger initiation and trigger source settings. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Receiver Calibration > Calibrate Reference Receiver**

SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).COLLect.TCHannel.ACQuire

Description	The port number *Src* writing executes the receiver calibration (T – channel) for the specified port *Pt*, using the specified source port *Src* to the right of the equal sign.
Type	Long (write only)
Range	The number of the source port from 1 to 4.
Out of Range	Error occurs. Error code: 222.
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).COLLect.ACQuire = *Src*
Notes	The command starts the measurement for the channel independently of the trigger initiation and trigger source settings. The command waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Receiver Calibration > Calibrate Test Receiver**

SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).OFFSet.AMPlitude

Description	Sets/gets the power offset value for Receiver Calibration. Receiver calibration is done at the condition of <source power> + <Specified offset>, for selected channel (*Ch*).
Type	Double (read/write)
Range	-200 to 200.
Unit	dB (decibel)
Preset Value	0
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*Offset* = app.SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).OFFSet.AMPLitude *app*.SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).OFFSet.AMPLitude = -10
Equivalent Softkeys	**Calibration > Receiver Calibration > Power Offset**

SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).STATe

Description	Turns ON/OFF the state of the receiver correction for the port *Pt*.
Type	Boolean (read/write)
Parameter	True: Receiver correction ON False: Receiver correction OFF
Preset Value	False
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*Status* = app.SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).STATe *app*.SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).STATe = True
Equivalent Softkeys	**Calibration > Receiver Calibration > Correction**

SCPI.SENSe(*Ch*).CORRection.STATe

Description	Turns ON/OFF the state of the error correction (user calibration of S-parameters).
Type	Boolean (read/write)
Parameter	True: Error correction ON False: Error correction OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI.SENSe(*Ch*).CORRection.STATe *app*.SCPI.SENSe(*Ch*).CORRection.STATe = True
Equivalent Softkeys	**Calibration > Correction**

SCPI.SENSe(*Ch*).CORRection.TYPE(*Tr*)

Description	Reads out the information about the applied calibration type and the port numbers for the specified trace. The array contains 5 elements: *Data(0)* calibration type (see below); *Data(1)* the port number to which the calibration is applied; *Data(2)* the port number to which the calibration is applied. *Data(3)* the port number to which the calibration is applied. *Data(4)* the port number to which the calibration is applied.
Type	Variant: array of Variants (read only)
Parameter	Calibration type in the element *Data(0)*: "RESPO" : Response (Open) "RESPS" : Response (Short) "RESPT" : Response (Thru) "SOLT1" : Full 1–port calibration "SOLT2" : Full 2–port calibration "SOLT3" : Full 3–port calibration "SOLT4" : Full 4–port calibration "1PATH" : One path 2–port calibration "NONE" : Not defined
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	*CalInfo* = app.SCPI.SENSe(*Ch*).CORRection.TYPE(*Tr*)
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*). CORRection.TRANsform.TIME.FREQuency

Description	Sets/gets the frequency at which the cable loss specified for the cable correction function, when the time domain transformation function is turned ON.
Type	Double (read/write)
Preset Value	1 GHz.
Unit	Hz (Hertz)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = *app*.SCPI.SENSe(*Ch*).CORRection.TRANsform.TIME.FREQuency *app*.SCPI.SENSe(*Ch*).CORRection.TRANsform.TIME.FREQuency = 1E9
Equivalent Softkeys	**Analysis > Time Domain > Cable Correction > Frequency**

SCPI.SENSe(*Ch*). CORRection.TRANsform.TIME.LOSS

Description	Sets/gets the cable loss value for the cable correction function, when the time domain transformation function is turned ON.
Type	Double (read/write)
Preset Value	0
Unit	dB/m (decibell / meter)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = *app*.SCPI.SENSe(*Ch*).CORRection.TRANsform.TIME.LOSS *app*.SCPI.SENSe(*Ch*).CORRection.TRANsform.TIME.LOSS = 1.4
Equivalent Softkeys	**Analysis > Time Domain > Cable Correction > Cable Loss**

SCPI.SENSe(*Ch*). CORRection.TRANsform.TIME.RVELocity

Description	Sets/gets the cable relative wave speed velocity for the cable correction function, when the time domain transformation function is turned ON.
Type	Double (read/write)
Preset Value	1
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = *app*.SCPI.SENSe(*Ch*).CORRection.TRANsform.TIME.RVELocity *app*.SCPI.SENSe(*Ch*).CORRection.TRANsform.TIME.RVELocity = 0.66
Equivalent Softkeys	**Analysis > Time Domain > Cable Correction > Velocity Factor**

SCPI.SENSe(*Ch*).CORRection.TRANsform.TIME.STATe

Description	Turns ON/OFF the state of the cable correction when the time domain transformation function is turned ON.
Type	Boolean (read/write)
Parameter	True: cable correction ON False: cable correction OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = *app*.SCPI.SENSe(*Ch*).CORRection.TRANsform.TIME.STATe *app*.SCPI.SENSe(*Ch*).CORRection.TRANsform.TIME.STATe = True
Equivalent Softkeys	**Analysis > Time Domain > Cable Correction > Cable Correction**

SCPI.SENSe(*Ch*).CORRection.TRIGger.FREE.STATe

Description	Enables/disables the *internal* trigger source for calibration. If the *internal* trigger source for calibration is enabled then a command of the calibration standard measurement starts the measurement immediately. If the internal trigger source for calibration is disabled then the *system* trigger source is used (which is set for regular measurement with the command SCPI.TRIGger.SEQuence.SOURce) to start the calibration standard measurement. The *system* trigger source also enables the averaging trigger function (SCPI.TRIGger.SEQuence.AVERage) and the point trigger function (SCPI.TRIGger.SEQuence.POINt) for calibration. Note: When the *system* trigger source is selected, the program trigger source (BUS) should be avoided, otherwise the program deadlock is possible. Note: The command does not apply to the electronic calibration, the power calibration and the receiver calibration. The internal trigger always used in these cases.
Type	Boolean (read/write)
Parameter	True: Internal False: System
Preset Value	True
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = *app*.SCPI.SENSe(*Ch*).CORRection.TRIGger.FREE.STATe *app*.SCPI.SENSe(*Ch*).CORRection.TRIGger.FREE.STATe = True
Equivalent Softkeys	**Calibration > Cal Trig Source {Internal | System}**

SCPI.SENSe(*Ch*).DATA.CORRdata*(Param)*

Description	Reads out the corrected S-parameters array. The corrected measurements are complex numbers. Also, see section 14. The array size is 2N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(2n−2)* the real part of corrected measurement; *Data(2n−1)* the imaginary part of corrected measurement. The index of the array starts from 0.
Type	Variant: array of double (read only)
Parameter	*Param* of String type selects S-parameter: "S11", "S12", "S13", "S14", "S21", "S22", "S23", "S24", "S31", "S32", "S33", "S34", "S41", "S42", "S43", "S44"
Target	Channel *Ch* from 1 to 16
Syntax	*Data* = app.SCPI.SENSe*(ch)*.DATA.CORRdata("S11")
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).DATA.RAWData*(Param)*

Description	Reads out the raw S-parameters array (without correction). The raw measurements are complex numbers. Also, see section 14. The array size is 2N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(2n−2)* the real part of corrected measurement; *Data(2n−1)* the imaginary part of corrected measurement. The index of the array starts from 0.
Type	Variant: array of double (read only)
Parameter	*Param* of String type selects S-parameter: "S11", "S12", "S13", "S14", "S21", "S22", "S23", "S24", "S31", "S32", "S33", "S34", "S41", "S42", "S43", "S44"
Target	Channel *Ch* from 1 to 16
Syntax	*Data* = app.SCPI.SENSe*(ch)*.DATA.RAWData*("S11")*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).FREQuency.CENTer

Description	Sets/gets the stimulus center value of the sweep range for linear or logarithmic sweep types.
Type	Double (read/write)
Range	from minimum to maximum frequency depends on model.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Center of frequency range depends on model.
Unit	Hz (Hertz)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SENSe(*Ch*).FREQuency.CENTer *app*.SCPI.SENSe(*Ch*).FREQuency.CENTer = 1E9
Equivalent Softkeys	**Stimulus > Center**

SCPI.SENSe(*Ch*).FREQuency.CW

Description	Sets/gets the value of the fixed frequency for the power sweep.
Type	Double (read/write)
Range	From minimum to maximum frequency depends on model.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Frequency minimum.
Unit	Hz (Hertz)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SENSe(*Ch*).FREQuency.CW *app*.SCPI.SENSe(*Ch*).FREQuency.CW = 1E9
Equivalent Softkeys	**Stimulus > Power > CW Freq**

SCPI.SENSe(*Ch*).FREQuency.DATA

Description	Reads out the frequency array of the measurement points for linear, logarithmic or segment sweep type. The array size is N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(n−1)* the frequency value at the n−th measurement point.
Type	Variant: array of double (read only)
Unit	Hz (Hertz)
Target	Channel *Ch* from 1 to 16
Syntax	*Data* = app.SCPI.SENSe(*Ch*).FREQuency.DATA
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).FREQuency.SPAN

Description	Sets/gets the stimulus span value of the sweep range for linear or logarithmic sweep types.
Type	Double (read/write)
Range	from minimum to maximum frequency depends on model.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Full frequency span depending on model.
Unit	Hz (Hertz)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SENSe(*Ch*).FREQuency.SPAN *app*.SCPI.SENSe(*Ch*).FREQuency.SPAN = 2E9
Equivalent Softkeys	**Stimulus > Span**

SCPI.SENSe(*Ch*).FREQuency.STARt

Description	Sets/gets the stimulus start value of the sweep range for linear or logarithmic sweep types.
Type	Double (read/write)
Range	from minimum to maximum frequency depends on model.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Frequency minimum.
Unit	Hz (Hertz)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SENSe(*Ch*).FREQuency.STARt *app*.SCPI.SENSe(*Ch*).FREQuency.STARt = 1E6
Equivalent Softkeys	**Stimulus > Start**

SCPI.SENSe(*Ch*).FREQuency.STOP

Description	Sets/gets the stimulus stop value of the sweep range for linear or logarithmic sweep types.
Type	Double (read/write)
Range	from minimum to maximum frequency depends on model.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Frequency maximum.
Unit	Hz (Hertz)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SENSe(*Ch*).FREQuency.STOP *app*.SCPI.SENSe(*Ch*).FREQuency.STOP = 1E6
Equivalent Softkeys	**Stimulus > Stop**

SCPI.SENSe(*Ch*).OFFSet.PORT(*Pt*).FREQuency.DATA

Description	Reads out the frequency data for the selected port *Pt* when the frequency offset feature is ON, and offset type is "PORT", for the selected channel *Ch*. The array size is N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(n–1)* the frequency value at the n–th measurement point.
Type	Variant: array of double (read only)
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*Data* = app.SCPI.SENSe(*Ch*).OFFSet.PORT(*Pt*).FREQuency.DATA

