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SCPI COMMAND REFERENCE

TH2851 Series

Complete SCPI command reference for the TH2851 series — 296 commands with syntax, parameter ranges and equivalent touch-screen menu paths. Companion to the TH2851 Series Operation Manual.

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SCPI Command Reference

This is the complete companion reference to Chapter 8 ("Remote Command Reference") of the TH2851 Series Operation Manual. Where that chapter gives a compact starting-point overview of the instrument's SCPI command set, this document lists every command — syntax, description, parameter range and default, and the equivalent front-panel/touch-screen path — reorganized by subsystem for lookup rather than by narrative flow.

296	30	4
Commands documented	Subsystems	Interfaces — GPIB / LAN / USB / RS-232

SCOPE & SOURCING

All 296 documented commands, organized by subsystem for lookup. The TH2851 implements four IEEE-488.2 common commands — `*IDN?`, `*OPC` / `*OPC?`, `*RST`, `*TRG` (Part 0).

Contents

§1 How to use this reference

Part 0 IEEE-488.2 Common Commands

Part A Public Commands

CORRection, DISPlay (clear), SYSTem

Part B Point & List Measurement Commands

AMPLitude, APERture, BIAS, COMParator, CURRent, DISPlay, FETCh, FREQuency, FUNCtion, LIST, MEMory, PERMittivity, TRIGger, TROIdalcore, VOLTage

Part C Trace Sweep Measurement Commands

ABORt, CALCulate, DISPlay, INITiate, MMEMory, SENSe, SERVice, SOURce, TRIGger

1. How to use this reference

Each command entry gives the exact SCPI syntax (set form and, where available, query form), a plain-language description, the parameter's valid range/unit/default where applicable, and the touch-screen menu path that does the same thing manually. To keep the reference dense, three things are documented **once, here,** instead of being repeated for all 296 commands:

Long form vs. short form

Every mnemonic has a long form and a short form — shown in syntax as capitalized letters within the long form, e.g. `FREQuency` can be sent as `FREQ`. Either is accepted. Optional keywords are shown in square brackets, e.g. `[:SENSe]:CORRection:OPEN[:STATe]` means `:CORRection:OPEN` and `:SENSe:CORRection:OPEN:STATe` are equivalent. Curly braces list mutually exclusive options, e.g. `{ON|OFF|1|0}`. A trailing `<n>`, `{1-20}`, `<Ch>` etc. is a numeric suffix or index the caller fills in — e.g. `:CORRection:SPOT{1-20}:FREQuency` addresses calibration point 1 through 20.

Query response framing

Every query command's response is framed the same way: the requested value(s), followed by a newline and the GPIB/USB "end of message" indicator (`<newline><^END>`). This framing is omitted from each individual entry below to save space — assume it applies to every `?`-suffixed command.

Worked examples

This reference does not give a separate worked example per command. It relies on the syntax line itself plus the parameter range/default — sufficient to construct a valid command directly. For end-to-end workflow examples (running a full-frequency calibration, setting up a comparator bin, triggering and reading a result), see Operation Manual Chapter 6 and Chapter 8.13.

Column	Meaning
Syntax	Exact command syntax as sent over GPIB/LAN/USB/RS-232, long form. Two lines = set form (top) and query form (bottom, ending in `?`).
Description	What the command does, in plain language.
Range / **Unit** / **Default**	Shown when the command has a specific parameter range, unit or factory-preset value.
→ *menu path*	The equivalent touch-screen route — useful when cross-referencing against the Operation Manual, or when verifying a remote setting by eye on the instrument.

> **REMOTE INTERFACES**
>
> GPIB (IEEE 488.1/488.2), LAN (SCPI over SICL-LAN, port 5025), USB (virtual serial port) and RS-232 are all supported — see Operation Manual §8.1 for connection setup. Starting remote control locks the front panel and screen; press **Help** on the instrument to unlock.