Related commands	`SCPI.SENSe(Ch).OFFset.STATe`
	`SCPI.SENSe(Ch).OFFset.TYPE`

Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).OFFSet.PORT(*Pt*).FREQuency.DIVisor

Description	Sets/gets the basic frequency range divisor when the frequency offset feature is ON.
Type	Double (read/write)
Range	from 1 to 100
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*Value* = app.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.DIVisor *app*.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.DIVisor = 2
Equivalent Softkeys	**Stimulus > Frequency Offset > Port n > Divider**

SCPI.SENSe(*Ch*).OFFSet.PORT(*Pt*).FREQuency. MULTiplier

Description	Sets/gets the basic range frequency multiplier when the frequency offset feature is ON and offset type is "PORT".
Type	Double (read/write)
Range	from −100 to 100
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1−16 *Pt:* port number 1−2 (4 for S4VNA)
Syntax	*Value* = app.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.MULTiplier *app*.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.MULTiplier = 2
Equivalent Softkeys	**Stimulus > Frequency Offset > Port n > Multiplier**

SCPI.SENSe(*Ch*).OFFSet.PORT(*Pt*).FREQuency.OFFSet

Description	Sets/gets the basic frequency range offset when the frequency offset feature is ON and offset type is "PORT"..
Type	Double (read/write)
Range	from −1e−12 to 1e12
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	Hz
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1−16 *Pt:* port number 1−2 (4 for S4VNA)
Syntax	*Value* = app.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.OFFSet *app*.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.OFFSet = 1e9
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Port n > Offset**

SCPI.SENSe(*Ch*).OFFSet.PORT(*Pt*).FREQuency. STARt

Description	Sets/gets the frequency sweep start when the frequency offset feature is ON and offset type is "PORT".
Type	Double (read/write)
Unit	Hz
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*Value* = app.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.STARt
Related commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Port n > Start**

SCPI.SENSe(*Ch*).OFFSet.PORT(*Pt*).FREQuency. STOP

Description	Sets/gets the frequency sweep stop when the frequency offset feature is ON. and offset type is "PORT".
Type	Double (read/write)
Unit	Hz
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*Value* = app.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.STOP
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Port n > Stop**

SCPI.SENSe(*Ch*).OFFSet.RECeiver.FREQuency.DATA

Description	Reads out the receiver frequency data when the frequency offset feature is ON and offset type is "SRCRcv", for the selected channel *Ch*. The array size is N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(n−1)* the frequency value at the n–th measurement point.
Type	Variant: array of double (read only)
Target	Channel *Ch* from 1 to 16
Syntax	*Data* = *app*.SCPI.SENSe(*Ch*).OFFSet.RECeiver.FREQuency.DATA
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).OFFSet.RECeiver.FREQuency.DIVisor

Description	Sets/gets the basic frequency range divisor when the frequency offset feature is ON and offset type is "SRCRcv".
Type	Double (read/write)
Range	from 1 to 1000
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.DIVisor *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.DIVisor = 2
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Receivers > Divider**

SCPI.SENSe(*Ch*).OFFSet.RECeiver.FREQuency.MULTiplier

Description	Sets/gets the basic range frequency multiplier when the frequency offset feature is ON and offset type is "SRCRcv".
Type	Double (read/write)
Range	from −1000 to 1000
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.MULTiplier *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.MULTiplier = 2
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Receivers > Multiplier**

SCPI.SENSe(*Ch*).OFFSet.RECeiver.FREQuency.OFFSet

Description	Sets/gets the basic frequency range offset when the frequency offset feature is ON and offset type is "SRCRcv".
Type	Double (read/write)
Range	from −1e−12 to 1e12
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	Hz
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.OFFSet *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.OFFSet = 1e9
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Receivers > Offset**

SCPI.SENSe(*Ch*).OFFSet.RECeiver.FREQuency.STARt

Description	Sets/gets the frequency sweep start when the frequency offset feature is ON and offset type is "SRCRcv".
Type	Double (read/write)
Unit	Hz
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.STARt *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.STARt = 1e9
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Receivers > Start**

SCPI.SENSe(*Ch*).OFFSet.RECeiver.FREQuency.STOP

Description	Sets/gets the frequency sweep stop when the frequency offset feature is ON and offset type is "SRCRcv".
Type	Double (read/write)
Unit	Hz
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.STOP *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.STOP = 1e9
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Receivers > Stop**

SCPI.SENSe(*Ch*).OFFSet.SOURce.FREQuency.DATA

Description	Reads out the source frequency data when the frequency offset feature is ON and offset type is "SRCRcv", for the selected channel *Ch*. The array size is N, where N is the number of measurement points. For the n−th point, where n from 1 to N: *Data(n−1)* the frequency value at the n−th measurement point.
Type	Variant: array of double (read only)
Target	Channel *Ch* from 1 to 16
Syntax	*Data* = *app*.SCPI.SENSe(*Ch*).OFFSet.SOURce.FREQuency.DATA
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).OFFSet.SOURce.FREQuency.DIVisor

Description	Sets/gets the basic frequency range divisor when the frequency offset feature is ON and offset type is "SRCRcv".
Type	Double (read/write)
Range	from 1 to 1000
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.DIVisor *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.DIVisor = 2
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Source > Divider**

SCPI.SENSe(*Ch*).OFFSet.SOURce.FREQuency.MULTiplier

Description	Sets/gets the basic range frequency multiplier when the frequency offset feature is ON and offset type is "SRCRcv".
Type	Double (read/write)
Range	from −1000 to 1000
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.MULTiplier *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.MULTiplier = 2
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Source > Multiplier**

SCPI.SENSe(*Ch*).OFFSet.SOURce.FREQuency.OFFSet

Description	Sets/gets the basic frequency range offset when the frequency offset feature is ON and offset type is "SRCRcv".
Type	Double (read/write)
Range	from −1e−12 to 1e12
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	Hz
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.OFFSet *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.OFFSet = 1e9
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Source > Offset**

SCPI.SENSe(*Ch*).OFFSet.SOURce.FREQuency.STARt

Description	Sets/gets the frequency sweep start when the frequency offset feature is ON and offset type is "SRCRcv".
Type	Double (read/write)
Unit	Hz
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.STARt *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.STARt = 1e9
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Source > Start**

SCPI.SENSe(*Ch*).OFFSet.SOURce.FREQuency.STOP

Description	Sets/gets the frequency sweep stop when the frequency offset feature is ON and offset type is " SRCRcv".
Type	Double (read/write)
Unit	Hz
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.STOP *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.STOP = 1e9
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Source > Stop**

SCPI.SENSe(*Ch*).OFFSet.STATe

Description	Turns ON/OFF the state of the frequency offset feature.
Type	Boolean (read/write)
Parameter	True: frequency offset feature is ON False: frequency offset feature is OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI.SENSe(*Ch*).OFFSet.STATe *app*.SCPI.SENSe(*Ch*).OFFSet.STATe = True
Equivalent Softkeys	**Stimulus > Frequency Offset > Frequency Offset**

SCPI.SENSe(*Ch*).OFFSet.TYPE

Description	Sets/gets the frequency offset type when the frequency offset feature is ON. There are two frequency offset types: "Port1/Port2" and "Source/Receivers". First offset type offsets ports against each other. Second offset type offsets source against receivers.
Type	String (read/write)
Parameter	"PORT" : Port1/Port2 "SRCRcv" : Source/Receivers
Preset Value	"PORT"
Target	Channel *Ch* from 1 to 16
Syntax	*Param* = *app*.SCPI.SENSe(*Ch*).OFFSet.TYPE *app*.SCPI.SENSe(*Ch*).OFFSet.TYPE = "PORT"
Equivalent Softkeys	**Stimulus > Frequency Offset > Offset Type**

SCPI.SENSe(*Ch*).ROSCillator.SOURce

Description	Selects the internal or external source of the reference frequency of 10 MHz.
Type	String (read/write)
Parameter	"INTernal" : Internal source of the reference frequency "EXTernal" : External source of the reference frequency
Preset Value	"INT"
Target	Channel *Ch* from 1 to 16
Syntax	*Param* = app.SCPI.SENSe(*Ch*).ROSCillator.SOURce *app*.SCPI.SENSe(*Ch*).ROSCillator.SOURce = "EXT"
Equivalent Softkeys	**System > Misc Setup > Ref Source**

SCPI.SENSe(*Ch*).SEGMent.DATA

Description	The array of the segment sweep table. The array has the following format: *{ <Buf>, <Flag1>, <Flag2>, <Flag3>, <Flag4>, <Flag5>, <N>,* *<Start(1)>, <Stop(1)>, <NOP(1)> [,<IFBW(1)>] [,<Pow(1)>] [,<Del(1)>] [,<Time(1)>],* *<Start(2)>, <Stop(2)>, <NOP(2)> [,<IFBW(2)>] [,<Pow(2)>] [,<Del(2)>] [,<Time(2)>],* **...** *<Start(N)>, <Stop(N)>, <NOP(N)> [,<IFBW(N)>] [,<Pow(N)>] [,<Del(N)>] [,<Time(N)>]* *}* *<Buf>* : Always 5, *<Flag1>* : Stimulus start setting (0 – start/stop, 1 – center/span), *<Flag2>* : Setting of the *<IFBW>* field (0 – disabled, 1 – enabled), *<Flag3>* : Setting of the *<Pow>* field (0 – disabled, 1 – enabled), *<Flag4>* : Setting of the *<Del>* field (0 – disabled, 1 – enabled), *<Flag5>* : Setting of the *<Time>* field (0 – disabled, 1 – enabled), *<N>* : Number of segments, *<Start n>* : Start value of the n–th segment, *<Stop n>* : Stop value of the n–th segment, *<NOP n>* : Number of points of the n–th segment, *<IFBW n>* : IF bandwidth of the n–th segment (if enabled), *<Pow n>* : Power of the n–th segment (if enabled), *<Del n>* : Measurement delay of the n–th segment (if enabled), *<Time n>* : Reserved for future use (if enabled).
Type	Variant: array of double (read/write)
Target	Channel *Ch* from 1 to 16
Syntax	*Data* = app.SCPI.SENSe(*Ch*).SEGMent.DATA *app*.SCPI.SENSe(*Ch*).SEGMent.DATA = *Data*
Equivalent Softkeys	**Stimulus / Segment Table**