IEEE-488.2 Common Commands

Generic commands defined by the IEEE 488.2 standard, common to all SCPI-compliant instruments. All begin with an asterisk and are not part of the hierarchical command tree.

IEEE Common Commands (4 commands)

Generic IEEE 488.2 commands, common to all SCPI instruments.

Syntax	Description
`*IDN?`	Get product information (manufacturer, model number, product serial number, etc.) of the TH2851 → *System > Info*
`*OPC?`	Read "+1" after all operations are complete, otherwise read "0" → *None*
`*RST`	Preset the instrument to the factory state, this command is different from the command: SYSTem:PREset → *Preset*
`*TRG`	Perform a trigger. When the current measurement mode is point measurement or list sweep, the measurement result will be returned at the end of the measurement; when the current measurement is sweep mode, the trigger source is required to be set to Bus. → *Trigger*

Public Commands

Commands that can be sent from any measurement interface — point measurement, list sweep or trace sweep.

CORRection (21 commands)

Open/short/load/phase user calibration — all-frequency and per-point (Operation Manual §4.7).

Syntax	Description
`:CORRection:CLEar`	Initialize data for all user calibration points
`[:SENSe]:CORRection:LOAD[:EXECute]`	Perform load calibration for all frequency points → *Cal > Load > ALL Frequency Load*
`[:SENSe]:CORRection:LOAD:{R|C|L} <number>` `[:SENSe]:CORRection:LOAD:{R|C|L}?`	Set or query the resistance/capacitance/inductance setting value of the load calibration → *Cal > Load > Load Resistance / Load Capacitance / Load Inductor*
`[:SENSe]:CORRection:LOAD:STATe {ON|OFF|1|0}` `[:SENSe]:CORRection:LOAD:STATe?`	Set or query the on-off state of the user load calibration **Range:** ON|OFF|1|0 · **Default:** ON → *Cal > Load*
`[:SENSe]:CORRection:LOAD:TYPE {RX|CPD|CPQ|CPG|CPRP|CSD|CSQ|CSRS|LPD|LPQ|LPG|LPRP|LSD|LSQ|LSRS|ZTD|ZTR|GB|YTD|YTR}` `[:SENSe]:CORRection:LOAD:TYPE?`	Set and query the parameters used for load calibration **Range:** RX: R~X CPD: Cp~D CPQ: Cp~Q CPG: Cp~G CPRP: Cp~Rp CSD: Cs~D CSQ: Cs~Q CSRS: Cs~Rs LPD: Lp~D LPQ: Lp~Q LPG: Lp~G LPRP: Lp~Rp LSD: Ls~D LSQ: Ls~Q LSRS: Ls~Rs ZTD: |Z|~θ z(deg) ZTR: |Z|~θ z(rad) GB: G~B YTD: |Y|~θ y(deg) YTR: |Y|~θ y(rad) · **Default:** RX → *Cal > Load Type*
`[:SENSe]:CORRection:OPEN[:EXECute]`	Open clear for all frequency points → *Cal > Open > All Frequency Clear*
`[:SENSe]:CORRection:OPEN:STATe {ON|OFF|1|0}` `[:SENSe]:CORRection:OPEN:STATe?`	Set and query the on-off state of the user open calibration **Range:** ON|OFF|1|0 · **Default:** ON → *Cal > Open*
`[:SENSe]:CORRection:SHORt[:EXECute]`	Short clear for all frequency points → *Cal > Short > All Frequency Clear*
`[:SENSe]:CORRection:SHORt:STATe {ON|OFF|1|0}` `[:SENSe]:CORRection:SHORt:STATe?`	Set and query the on-off state of the user short calibration **Range:** ON|OFF|1|0 · **Default:** ON → *Cal > Short*
`[:SENSe]:CORRection:SPOT{1-20}:FREQ < number >` `[:SENSe]:CORRection:SPOT{1-20}:FREQ?`	Query and set the frequency of the specified user calibration point **Range:** 10Hz - 130MHz · **Default:** 1000Hz
`[:SENSe]:CORRection:SPOT{1-20}:LOAD[:EXECute]`	Perform the load calibration for the specified user calibration point
`[:SENSe]:CORRection:SPOT{1-20}:LOAD:STANdard <number1>,<number2>` `[:SENSe]:CORRection:SPOT{1-20}:LOAD:STANdard?`	Set and query the load reference value of the specified user calibration point **Range:** -1E15 - 1E15 -1E15 - 1E15 · **Unit:** Depends on load Depends on load parameter settings parameter settings · **Default:** 0 0
`[:SENSe]:CORRection:SPOT{1-20}:OPEN[:EXECute]`	Perform open circuit clear for the specified user calibration point