SCPI.SENSe(*Ch*).SWEep.POINt.TIME

Description	Sets/gets the value of the delay before measurement in each measurement point.
Type	Double (read/write)
Range	from 0 to 0.3
Resolution	5E-6
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	s (second)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SENSe(*Ch*).SWEep.POINt.TIME *app*.SCPI.SENSe(*Ch*).SWEep.POINt.TIME = 5E-6
Equivalent Softkeys	**Stimulus > Meas Delay**

SCPI.SENSe(*Ch*).SWEep.POINts

Description	Sets/gets the number of measurement points.
Type	Long (read/write)
Range	2 to 500001 2 to 200001 (PLANAR-304, S5048, S7530)
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	201
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SENSe(*Ch*).SWEep.POINts *app*.SCPI.SENSe(*Ch*).SWEep.POINts = 1001
Equivalent Softkeys	**Stimulus > Points**

SCPI.SENSe(*Ch*).SWEep.REVerse.STATe

Description	Turns ON/OFF the state of the reverse sweep feature. The frequency points are scanned from the highest frequency to the lowest frequency when the reverse sweep is ON.
Type	Boolean (read/write)
Parameter	True: Reverse sweep is ON False: Reverse Sweep is OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI.SENSe(*Ch*).SWEep.REVerse.STATe *app*.SCPI.SENSe(*Ch*).SWep.REVerse.STATe = True
Equivalent Softkeys	**Stimulus > Reverse Sweep**

SCPI.SENSe(*Ch*).SWEep.TYPE

Description	Sets/gets the the sweep type.
Type	String (read/write)
Parameter	"LINear" : Linear frequency sweep "LOGarithmic" : Logarithmic frequency sweep "SEGMent" : Segment frequency sweep "POWer " : Power sweep
Preset Value	"LIN"
Target	Channel *Ch* from 1 to 16
Syntax	*Param* = app.SCPI.SENSe(*Ch*).SWEep.TYPE *app*.SCPI.SENSe(*Ch*).SWEep.TYPE = "LOG"
Equivalent Softkeys	**Stimulus > Sweep Type**

SCPI.SERVice.CHANnel(1).ACTive

Description	Gets the number of the active channel.
Type	Long (read only)
Syntax	*Value* = app.SCPI.SERVice.CHANnel.ACTive
Warning	Object *CHANnel* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**None**

SCPI.SERVice.CHANnel(1).COUNt

Description	Gets the maximum number of the channels.
Type	Long (read only)
Syntax	*Value* = app.SCPI.SERVice.CHANnel.COUNt
Warning	Object *CHANnel* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**None**

SCPI.SERVice.CHANnel(*Ch*).TRACe(1).ACTive

Description	Gets the active trace number of the specified channel.
Type	Long (read only)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SERVice.CHANnel(*Ch*).TRACe.ACTive
Warning	Object *TRACe* has an index. In Visual Basic the index is 1 by default when it is omitted. The index can not be omitted in other programming languages.
Equivalent Softkeys	**None**

SCPI.SERVice.CHANnel(1).TRACe.COUNt

Description	Gets the maximum number of the traces in the channel.
Type	Long (read only)
Syntax	*Value* = app.SCPI.SERVice.CHANnel.TRACe.COUNt
Warning	Object *CHANnel* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Equivalent Softkeys	**None**

SCPI.SERVice.CHANnel(*Ch*).TRACe(*Tr*).MARKer.ACTive

Description	Gets the active marker number of the specified trace of the specified channel.
Type	Long (read only)
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 *Tr:* trace number 1–16
Syntax	*Value* = *app*.SCPI.SERVice.CHANnel(*Ch*).TRACe.ACTive
Equivalent Softkeys	**None**

SCPI.SERVice.PORT.COUNt

Description	Gets the number of the ports.
Type	Long (read only)
Syntax	*Value* = app.SCPI.SERVice.PORT.COUNt
Equivalent Softkeys	**None**

SCPI.SERVice.SWEep.FREQency.MAXimum

Description	Gets the upper limit of the analyzer frequency range.
Type	Double (read only)
Syntax	*Value* = app.SCPI.SERVice.SWEep.FREQency.MAXimum
Equivalent Softkeys	**None**

SCPI.SERVice.SWEep.FREQency.MINimum

Description	Gets the lower limit of the analyzer frequency range.
Type	Double (read only)
Syntax	*Value* = app.SCPI.SERVice.SWEep.FREQency.MINimum
Equivalent Softkeys	**None**

SCPI.SERVice.SWEep.POINts

Description	Gets the maximum number of the measurement points.
Type	Double (read only)
Syntax	*Value* = app.SCPI.SERVice.SWEep.POINts
Equivalent Softkeys	**None**

SCPI.SOURce(*Ch*).POWer.CENTer

Description	Sets/gets the center value of the power sweep range when sweep type is Power.
Type	Double (read/write)
Range	From the minimum value to the maximum value of the analyzer power range.
Resolution	0.025
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Center value of the analyzer power range.
Unit	dBm (decibels above 1 milliwatt)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SOURce(*Ch*).POWer.CENTer *app*.SCPI.SOURce(*Ch*).POWer.CENTer = 5
Equivalent Softkeys	**Stimulus > Center**

SCPI.SOURce(*Ch*).POWer.LEVel.IMMediate.AMPLitude

Description	Sets/gets the power level for the frequency sweep when port couple feature is set to ON by the command SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).COUPle..
Type	Double (read/write)
Range	From the minimum value to the maximum value of the analyzer power range.
Resolution	0.05
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	dBm (decibels above 1 milliwatt)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SOURce(*Ch*).POWer.LEVel.IMMediate.AMPLitude *app*.SCPI.SOURce(*Ch*).POWer.LEVel.IMMediate.AMPLitude = 10
Related commands	`SCPI.SOURce(`*`Ch`*`).POWer.PORT(`*`Pt`*`).COUPle`
Equivalent Softkeys	**Stimulus > Power > Power**

SCPI.SOURce(*Ch*).POWer.LEVel.SLOPe.DATA

Description	Sets/gets the power slope value for the frequency sweep.
Type	Double (read/write)
Range	from −2 to 2
Resolution	0.1
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	dB/GHz (decibel/gigahertz)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SOURce(*Ch*).POWer.LEVel.SLOPe.DATA *app*.SCPI.SOURce(*Ch*).POWer.LEVel.SLOPe.DATA = 0.2
Equivalent Softkeys	**Stimulus > Power > Slope [dB/GHz]**

SCPI.SOURce(*Ch*).POWer.LEVel.SLOPe.STATe

Description	Turns ON/OFF the state of the power slope for the frequency sweep.
Type	Boolean (read/write)
Parameter	True: Power slope ON False: Power slope OFF
Preset Value	False
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI.SOURce(*Ch*).POWer.LEVel.SLOPe.STATe *app*.SCPI.SOURce(*Ch*).POWer.LEVel.SLOPe.STATe = True
Equivalent Softkeys	**Stimulus > Power > Slope [ON/OFF]**

SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.ACQuire

Description	Measures the power calibration data for the specified port using the power meter controlled via USB or USB/GPIB. Calculates calibration coefficients on completion of the measurement, and turns ON the power correction for the port.
Type	Method
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.ACQuire
Equivalent Softkeys	**Calibration > Power Calibration > Calibrate**

SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.TABLe.LOSS.DATA

Description	Sets/gets the loss compensation table used during the power calibration. The array size is 1+2N, where N is the number of the table rows. For the n−th point, where n from 1 to N: *Data(0)* the number of the table rows N integer from 0 to 100; *Data(2n−1)* the frequency of the n−th row of the table from 300 kHz to 8.0 GHz; *Data(2n)* the loss value of the n-th table row in dB.
Type	Variant: array of double (read/write)
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1−16 *Pt:* port number 1−2 (4 for S4VNA)
Syntax	*Data* = *app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.TABLe.LOSS.DATA *app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.TABLe.LOSS.DATA = *Data*
Related Commands	SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.ACQuire
Equivalent Softkeys	**Calibration > Power Calibration > Loss Compen**

SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.TABLe.LOSS.STATe

Description	Turns ON/OFF the state of the loss compensation function used during the power calibration.
Type	Boolean (read/write)
Parameter	True: Loss compensation ON False: Loss compensation OFF
Preset Value	False
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1−16 *Pt:* port number 1−2 (4 for S4VNA)
Syntax	*Status* = app.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.TABLe.LOSS.STATe *app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.TABLe.LOSS.STATe = True
Related Commands	SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.TABLe.LOSS.DATA
Equivalent Softkeys	**Calibration > Power Calibration > Loss Compen > Compensation**

SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.DATA

Description	Sets/gets the power correction table. The array size is 1+2N, where N is the number of the table rows. For the n−th point, where n from 1 to N: *Data(0)* the number of the table rows N integer from 0 to 10001; *Data(2n−1)* the frequency of the n−th row of the table; *Data(2n)* power correction value of the n−th row of the table from −10 to +10 dB.
Type	Variant: array of double (read/write)
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1−16 *Pt:* port number 1−2 (4 for S4VNA)
Syntax	*Data* = app.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.DATA *app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.DATA = *Data*
Related Commands	SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.ACQuire
Equivalent Softkeys	**None**

SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.STATe

Description	Turns ON/OFF the state of the power correction function.
Type	Boolean (read/write)
Parameter	True: Power correction ON False: Power correction OFF
Preset Value	False
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*Status* = app.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.STATe *app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.STATe = True
Related Commands	SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.ACQuire
Equivalent Softkeys	**Calibration > Power Calibration > Correction**

SCPI.SOURce(*Ch*).POWer.PORT*(Pt)*.LEVel.IMMediate.AMPLitude

Description	Sets/gets the power level of each port for the frequency sweep when port couple feature is set to OFF by the command SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).COUPle.
Type	Double (read/write)
Range	From the minimum value to the maximum value of the analyzer power range.
Resolution	0.05
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	dBm (decibels above 1 milliwatt)
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 *Pt:* port number 1–2 (4 for S4VNA)
Syntax	*Value* = app.SCPI.SOURce(*Ch*).POWer.PORT*(Pt)*.LEVel.IMMediate.AMPLitude *app*.SCPI.SOURce(*Ch*).POWer.PORT*(Pt)*.LEVel.IMMediate.AMPLitude = 10
Related Commands	SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).COUPle
Equivalent Softkeys	**Stimulus > Power > Port Power > Port x**

SCPI.SOURce(*Ch*).POWer.PORT(1).COUPle

Description	Turns ON/OFF the state of the port power couple function. Setting the port power couple feature to OFF allows independent power level setting for each port.
Type	Boolean (read/write)
Parameter	True: port power couple ON False: port power couple OFF
Preset Value	True
Target	Channel *Ch* from 1 to 16
Syntax	*Status* = app.SCPI.SOURce(*Ch*).POWer.PORT.COUPle *app*.SCPI.SOURce(*Ch*).POWer.PORT.COUPle = True
Warning	Object *PORT* has an index of 1, which can be omitted in Visual Basic but it cannot be omitted in other programming languages.
Related Commands	SCPI.SOURce(*Ch*).POWer.PORT*(Pt)*.LEVel.IMMediate.AMPLitude
Equivalent Softkeys	**Stimulus > Power > Port Couple**

SCPI.SOURce(*Ch*).POWer.SPAN

Description	Sets/gets the power span for the power sweep.
Type	Double (read/write)
Range	From 0 to the maximum span of the analyzer power range
Resolution	0.05
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	The maximum span of the analyzer power range.
Unit	dBm (decibels above 1 milliwatt)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SOURce(*Ch*).POWer.SPAN *app*.SCPI.SOURce(*Ch*).POWer.SPAN = 50
Equivalent Softkeys	**Stimulus > Span**

SCPI.SOURce(*Ch*).POWer.STARt

Description	Sets/gets the power sweep start for the power sweep.
Type	Double (read/write)
Range	From the minimum value to the maximum value of the analyzer power range.
Resolution	0.05
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	The minimum value of the analyzer power range.
Unit	dBm (decibels above 1 milliwatt)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SOURce(*Ch*).POWer.STARt *app*.SCPI.SOURce(*Ch*).POWer.STARt = 5
Equivalent Softkeys	**Stimulus > Start**

SCPI.SOURce(*Ch*).POWer.STOP

Description	Sets/gets the power sweep stop for the power sweep.
Type	Double (read/write)
Range	From the minimum value to the maximum value of the analyzer power range.
Resolution	0.05
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	The maximum value of the analyzer power range
Unit	dBm (decibels above 1 milliwatt)
Target	Channel *Ch* from 1 to 16
Syntax	*Value* = app.SCPI.SOURce(*Ch*).POWer.STOP *app*.SCPI.SOURce(*Ch*).POWer.STOP = 5
Equivalent Softkeys	**Stimulus > Stop**

SCPI.STATus.OPERation.CONDition

Description	Reads out the Operation Status Condition Register.
Type	Long (read only)
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.OPERation.CONDition
Equivalent Softkeys	**None**

SCPI.STATus.OPERation.ENABle

Description	Sets/gets the Operation Status Enable Register.
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	0
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.OPERation.ENABle *app*.SCPI.STATus.OPERation.ENABle = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.OPERation.EVENt

Description	Reads out the Operation Status Event Register.
Type	Long (read only)
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.OPERation.EVENt
Equivalent Softkeys	**None**

SCPI.STATus.OPERation.NTRansition

Description	Sets/gets the Negative Transition Filter of the Operation Status Register.
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	0
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.OPERation.NTRansition *app*.SCPI.STATus.OPERation.NTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.OPERation.PTRansition

Description	Sets/gets the Positive Transition Filter of the Operation Status Register.
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	65535
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.OPERation.PTRansition *app*.SCPI.STATus.OPERation.PTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.PRESet

Description	Initialization of all registers.
Type	Method
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*app*.SCPI.STATus.PRESet
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.CONDition

Description	Reads out the Questionable Status Condition Register.
Type	Long (read only)
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.CONDition
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.ENABle

Description	Sets/gets the Questionable Status Enable Register.
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	0
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.ENABle *app*.SCPI.STATus.QUEStionable.ENABle = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.EVENt

Description	Reads out the Questionable Status Event Register.
Type	Long (read only)
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.EVENt
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).CONDition

Description	Reads out the Questionable Limit Channel Status Condition Register for channel *Ch*, *Ch:* channel number 1–16
Type	Long (read only)
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).CONDition
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).ENABle

Description	Sets/gets the Questionable Limit Channel Status Enable Register for channel *Ch*, *Ch:* channel number 1–16
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	0
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).ENABle *app*.SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).ENABle = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).EVENt

Description	Reads out the Questionable Limit Channel Status Event Register for channel *Ch*, *Ch:* channel number 1−16
Type	Long (read only)
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app. SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).EVENt
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).NTRansition

Description	Sets/gets the Negative Transition Filter of the Questionable Limit Channel Status Register for channel *Ch*, *Ch:* channel number 1−16
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	0
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).NTRansition *app*.SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).NTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).PTRansition

Description	Sets/gets the Positive Transition Filter of the Questionable Limit Channel Status Register for channel *Ch*, *Ch:* channel number 1–16
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	65535
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).PTRansition *app*.SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).PTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.CONDition

Description	Reads out the Questionable Limit Status Condition Register.
Type	Long (read only)
Target	IEE488.2 Status Reporting System (Appendix 1).
Syntax	*Value* = app.SCPI.STATus.QUEStionable.LIMit.CONDition
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.ENABle

Description	Sets/gets the Questionable Limit Status Enable Register.
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	0
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.LIMit.ENABle *app*.SCPI.STATus.QUEStionable.LIMit.ENABle = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.EVENt

Description	Reads out the Questionable Limit Status Event Register.
Type	Long (read only)
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.LIMit.EVENt
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.NTRansition

Description	Sets/gets the Negative Transition Filter of the Questionable Limit Status Register.
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	0
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.LIMit.NTRansition *app*.SCPI.STATus.QUEStionable.LIMit.NTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.PTRansition

Description	Sets/gets the Positive Transition Filter of the Questionable Limit Status Register.
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	65535
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.LIMit.PTRansition *app*.SCPI.STATus.QUEStionable.LIMit.PTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.NTRansition

Description	Sets/gets the Negative Transition Filter of the Questionable Status Register.
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	0
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.NTRansition *app*.SCPI.STATus.QUEStionable.NTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.PTRansition

Description	Sets/gets the Positive Transition Filter of the Questionable Status Register.
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	65535
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.PTRansition *app*.SCPI.STATus.QUEStionable.PTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).CONDition

Description	Reads out the Questionable Ripple Limit Channel Status Condition Register for channel *Ch*, *Ch:* channel number 1–16
Type	Long (read only)
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).CONDition
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).ENABle

Description	Sets/gets the Questionable Ripple Limit Channel Status Enable Register for channel *Ch*, *Ch:* channel number 1–16
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	0
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).ENABle *app*.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).ENABle = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).EVENt

Description	Reads out the Questionable Ripple Limit Channel Status Event Register for channel *Ch*, *Ch:* channel number 1−16
Type	Long (read only)
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).EVENt
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).NTRansition

Description	Sets/gets the Negative Transition Filter of the Questionable Ripple Limit Channel Status Register for channel *Ch*, *Ch:* channel number 1−16
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	0
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*). NTRansition *app*.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*). NTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).PTRansition

Description	Sets/gets the Positive Transition Filter of the Questionable Ripple Limit Channel Status Register for channel *Ch*, *Ch:* channel number 1–16
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	65535
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*). PTRansition *app*.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*). PTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.CONDition

Description	Reads out the Questionable Ripple Limit Status Condition Register.
Type	Long (read only)
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.RLIMit.CONDition
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.ENABle

Description	Sets/gets the Questionable Ripple Limit Status Enable Register.
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	0
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.RLIMit.ENABle *app*.SCPI.STATus.QUEStionable.RLIMit.ENABle = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.EVENt

Description	Reads out the Questionable Ripple Limit Status Event Register.
Type	Long (read only)
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.RLIMit.EVENt
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.NTRansition

Description	Sets/gets the Negative Transition Filter of the Questionable Ripple Limit Status Register.
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	0
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.RLIMit.NTRansition *app*.SCPI.STATus.QUEStionable.RLIMit.NTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.PTRansition

Description	Sets/gets the Positive Transition Filter of the Questionable Ripple Limit Status Register.
Type	Long (read/write)
Range	from 0 to 65535
Preset Value	65535
Target	IEE488.2 Status Reporting System (Appendix 1)
Syntax	*Value* = app.SCPI.STATus.QUEStionable.RLIMit.PTRansition *app*.SCPI.STATus.QUEStionable.RLIMit.PTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.SYSTem.BEEPer.COMPlete.IMMediate

Description	Generates a beep to notify of the completion of the operation.
Type	Method
Target	Analyzer
Syntax	*app*.SCPI.SYSTem.BEEPer.COMPlete.IMMediate
Equivalent Softkeys	**System > Misc Setup > Beeper > Test Beep Complete**

SCPI.SYSTem.BEEPer.COMPlete.STATe

Description	Turns ON/OFF the state of the beeper notifying of the completion of the operation.
Type	Boolean (read/write)
Parameter	True: Completion beeper ON False: Completion beeper OFF
Preset Value	True
Target	Analyzer
Syntax	*Status* = app.SCPI.SYSTem.BEEPer.COMPlete.STATe *app*.SCPI.SYSTem.BEEPer.COMPlete.STATe = False
Equivalent Softkeys	**System > Misc Setup > Beeper > Beep complete**

SCPI.SYSTem.BEEPer.WARNing.IMMediate

Description	Generates a beep to notify of warning.
Type	Method
Target	Analyzer
Syntax	*app*.SCPI.SYSTem.BEEPer.WARNing.IMMediate
Equivalent Softkeys	**System > Misc Setup > Beeper > Test Beep Warning**

SCPI.SYSTem.BEEPer.WARNing.STATe

Description	Turns ON/OFF the state of the beeper notifying of warning.
Type	Boolean (read/write)
Parameter	True: Warning beeper ON False: Warning beeper OFF
Preset Value	True
Target	Analyzer
Syntax	*Status* = app.SCPI.SYSTem.BEEPer.WARNing.STATe *app*.SCPI.SYSTem.BEEPer.WARNing.STATe = False
Equivalent Softkeys	**System > Misc Setup > Beeper > Beep Warning**

SCPI.SYSTem.COMMunicate.ECAL.TEMPerature.SENSor

Description	Reads out the temperature of the AutoCal module connected to the analyzer.
Type	Double (read only)
Unit	°C (Celsius)
Target	AutoCal module
Syntax	*Value* = app.SCPI.SYSTem.COMMunicate.ECAL.TEMPerature.SENSor
Equivalent Softkeys	**None**

SCPI.SYSTem.COMMunicate.ECAL.IMPedance(*Pt*)

Description	Sets or reads out the impedance state of the specified port (*Pt*) of AutoCal module connected to the analyzer.
Type	String (read/write)
Parameter	"`OPEN`" : OPEN impedance state "`SHORt`" : SHORT impedance state "`LOAD`" : LOAD impedance state "`LOAD2`" : LOAD2 impedance state "`OPEN2`" : OPEN2 impedance state
Preset Value	"`LOAD`"
Target	AutoCal module
Syntax	*Param* = app.SCPI.SYSTem.COMMunicate.ECAL.IMPedance(*Pt*) *app*.SCPI.SYSTem.COMMunicate.ECAL.IMPedance(*Pt*) = "OPEN"
Equivalent Softkeys	**None**