Syntax	Description
`[:SENSe]:CORRection:SPOT{1-20}:SHORt[:EXECute]`	Perform short circuit clear for the specified user calibration point **Range:** ON|OFF|1|0 · **Default:** ON
`[:SENSe]:CORRection:SPOT{1-20}:STATe {ON|OFF|1|0}` `[:SENSe]:CORRection:SPOT{1-20}:STATe?`	Set and query the on-off state of the specified user calibration point **Range:** ON|OFF|1|0
`[:SENSe]:CORRection:COLLect:ACQuire:LOAD`	Perform load calibration for all frequency points *→ Cal > Load > All Frequency Load*
`[:SENSe]:CORRection:COLLect:ACQuire:OPEN`	Perform open circuit clear for all frequency points *→ Cal > Open > All Frequency Clear*
`[:SENSe]:CORRection:COLLect:ACQuire:SHORt`	Perform short circuit clear for all frequency points *→ Cal > Short > All Frequency Clear*
`[:SENSe]:CORRection2:LOAD {ON|OFF|1|0}` `[:SENSe]:CORRection2:LOAD?`	Set and query the on-off state of the user load calibration **Range:** ON|OFF|1|0 · **Default:** ON *→ Cal > Load*
`[:SENSe]:CORRection2:OPEN {ON|OFF|1|0}` `[:SENSe]:CORRection2:OPEN?`	Set and query the on-off state of the user open calibration **Range:** ON|OFF|1|0 · **Default:** ON *→ Cal > Open*
`[:SENSe]:CORRection2:SHORt {ON|OFF|1|0}` `[:SENSe]:CORRection2:SHORt?`	Set and query the on-off state of the user short calibration **Range:** ON|OFF|1|0 · **Default:** ON *→ Cal > Short*

DISPlay (clear) (1 command)

Clears the warning message shown at the bottom of the screen.

Syntax	Description
`:DISPlay:CCLear`	Clear the warning message at the bottom of the screen

SYSTem (5 commands)

Front-panel/mouse key-lock, power-off, preset and factory-reset control.

Syntax	Description
`:SYSTem:KLOCk:KBD {ON|OFF|1|0}` `:SYSTem:KLOCk:KBD?`	Set or query whether the front panel is disabled **Range:** ON|OFF|1|0 · **Default:** OFF *→ System > Misc Setup > Key Lock > Front Panel Lock*
`:SYSTem:KLOCk:MOUSe {ON|OFF|1|0}` `:SYSTem:KLOCk:MOUSe?`	Set or query whether the touch screen is disabled **Range:** ON|OFF|1|0 · **Default:** OFF *→ System > Misc Setup > Key Lock > Screen Lock*
`:SYSTem:POFF`	Turn off the TH2851 program *→ System > Exit Application*
`:SYSTem:PRESet`	When the current measurement is in sweep mode, preset the TH2851 to the factory setting state, at this time the command differs from *RST in that the trigger mode of channel 1 will be set to continuous mode automatically after the completion; when the current measurement is point measurement or list measurement, restore the instrument to the factory setting and return to the main page of point measurement.
`:SYSTem:UReset`	Preset the TH2851 to the user settings, or return an error if the user settings file does not exist

Point & List Measurement Commands

Commands specific to point-measurement and list-sweep mode — the <LCR> and <Point/List> interfaces (Operation Manual Chapter 4, §4.1–§4.2).

AMPLitude (1 command)

Automatic Level Control for point measurement (Operation Manual §4.1.5).

Syntax	Description
`:AMPLitude:ALC {ON|OFF|1|0}` `:AMPLitude:ALC?`	Set or query the ALC (Automatic Level Control) state of the point measurement **Range:** ON|OFF|1|0 · **Default:** OFF *→ Meas Setup > OSC Level > ALC > ALC Control*

APERture (1 command)

Point-measurement speed/aperture level (Operation Manual §4.1.3).

Syntax	Description
`:APERture {1|2|3|4|5}` `:aperture?`	Set and query the point measurement speed **Range:** 1|2|3|4|5 · **Default:** 3 *→ Meas Setup > Meas Time*

AVERage (1 command)

Point-measurement averaging count (Operation Manual §4.1.4).

Syntax	Description
`:AVERage:COUNt < number >` `:AVERage:COUNt?`	Set and query the point averaging count **Range:** 1 – 999 · **Default:** 1 *→ Meas Setup > Avg Count*

BIAS (5 commands)

Point-measurement DC bias mode, level, range and state (Operation Manual §4.1.6).

Syntax	Description
`:BIAS:CURRent < number >` `:BIAS:CURRent?`	Set or query the DC bias current. The setting does not mean that the DC bias is turned on. **Range:** -0.1 - 0.1 · **Unit:** A · **Default:** 0 *→ Meas Setup > DC Bias > Current Level*
`:BIAS:MODE {VOLTage|CURRent}` `:BIAS:MODE?`	Set or query the point DC bias mode. The setting does not mean that the DC bias is turned on. **Range:** VOLT: Voltage mode CURR: Current Mode · **Default:** VOLT *→ Meas Setup > DC Bias > DC Bias Mode*
`:BIAS:RANGe {M1|M10|M100}` `:BIAS:RANGe?`	Set or query the DC bias range. The setting does not mean that the DC bias is turned on. **Range:** M1: 1mA M10: 10mA M100: 100mA · **Default:** M1 *→ Meas Setup > DC Bias > Meas Range*
`:BIAS:STATe {ON|OFF|1|0}` `:BIAS:STATe?`	Set or query the on-off state of the DC bias **Range:** ON|OFF|1|0 · **Default:** OFF *→ Meas Setup > DC Bias > DC Bias State*
`:BIAS:VOLTage < number >` `:BIAS:VOLTage?`	Set or query the DC bias voltage. The setting does not mean that the DC bias is turned on. **Range:** -40 - 40 · **Unit:** V · **Default:** 0 *→ Meas Setup > DC Bias > Voltage Level*

COMParator (14 commands)

Point/list comparator bins, conditions and sorting state (Operation Manual §4.6).