SCPI.SYSTem.COMMunicate.ECAL.CHECk

Description	Sets the check state of AutoCal module connected to the analyzer.
Type	Method
Target	AutoCal module
Syntax	*app*.SCPI.SYSTem.COMMunicate.ECAL.CHECk
Equivalent Softkeys	**None**

SCPI.SYSTem.COMMunicate.ECAL.THRU(*Pt1*, *Pt2*)

Description	Sets the thru state between the specified 2 ports (*Pt1, Ptr2*) of AutoCal module connected to the analyzer.
Type	Method
Target	AutoCal module
Syntax	*app*.SCPI.SYSTem.COMMunicate.ECAL.THRU(*1*, *2*)
Equivalent Softkeys	**None**

SCPI.SYSTem.CORRection.STATe

Description	Turns ON/OFF the state of the system error correction (factory calibration at the RF port connector).
Type	Boolean (read/write)
Parameter	True: System error correction ON False: System error correction OFF
Preset Value	True
Target	Analyzer
Syntax	*Status* = app.SCPI.SYSTem.CORRection.STATe *app*.SCPI.SYSTem.CORRection.STATe = False
Equivalent Softkeys	**System > Misc Setup > System Correction**

SCPI.SYSTem.CYCLe.TIME.MEASurement

Description	Reads out the measured cycle time. The cycle time is the interval between the start of two adjacent sweeps. The cycle time is averaged by an exponential window with a time constant of about 0.5 sec. If the cycle time is changed more than 100 usec in comparison with the averaged time, the averaging starts anew.
Type	Double (read only)
Unit	second
Target	Analyzer
Syntax	*Value* = app.SCPI.SYSTem.CYCle.TIME.MEASurement
Equivalent Softkeys	**Display > Properies > Cycle Time**

SCPI.SYSTem.DATE

Description	Sets/gets the current date. The array consists of three elements: *Data(0)* year from 1900 to 2100; *Data(1)* month from 1 to 12; *Data(2)* day from 1 to 31.
Type	Variant: array of long (read/write)
Syntax	*Data* = app.SCPI.SYSTem.DATE *app*.SCPI.SYSTem.DATE = Array(2009, 9, 9)
Equivalent Softkeys	**None**

SCPI.SYSTem.HIDE

Description	Minimizes the analyzer main window removing it from desktop.
Type	Method
Target	Analyzer GUI
Syntax	*app*.SCPI.SYSTem.HIDE
Related Commands	SCPI.SYSTem.SHOW
Equivalent Softkeys	**None**

SCPI.SYSTem.LOCal

Description	Sets the analyzer to the local operation mode, when all the keys on the front panel, mouse and the touch screen are active.
Type	Method
Target	Analyzer GUI
Syntax	*app*.SCPI.SYSTem.LOCal
Related Commands	SCPI.SYSTem.REMote SCPI.SYSTem.RWLock
Equivalent Softkeys	**None**

SCPI.SYSTem.PRESet

Description	Resets the analyzer to the factory settings. The difference from the `SCPI.IEEE4882.RST:` method is that the trigger is set to the *Continuous* trigger mode.
Type	Method
Target	Analyzer GUI
Syntax	*app*.SCPI.SYSTem.PRESet
Equivalent Softkeys	**System > Preset > OK**

SCPI.SYSTem.PORT.SWITchover.Delay.STATe

Description	Turns ON/OFF the state of the port switchover delay feature. Turn off the port switchover delay allows decreasing sweep time approximately by 10 ms providing that stimulus direction is changing.
Type	Boolean (read/write)
Parameter	True: port switchover delay feature ON False: port switchover delay feature OFF
Preset Value	True
Target	Analyzer
Syntax	*Status* = *app*.SCPI.SYSTem.PORT.SWITchover.Delay.STATe *app*.SCPI.SYSTem.PORT.SWITchover.Delay.STATe = False
Equivalent Softkeys	**System > Misc Setup > Port Switchover Delay [On/OFF]**

SCPI.SYSTem.REMote

Description	Sets the analyzer to the remote operation mode, when all the keys on the front panel, mouse and the touch screen are not active, except for one key labeled *Return to Local*. Pushing this button will reset the analyzer to the local operation mode.
Type	Method
Target	Analyzer GUI
Syntax	*app*.SCPI.SYSTem.REMote
Related Commands	SCPI.SYSTem.LOCal SCPI.SYSTem.RWLock
Equivalent Softkeys	**None**

SCPI.SYSTem.RWLock

Description	Sets the analyzer to the remote operation mode, when all the keys on the front panel, mouse and the touch screen are not active. Only SCPI.SYSTem.LOCal or SCPI.SYSTem.REMote command can release this remote operation mode.
Type	Method
Target	Analyzer GUI
Syntax	*app*.SCPI.SYSTem.RWLock
Related Commands	SCPI.SYSTem.LOCal SCPI.SYSTem.REMote
Equivalent Softkeys	**None**

SCPI.SYSTem.TEMPerature.SENSor(*Idx*)

Description	Reads out the specified sensor (*Idx*) temperature inside the analyzer.
Type	Double (read only)
Unit	°C (Celsius)
Target	Analyzer GUI
Syntax	*Value* = app.SCPI.SYSTem.TEMPerature.SENSor(1)
Equivalent Softkeys	**None**

SCPI.SYSTem.SHOW

Description	Restores the analyzer main window hidden by the SCPI.SYSTem.HIDE command.
Type	Method
Target	Analyzer GUI
Syntax	*app*.SCPI.SYSTem.SHOW
Related Commands	SCPI.SYSTem.HIDE
Equivalent Softkeys	**None**

SCPI.SYSTem.TERMinate

Description	Terminates the application.
Type	Method
Target	AnalyzerGUI
Syntax	*app*.SCPI.SYSTem.TERMinate
Equivalent Softkeys	**None**

SCPI.SYSTem.TIME

Description	Sets/gets the current time. The array consists of three elements: *Data(0)* hours from 0 to 23; *Data(1)* minutes from 0 to 59; *Data(2)* seconds from 0 to 59.
Type	Variant: array of long (read/write)
Syntax	*Data* = app.SCPI.SYSTem.TIME *app. app*.SCPI.SYSTem.TIME = Array(15, 20, 30)
Equivalent Softkeys	**None**

SCPI.TRIGger.SEQuence.AVERage

Description	Turns ON/OFF the averaging trigger function. The function executes a sweep the number of times specified by the averaging factor with a single trigger for the channels with the averaging enabled. The averaging process begins again with each trigger. Note: The point trigger function has priority against this command. When the point trigger is enabled the number of pulses equal to (number of points) x (averaging factor) is needed to complete the averaging.
Type	Boolean (read/write)
Parameter	True: averaging trigger function ON False: averaging trigger function OFF
Preset Value	False
Syntax	*Status* = *app*.SCPI.TRIGger.SEQuence.AVERage *app*.SCPI.TRIGger.SEQuence.AVERage = True
Related Commands	SCPI.SENSe(*Ch*).AVERage.STATe
Equivalent Softkeys	**Average > Avg Trigger [On/OFF]**

SCPI.TRIGger.SEQuence.EXTernal.Delay

Description	Sets/gets the response delay with respect to the external trigger signal.
Type	Double (read/write)
Range	from 0 to 100 sec
Resolution	0.1 µsec
Out of Range	Sets to the nearest bound.
Preset Value	0
Target	Trigger input
Syntax	*Param* = *app*.SCPI.TRIGger.EXTernal.Delay *app*.SCPI.TRIGger.INPut.EXTernal.Delay = 0
Related Commands	SCPI.TRIGger.SEQuence.SOURce
Equivalent Softkeys	**Stimulus > Trigger > Ext Trigger > Delay**

SCPI.TRIGger.SEQuence.EXTernal.POSition

Description	Selects the position of the external trigger. The Analyzer waits for external trigger: • Before sampling, when the frequency of the stimulus port have been set. • Before the frequency setup and subsequent measurement. The frequency change of the stimulus port begins when the external trigger arrives. Depending on the command SCPI.TRIGger.SEQuence.POINt the external trigger wait occurs before each point or before the first point of the full sweep cycle.
Type	String (read/write)
Parameter	"BSAM" : Before sampling "BSET" : Before frequency setup
Preset Value	"BSAM"
Target	Trigger input
Syntax	*Param* = *app*.SCPI.TRIGger.EXTernal.POSition *app*.SCPI.TRIGger.INPut.EXTernal.POSition = "BSAM"
Related Commands	SCPI.TRIGger.SEQuence.SOURce
Equivalent Softkeys	**Stimulus > Trigger > Ext Trigger > POSition > {Before Samp | Before Setup}**

SCPI.TRIGger.SEQuence.EXTernal.SLOPe

Description	Selects the edge polarity of the external trigger.
Type	String (read/write)
Parameter	"POSitive" : Positive edge "NEGative" : Negative edge
Preset Value	"NEG"
Target	Trigger input
Syntax	*Param* = *app*.SCPI.TRIGger.EXTernal.SLOPe *app*.SCPI.TRIGger.INPut.EXTernal.SLOPe = "POS"
Related Commands	SCPI.TRIGger.SEQuence.SOURce
Equivalent Softkeys	**Stimulus > Trigger > Ext Trigger > Polarity**

SCPI.TRIGger.SEQuence.IMMediate

Description	Generates a trigger signal and initiates a sweep under the following conditions. • Trigger source is set to the *BUS* (set by the command SCPI.TRIGger.SEQuence.SOURce = "BUS"), otherwise an error occurs and the command is ignored. • Analyzer must be in the *trigger waiting* state, otherwise (the analyzer is in the *measurement* state or in the *hold* state) an error occurs and the command is ignored. The command is completed immediately after the generation of the trigger signal (does not wait the end of a sweep).
Type	Method
Target	Analyzer
Syntax	*app*.SCPI.TRIGger.SEQuence.IMMediate
Related Commands	SCPI.TRIGger.SEQuence.SOURce SCPI.INITiate(*Ch*).CONTinuous SCPI.INITiate(*Ch*).IMMediate
Equivalent Softkeys	**None**

SCPI.TRIGger.SEQuence.POINt

Description	Turns ON/OFF the point trigger feature. When the point trigger is turned ON, the external trigger response is the single point. When the point trigger feature is turned OFF, the external trigger response is the entire sweep.
Type	Boolean (read/write)
Parameter	True: point trigger feature ON False: point trigger feature OFF
Preset Value	False
Target	Trigger input
Syntax	*Status* = *app*.SCPI.TRIGger.SEQuence.POINt *app*.SCPI.TRIGger.SEQuence.POINt = True
Related Commands	SCPI.TRIGger.SEQuence.SOURce
Equivalent Softkeys	**Stimulus > Trigger > Ext Trig Event > {On Sweep | On Point}**