Syntax	Description
`:COMParator[:STATe] {ON|OFF|1|0}` `:COMParator[:STATe]?`	Set or query the point comparator state **Range:** ON|OFF|1|0 · **Default:** OFF → *Comparator > Comparator State*
`:COMParator:BIN{1|2|3|4|5|6|8|9} [:STATe] {ON|OFF|1|0}` `:COMParator:BIN{1|2|3|4|5|6|8|9} [:STATe]?`	Set or query the BIN (1-9) state in the point comparator **Range:** ON|OFF|1|0 · **Default:** OFF → *Comparator > Edit Comptr Table > BIN > State*
`:COMParator:BIN{1|2|3|4|5|6|7|8|9}:CONDition{1|2|3|4}:LIMit <number1>,<number2>` `:COMParator:BIN{1|2|3|4|5|6|7|8|9}:CONDition{1|2|3|4}:LIMit?`	Set and query the limit line of each BIN table condition (1-4) of each BIN (1-9) in the point comparator. The limit line contains upper and lower limit values. **Range:** -1E9 - 1E9 -1E9 - 1E9 · **Unit:** Depend on BIN Depend on BIN parameters parameters · **Default:** 0 0 → *Comparator > Edit Comptr Table > BIN > Upper / Lower*
`:COMParator:BIN{1|2|3|4|5|6|7|8|9}:CONDition{1|2|3|4}:LTYPe {IN|OUT|ALL}` `:COMParator:BIN{1|2|3|4|5|6|7|8|9}:CONDition{1|2|3|4}:LTYPe?`	Set and query the limit line type of each BIN table condition (1-4) of each BIN (1-9) in the point comparator **Range:** IN|OUT|ALL · **Default:** ALL → *Comparator > Edit Comptr Table > BIN > In/Out*
`:COMParator:CLEar`	Restore all point measurement comparator table to their initial values → *Comparator > Edit Comptr Table > All Tables > Clear All*
`:COMParator:CONDition{1|2|3|4}:MODE {OFF|DEV|PCNT|PDEV}` `:COMParator:CONDition{1|2|3|4}:MODE?`	Set and query the data math of the point measurement comparator table condition (1-4) **Range:** OFF: Off DEV: Deviation PCNT: Percent PDEV: Deviation percent · **Default:** OFF → *Comparator > Edit Comptr Table > Mode*
`:COMParator:CONDition{1|2|3|4}:NOMinal < number >` `:COMParator:CONDition{1|2|3|4}:NOMinal?`	Set or query the reference value of the point measurement comparator table condition (1-4) **Range:** -1E9 - 1E9 · **Default:** 0 → *Comparator > Edit Comptr Table > Reference*
`:COMParator:CONDition{1|2|3|4}:PARameter{Z|Y|TZR|TZD|TYR|TYD|RS|RP|LS|LP|CS|CP|R|G|X|B|Q|D}` `:COMParator:CONDition{1|2|3|4}:PARameter?`	Set or query the measurement parameters of the point measurement comparator table condition (1-4) **Range:** Z:|Z| Y:|Y| TZR.θ z(rad) TZD.θ z(deg) TYR.θ y(rad) TYD.θ y(deg) RS: Rs RP: Rp LS: Ls LP: Lp CS: Cs CP: Cp R: R G: G X: X B: B Q: Q D: D · **Default:** Z → *Comparator > Edit Comptr Table > Parameter*
`:COMParator:CONDition{1|2|3|4}:SWitch {ON|OFF|1|0}` `:COMParator:CONDition{1|2|3|4}: SWitch?`	Set or query the on-off state of the point measurement comparator table condition (1-4) **Range:** ON|OFF|1|0 · **Default:** ON → *Comparator > Edit Comptr Table > State*
`:COMParator:COUNt[:STATe] {ON|OFF|1|0}` `:COMParator:COUNt[:STATe]?`	Set or query the open state of the point measurement comparator count **Range:** ON|OFF|1|0 · **Default:** ON → *Comparator > Bin Count*
`:COMParator:COUNt:CLEar`	Clear the current point measurement comparator count → *Comparator > Clear Bin Count*
`:COMParator:DATA:BCOunt?`	Query each BIN count of the comparator in the point measurement
`:COMParator:DATA:BIN?`	Query the most recent Bin result
`:COMParator:OGBins < number >` `:COMParator:OGBins?`	Set or query the number of qualified BINs of the point measurement comparator **Range:** 1-9 · **Default:** 9 → *Comparator > Edit Comptr Table > Good Bins*

CURRent (1 command)

Point-measurement AC current source level.

Syntax	Description
`:CURRent < number >` `:CURRent?`	Set and query the current of the point measurement signal source and set the level mode to current mode automatically after setting the current. **Range:** 0.0002 - 0.02 · **Unit:** A · **Default:** 0.02 *→ Meas Setup > OSC Level > Current Level*

DISPlay (page select) (1 command)

Opens or queries which measurement/setup page is currently shown.

Syntax	Description
`:DISPlay:PAGE {MEASurement|LIST|STIMulus|SWEEp|CAL|COMParator|PoinTCOmparator}` `:DISPlay:PAGE?`	Open the specified page, or query the currently displayed page **Range:** MEASurement: Point measurement interface LIST: List measurement interface STIMulus: Stimulus interface SWEEp: Sweep measurement interface CAL: User Calibration Interface COMParator: Comparator interface PoinTCOmparator: Point measurement comparator interface

FETCh (6 commands)

Reads back the most recent point/list measurement result.

Syntax	Description
`:FETCh[:IMPedance]?`	Query the current measurement results of the point measurement/list sweep
`:FETCh[:IMPedance]:CORRected?`	Query the point measurement/list sweep corrected measurements (R-X)
`:FETCh:SMONitor:IAC?`	Query the measurement data of AC current monitoring in point measurement/list sweep
`:FETCh:SMONitor:IDC?`	Query the measurement data of DC current monitoring in point measurement/list sweep
`:FETCh:SMONitor:VAC?`	Query the measurement data of AC voltage monitoring in point measurement/list sweep
`:FETCh:SMONitor:VDC?`	Query the measurement data of DC voltage monitoring in point measurement/list sweep

FREQuency (1 command)

Point-measurement test frequency.

Syntax	Description
`:FREQuency < number >` `:FREQuency?`	Set or query the frequency of the point measurement **Range:** 10Hz - 130MHz · **Default:** 1000Hz *→ Meas Setup > Frequency*

FUNCtion (6 commands)

Selects the measured parameter/function and related display options.

Syntax	Description
`:FUNCtion:DEV{1|2|3|4}:MODE {OFF|ABSolute|PERCent}` `:FUNCtion:DEV{1|2|3|4}:MODE?`	Set or query the math mode of the selected measurement parameter **Range:** OFF: OFF ABSolute: Deviation mode PERCent: Deviation percent mode · **Default:** OFF *→ Display > Parameter > Math Mode*
`:FUNCtion:DEV{1|2|3|4}:REFerence < number>` `:FUNCtion:DEV{1|2|3|4}:REFerence?`	Set or query the reference value of the selected measurement parameter **Range:** -1E9 - 1E9 · **Unit:** Depends on measurement parameters · **Default:** 0 *→ Display > Parameter > Reference*

Syntax	Description
`:FUNCtion:IMPedance:RANGe {AUTO|50|500|5K|50K}` `:FUNCtion:IMPedance:RANGe?`	Set or query the AC range of the point measurement **Range:** AUTO: AUTO 50: 50Ω 500: 500Ω 5K: 5kΩ 50K: 50kΩ · **Default:** AUTO *→ Meas Setup > ACRange*
`:FUNCtion:PARamater{1|2|3|4}:FORMat {Z|Y|TZR|TZD|TYR|TYD|RS|RP|LS|LP|CS|CP|R|G|X|B |Q|D}` `:FUNCtion:PARamater{1|2|3|4}:FORMat?`	Set and query the parameter name of the selected measurement parameter **Range:** Z:|Z| Y:|Y| TZR.θ z(rad) TZD.θ z(deg) TYR.θ y(rad) TYD.θ y(deg) RS: Rs RP: Rp LS: Ls LP: Lp CS: Cs CP: Cp R: R G: G X: X B: B Q: Q D: D DCR: DCR ER: |εr| (requires permittivity module support) ER1: εr' (requires permittivity module support) ER1: εr'' (requires permittivity module support) U1: μ' (requires troidalcore module support) U2: μ'' (requires troidalcore module support) TAN: tan δ (requires troidalcore module support) · **Default:** Z *→ Display > Parameter > Parameter*
`:FUNCtion:SMONitor:{IAC|VAC} {ON|OFF|1|0}` `:FUNCtion:SMONitor:{IAC|VAC}?`	Set or query the on-off state of AC monitor, when it is OFF, the DC monitor will be on **Range:** ON|OFF|1|0 · **Default:** ON *→ Meas Setup > AC/DC Monitor*
`:FUNCtion:SMONitor:{IDC|VDC} {ON|OFF|1|0}` `:FUNCtion:SMONitor:{IDC|VDC}?`	Set or query the on-off state of DC monitor, when it is off, the AC monitor will be on **Range:** ON|OFF|1|0 · **Default:** OFF *→ Meas Setup > AC/DC Monitor*

INITiate (2 commands)

Arms/starts a sweep or point measurement.