SCPI.TRIGger.SEQuence.SINGle

Description	Generates a trigger signal and initiates a sweep under the following conditions. • Trigger source is set to the *BUS* (set by the command SCPI.TRIGger.SEQuence.SOURce = "BUS"), otherwise an error occurs and the command is ignored. • Analyzer must be in the *trigger waiting* state, otherwise (the analyzer is in the *measurement* state or in the *hold* state) an error occurs and the command is ignored. As opposed to the SCPI.TRIGger.SEQuence.IMMediate command this command waits the end of the sweep. The method returns control after the end of the sweep caused by the command in one or more channels.
Type	Method
Target	Analyzer
Syntax	*app*.SCPI.TRIGger.SEQuence.SINGle
Related Commands	SCPI.TRIGger.SEQuence.SOURce SCPI.INITiate(*Ch*).CONTinuous SCPI.INITiate(*Ch*).IMMediate
Equivalent Softkeys	**None**

SCPI.TRIGger.SEQuence.SCOPe

Description	Sets or reads out the trigger scope. The trigger scope determines the response on the trigger signal arrival: either starts a sweep of all waiting channels in turn or starts a sweep in the active channel only.
Type	String (read/write)
Parameter	"ALL" : All Channels "ACTive" : Active Channel
Preset Value	"ALL"
Target	Analyzer
Syntax	*Param* = *app*.SCPI.TRIGger.SEQuence.SCOPe *app*.SCPI.TRIGger.SEQuence.SCOPe = "ACT"
Related Commands	SCPI.TRIGger.SEQuence.IMMediate SCPI.TRIGger.SEQuence.SINGle SCPI.IEEE4882.TRG
Equivalent Softkeys	**Stimulus > Trigger > Trigger Scope > {All Channels | Active Channel}**

SCPI.TRIGger.SEQuence.SOURce

Description	Selects the trigger source (see options below). If the the *continuous trigger initiation* mode is enabled with the command SCPI.INITiate(*Ch*).CONTinuous = true, the **INTernal** choice leads to continuous sweep. The choice of **another** option switches the analyzer to the *trigger waiting state* from the corresponding source. If the the *continuous trigger initiation* mode is disabled with the command SCPI.INITiate(*Ch*).CONTinuous = false, the reaction to SCPI.INITiate(*Ch*).IMMediate command is different. Selecting **INTernal** leads to a single sweep in response to the command SCPI.INITiate(*Ch*).IMMediate, selection **another** option puts the analyzer in a *single trigger waiting* state in response to the SCPI.INITiate(*Ch*).IMMediate command.
Type	String (read/write)
Parameter	"INTernal" : Internal "EXTernal" : External "MANual" : Manual "BUS" : Bus
Preset Value	"INT"
Target	Analyzer
Syntax	*Param* = app.SCPI.TRIGger.SEQuence.SOURce *app*.SCPI.TRIGger.SEQuence.SOURce = "BUS"
Related Commands	SCPI.TRIGger.SEQuence.IMMediate SCPI.TRIGger.SEQuence.SINGle SCPI.IEEE4882.TRG
Equivalent Softkeys	**Stimulus > Trigger > Trigger Source > {Internal | External | Manual | Bus}**

SCPI.TRIGger.SEQunce.STATus

Description	Reads out the the current state of the analyzer.
Type	String (read only)
Return value	"HOLD" : Hold "WAIT" : Waiting for trigger "MEAS" : Measure (sweep in progress)
Syntax	*Param* = *app*.SCPI.TRIGger.SEQuence.STATus
Equivalent Softkeys	**None**

SCPI.TRIGger.SEQuence.WAIT(*STATus*)

Description	Waits for the specified status of the trigger system. Blocks the programm execution until the specified status of the analyzer has been reached (see options below). The command can be used to wait for the end of the sweep initianed by the commands SCPI.TRIGger.SEQuence.IMMediate, SCPI.IEEE4882.TRG or initiated by the external trigger signal. If the *continuous initiation mode* is turned ON by the command SCPI.INITiate(*Ch*).CONTinuous = true, then the parameter of the command must be WAIT, otherwise HOLD.
Type	Method
Parameter	*Status* of String type: "HOLD" : Hold "WAIT" : Wait for Trigger "MEAS" : Measurement
Target	Analyzer
Syntax	*app*.SCPI.TRIGger.SEQuence.WAIT(“HOLD”)
Equivalent Softkeys	**None**

SCPI.TRIGger.OUTPut.FUNCtion

Description	Selects the trigger output function. The trigger output outputs various waveforms depending on the setting of the Output Trigger Function (see the operating manual).
Type	String (read/write)
Parameter	"BSET" : Before frequency setup pulse "BSAM" : Before sampling pulse "ASAM" : After sampling pulse "RTRG" : Ready for trigger signal "ESWP" : End of sweep pulse "MEAS" : Measurement sweep signal
Preset Value	"RTRG"
Target	Trigger output
Syntax	*Param* = *app*.SCPI.TRIGger.OUTPut.FUNCtion *app*.SCPI.TRIGger.INPut.OUTPut.FUNCtion = "ESWP"
Related Commands	SCPI.TRIGger.OUTPut.POLarity SCPI.TRIGger.OUTPut.STATe
Equivalent Softkeys	**Stimulus > Trigger > Trigger Output > Function > {Before Setup | Before Sampling | After Sampling | Ready for Trig | Sweep End | Measurement}**

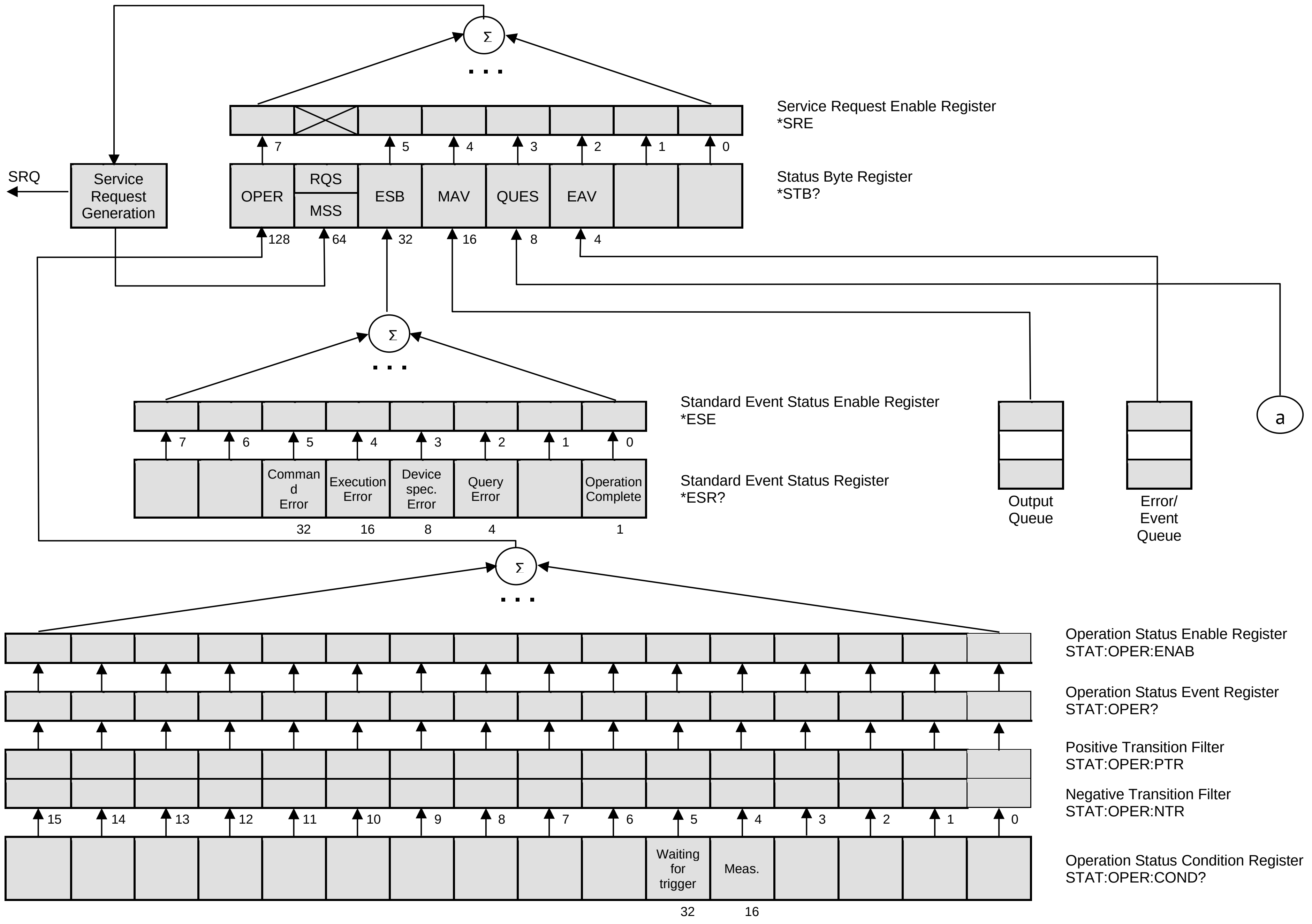
SCPI.TRIGger.OUTPut.POLarity

Description	Selects the polarity of the trigger output set by the SCPI.TRIGger.OUTPut.FUNCtion command.
Type	String (read/write)
Parameter	"POSitive" : Positive polarity "NEGative" : Negative polarity
Preset Value	"NEG"
Target	Trigger output
Syntax	*Param* = *app*.SCPI.TRIGger.OUTPut.POLarity *app*.SCPI.TRIGger.INPut.OUTPut.POLarity = "NEG"
Related Commands	SCPI.TRIGger.OUTPut.FUNCtion SCPI.TRIGger.OUTPut.STATe
Equivalent Softkeys	**Stimulus > Trigger > Trigger Output > Polarity**