Syntax	Description
`:INITiate`	Set the trigger mode to internal trigger
`:INITiate:CONTinuos {ON|OFF|1|0}` `:INITiate:CONTinuos?`	Set the trigger mode to internal trigger, query whether the current trigger mode is internal trigger **Range:** ON|OFF|1|0 · **Default:** OFF

LIST (36 commands)

List-sweep point definitions — frequency, level, bias, comparator per point (Operation Manual §4.2).

Syntax	Description
`:LIST:APERture {1|2|3|4|5}` `:LIST:APERture?`	Set or query the measurement time of the list sweep **Range:** 1|2|3|4|5 · **Default:** 1 *→ Meas Setup > Meas Time*
`:LIST:BIAS:CURRent[point number] < number>` `:LIST:BIAS:CURRent[point serial number]?`	Set or query the DC bias current of the selected measurement point in the list sweep. The setting does not mean that the DC bias is switched on. **Range:** -0.1 - 0.1 · **Unit:** A · **Default:** 0 *→ Stim Table > DC Bias*
`:LIST:BIAS:MODE[point serial number] {VOLTage|CURRent}` `:LIST:BIAS:MODE[point serial number]?`	Set or query the DC bias mode of the selected measurement point in the list sweep. The setting does not mean that the DC bias is switched on. **Range:** VOLT: Voltage mode CURR: Current mode · **Default:** VOLT *→ Stim Table > Bias Mode*
`:LIST:BIAS:RANGe[point serial number] {M1|M10|M100}` `:LIST:BIAS:RANGe[point serial number]?`	Set or query the DC bias range of the selected measurement point in the list sweep. The setting does not mean that the DC bias is switched on. **Range:** M1: 1mA M10: 10mA M100: 100mA · **Default:** M1 *→ Stim Table > Meas Range*
`:LIST:BIAS:STATe[Stimulus] {ON|OFF|1|0}` `:LIST:BIAS:STATe[Stimulus]?`	Set or query the on-off state of the DC bias of the selected measurement point in the list sweep **Range:** ON|OFF|1|0 · **Default:** OFF *→ Stim Table > Bias State*