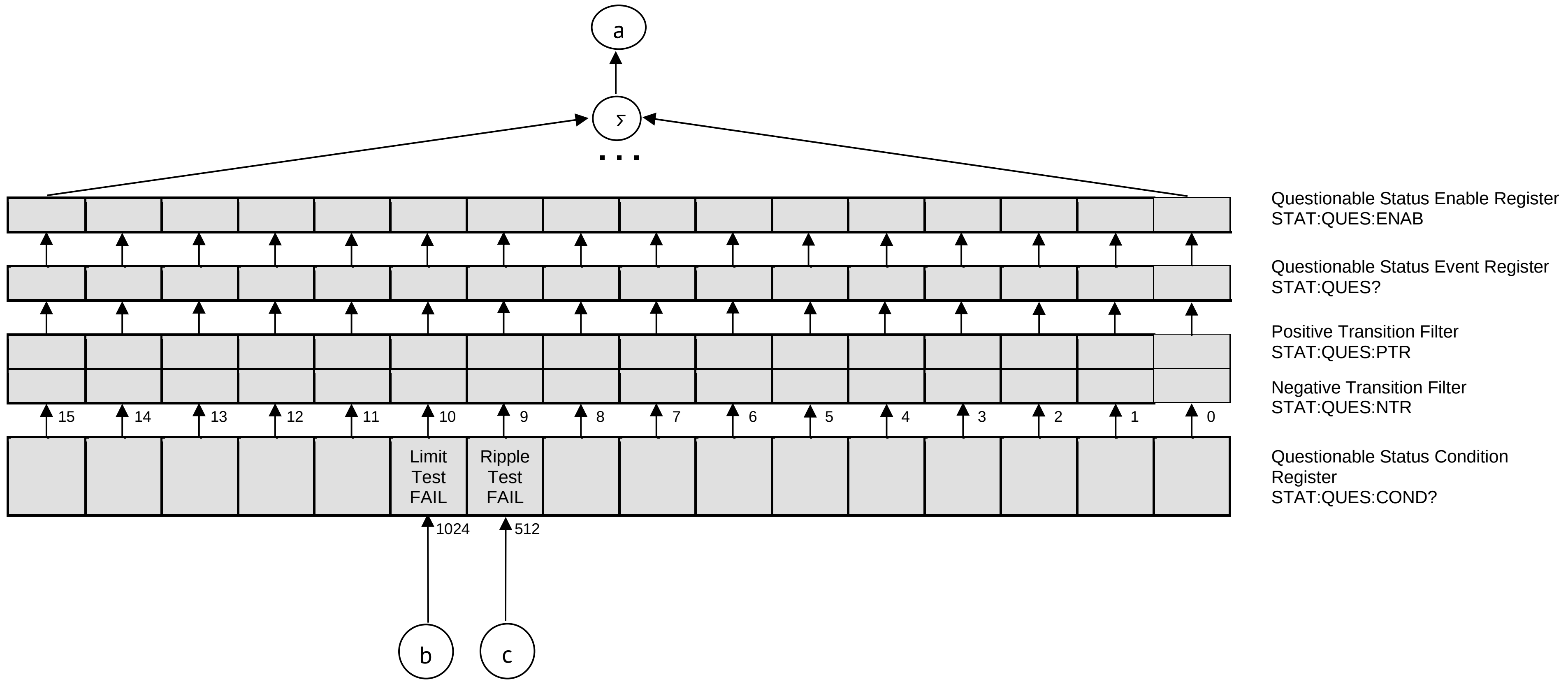
SCPI.TRIGger.OUTPut.STATe

Description	Turns ON/OFF the state of the trigger output.
Type	Boolean (read/write)
Parameter	True: trigger output ON False: trigger output OFF
Preset Value	False
Target	Trigger output
Syntax	*Status* = *app*.SCPI.TRIGger.OUTPut.STATe *app*.SCPI.TRIGger.OUTPut.STATe = True
Related Commands	SCPI.TRIGger.OUTPut.FUNCtion SCPI.TRIGger.OUTPut.POLarity
Equivalent Softkeys	**Stimulus > Trigger > Trigger Output > Trigger Output**

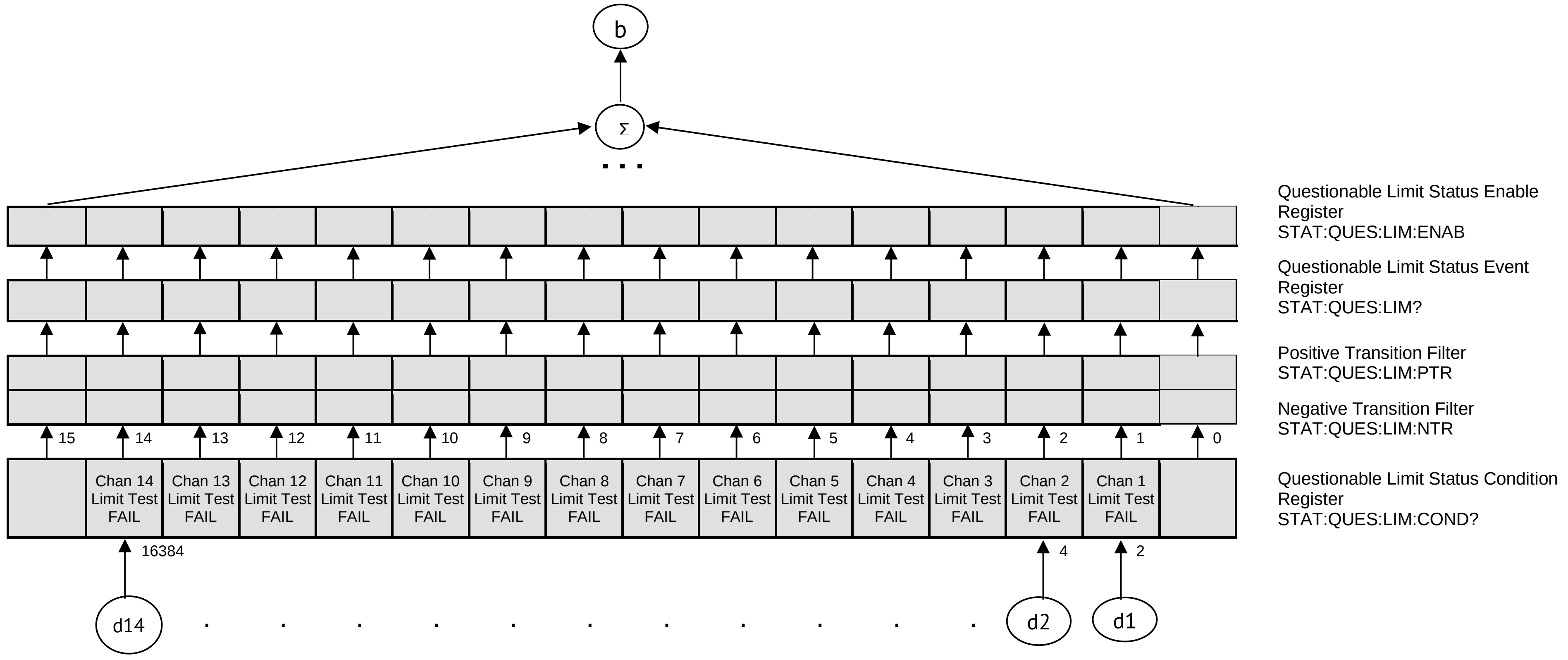
16 Appendix 1. IEE488.2 Status Reporting System



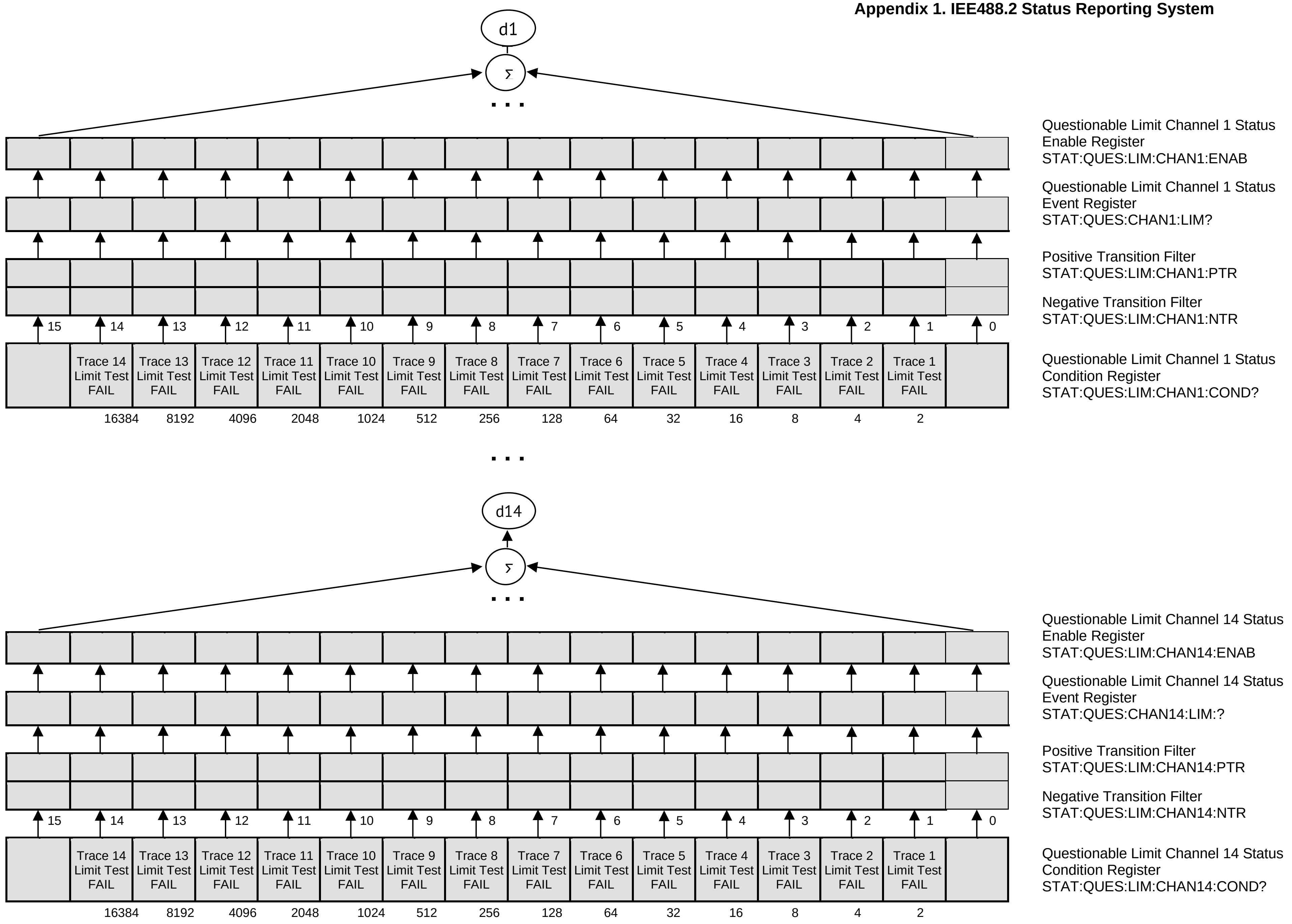
Appendix 1. IEE488.2 Status Reporting System


a
Σ
Questionable Status Enable Register
STAT:QUES:ENAB
Questionable Status Event Register
STAT:QUES?
Positive Transition Filter
STAT:QUES:PTR
Negative Transition Filter
STAT:QUES:NTR
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Limit Test FAIL
Ripple Test FAIL
Questionable Status Condition Register
STAT:QUES:COND?
1024
512
b
c

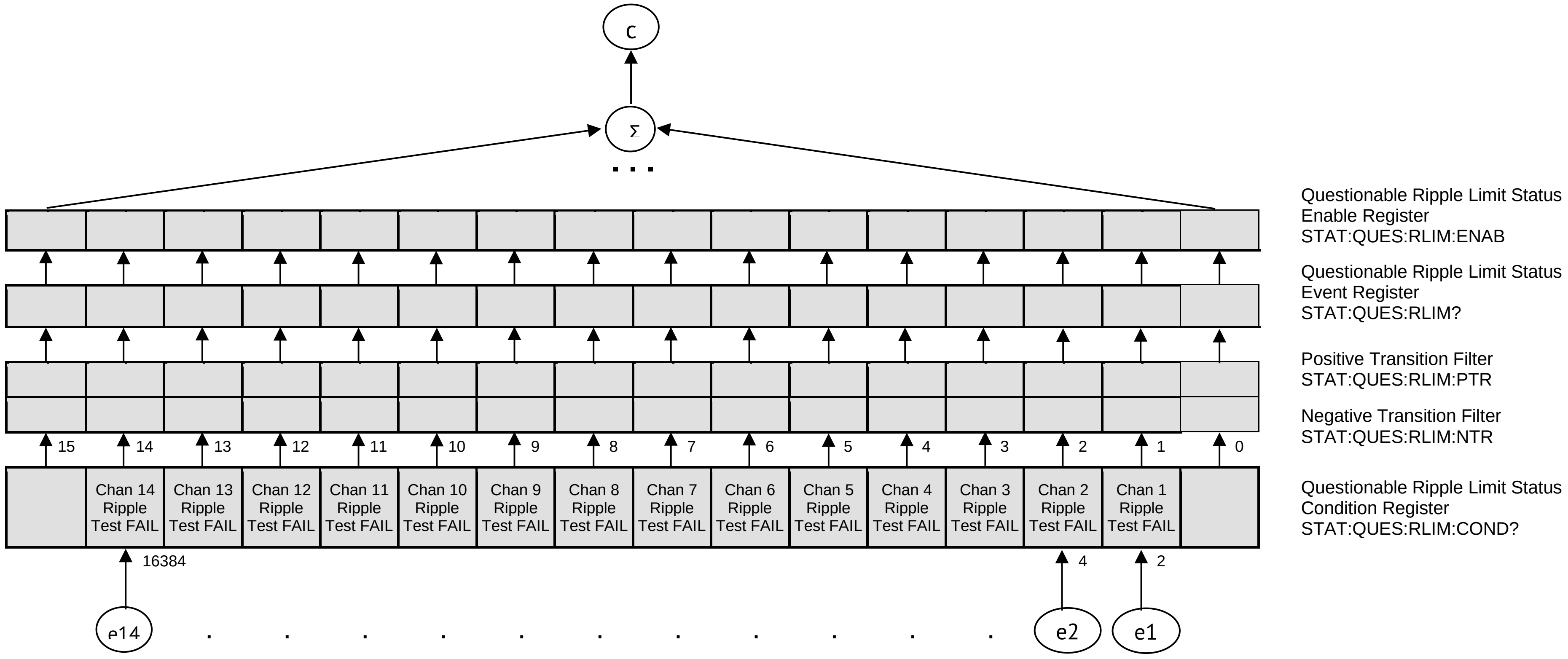
Appendix 1. IEE488.2 Status Reporting System



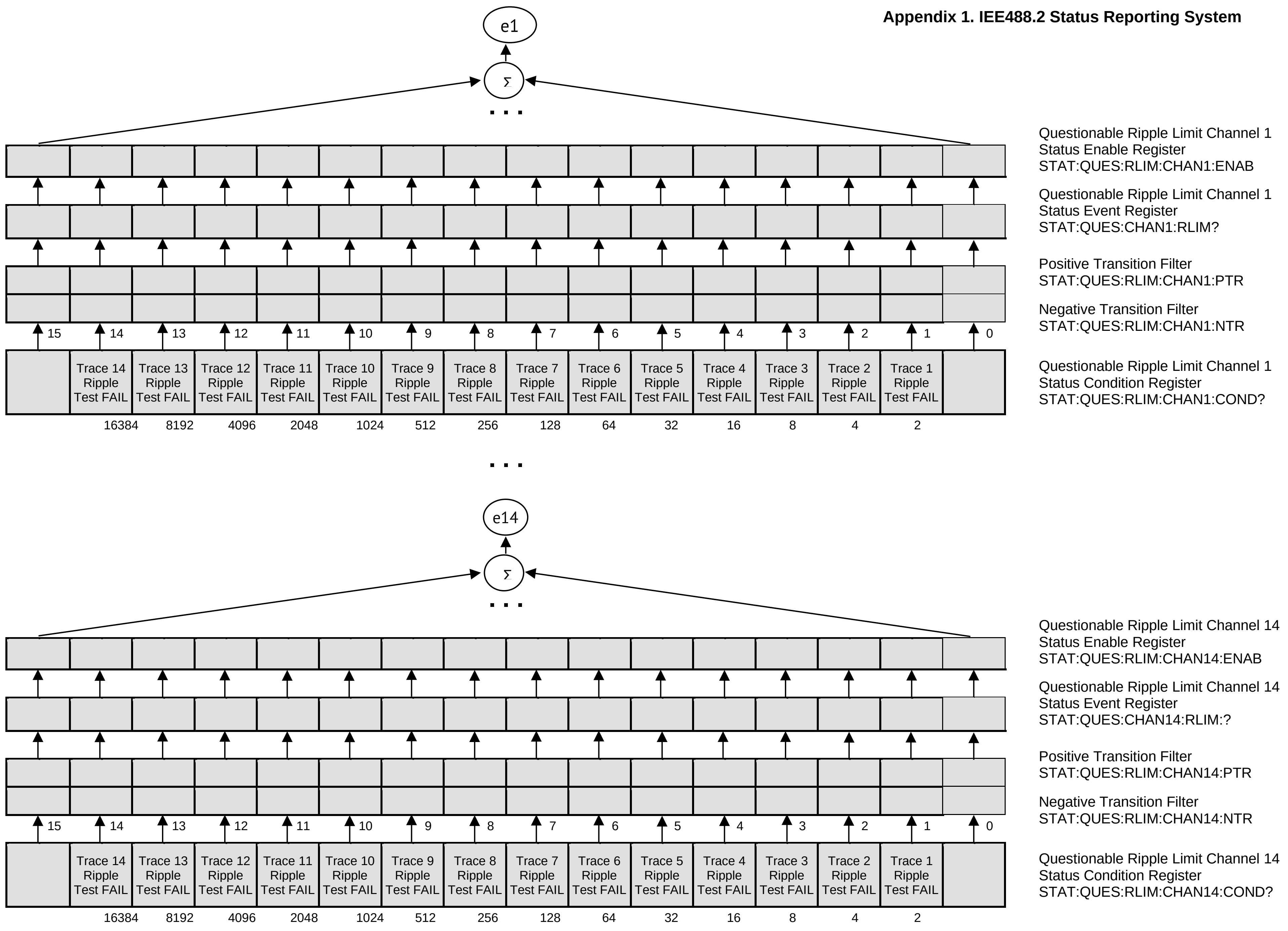
Appendix 1. IEE488.2 Status Reporting System



Appendix 1. IEE488.2 Status Reporting System



Appendix 1. IEE488.2 Status Reporting System



e1
Σ
Questionable Ripple Limit Channel 1 Status Enable Register STAT:QUES:RLIM:CHAN1:ENAB
Questionable Ripple Limit Channel 1 Status Event Register STAT:QUES:CHAN1:RLIM?
Positive Transition Filter STAT:QUES:RLIM:CHAN1:PTR
Negative Transition Filter STAT:QUES:RLIM:CHAN1:NTR
Questionable Ripple Limit Channel 1 Status Condition Register STAT:QUES:RLIM:CHAN1:COND?
15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
Trace 14 Ripple Test FAIL
Trace 13 Ripple Test FAIL
Trace 12 Ripple Test FAIL
Trace 11 Ripple Test FAIL
Trace 10 Ripple Test FAIL
Trace 9 Ripple Test FAIL
Trace 8 Ripple Test FAIL
Trace 7 Ripple Test FAIL
Trace 6 Ripple Test FAIL
Trace 5 Ripple Test FAIL
Trace 4 Ripple Test FAIL
Trace 3 Ripple Test FAIL
Trace 2 Ripple Test FAIL
Trace 1 Ripple Test FAIL
16384 8192 4096 2048 1024 512 256 128 64 32 16 8 4 2
e14
Σ
Questionable Ripple Limit Channel 14 Status Enable Register STAT:QUES:RLIM:CHAN14:ENAB
Questionable Ripple Limit Channel 14 Status Event Register STAT:QUES:CHAN14:RLIM:?
Positive Transition Filter STAT:QUES:RLIM:CHAN14:PTR
Negative Transition Filter STAT:QUES:RLIM:CHAN14:NTR
Questionable Ripple Limit Channel 14 Status Condition Register STAT:QUES:RLIM:CHAN14:COND?
15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
Trace 14 Ripple Test FAIL
Trace 13 Ripple Test FAIL
Trace 12 Ripple Test FAIL
Trace 11 Ripple Test FAIL
Trace 10 Ripple Test FAIL
Trace 9 Ripple Test FAIL
Trace 8 Ripple Test FAIL
Trace 7 Ripple Test FAIL
Trace 6 Ripple Test FAIL
Trace 5 Ripple Test FAIL
Trace 4 Ripple Test FAIL
Trace 3 Ripple Test FAIL
Trace 2 Ripple Test FAIL
Trace 1 Ripple Test FAIL
16384 8192 4096 2048 1024 512 256 128 64 32 16 8 4 2

17 Appendix 2. Error Codes

Code	**Description**
200	"Execution error"
211	"Trigger ignored"
213	"Init ignored"
220	"Parameter Error"
222	"Data out of range"
224	"Illegal parameter value"
201	"Invalid channel index"
202	"Invalid trace index"
203	"Invalid marker index"
204	"Marker is not active"
205	"Invalid save type specifier"
206	"Invalid sweep type specifier"
207	"Invalid trigger source specifier"
208	"Invalid measurement parameter specifier"
209	"Invalid format specifier"
210	"Invalid data math specifier"
214	"Invalid limit data"
215	"Invalid segment data"
216	"Invalid standard type specifier"
217	"Invalid conversion specifier"
218	"Invalid gating shape specifier"
219	"Invalid gating type specifier"