Syntax	Description
`:LIST:BIAS:VOLTage[Stimulus] < number>` `:LIST:BIAS:VOLTage [Stimulus]?`	Set or query the DC bias voltage of the selected measurement point in the list sweep. The setting does not mean that the DC bias is switched on. **Range:** -40 - 40 · **Unit:** V · **Default:** 0 *→ Stim Table > DC Bias*
`:LIST:CLEar`	Clear the list measurement points of the current page, restore them to the default value
`:LIST:CLEar:ALL`	Clear the list measurement points of all pages, restore them to the default value
`:LIST:COMParator[:STATe] {ON|OFF|1|0}` `:LIST:COMParator[:STATe]?`	Set or query the list comparator state **Range:** On|Off|1|0 · **Default:** Off *→ Comparator > Comparator State*
`:LIST:COMParator:BIN{1-15} [:STATe] {ON|OFF|1|0}` `:LIST:COMParator:BIN{1-15} [:STATe]?`	Set or query the state of BIN (1-15) in the list comparator **Range:** ON|OFF|1|0 · **Default:** OFF *→ Stim Table > Comparator > BIN > State*
`:LIST:COMParator:BIN{1-15}:CONDition{1|2|3|4}:LIMit <number1>,<number2>` `:LIST:COMParator:BIN{1-15}:CONDition{1|2|3|4}:LIMit?`	Set and query the limit line of the comparator condition setting (1-4) of BIN (1-15) in the list. The limit line contains the upper and lower limit values. **Range:** -1E9 - 1E9 -1E9 - 1E9 · **Unit:** Depends on Depends on comparator parameters comparator parameters · **Default:** 0 0 *→ Stim Table > Comparator > BIN > Upper/Lower*
`:LIST:COMParator:BIN{1-15}:CONDition{1|2|3|4}:LTYPe {IN|OUT|ALL}` `:LIST`	Set and query the limit line type of the comparator condition setting (1-4) of BIN (1-15) in the list **Range:** IN|OUT|ALL · **Default:** ALL *→ Stim Table > Comparator > BIN > In/Out*
`:LIST:COMParator:BIN{1-15}:CONDition{1|2|3|4}:MODE {OFF|DEV|PCNT|PDEV}` `:LIST:COMParator:BIN{1-15}:CONDition{1|2|3|4}:MODE?`	Set and query the data math of the comparator condition setting (1-4) of the list comparator setting BIN (1-15) **Range:** OFF: OFF DEV: Deviation PCNT: Percent PDEV: Percent Deviation · **Default:** OFF *→ Stim Table > Comparator > BIN > Mode*
`:LIST:COMParator:BIN{1-15}:CONDition{1|2|3|4}:NOMinal < number>` `:LIST:COMParator:BIN{1-15}:CONDition{1|2|3|4}:NOMinal?`	Set or query the reference value of the comparator condition setting (1-4) of the list comparator BIN (1-15) **Range:** -1E9 - 1E9 · **Default:** 0 *→ Stim Table > Comparator > BIN > Reference*
`:LIST:COMParator:CLEar`	Restore all list comparator settings to the initial values *→ Stim Table > Comparator > All Tables > Clear All*
`:LIST:COMParator:CONDition{1|2|3|4}:PARameter {Z|Y|TZR|TZD|TYR|TYD|RS|RP|LS|LP|CS| CP|R|G|X|B|Q|D}` `:LIST:COMParator:CONDition{1|2|3|4}:PARameter?`	Set or query the measurement parameters of the list comparator setting condition (1-4) **Range:** Z:|Z| Y:|Y| TZR.θ z(rad) TZD.θ z(deg) TYR.θ y(rad) TYD.θ y(deg) RS: Rs RP: Rp LS: Ls LP: Lp CS: Cs CP: Cp R: R G: G X: X B: B Q: Q D: D · **Default:** Z *→ Stim Table > Comparator > Parameter*
`:LIST:COMParator:COUNt[:STATe] {ON|OFF|1|0}` `:LIST:COMParator:COUNt[:STATe]?`	Set or query the open state of the list comparator count **Range:** ON|OFF|1|0 · **Default:** ON *→ Comparator > Bin Count*
`:LIST:COMParator:COUNt:CLEar`	Clear the count of the current list comparator *→ Comparator > Clear Bin Count*
`:LIST:COMParator:DATA:BCOunt?`	query the comparator count of each BIN in the list
`:LIST:COMParator:DATA:BIN?`	Query the most recent comparator result

Syntax	Description
`:LIST:COUN[Stimulus] < number>` `:LIST:COUN[Stimulus]?`	Set or query the average count of the selected measurement points in the list sweep. **Range:** 1 - 999 · **Default:** 1 *→ Stim Table > Avg Count*
`:LIST:CURRent[Stimulus] < number>` `:LIST:CURRent[Stimulus]?`	Set or query the signal source current of the selected measurement point in the list sweep. **Range:** 0.0002 - 0.02 · **Unit:** A · **Default:** 0.02 *→ Stim Table > OSC Level*
`:LIST:DELay[Stimulus] < number>` `:LIST:DELay[Stimulus]?`	Set or query the point delay of the selected point **Range:** 0s - 30s · **Default:** 0s *→ Stim Table > Point Delay*
`:LIST:FREQ[Stimulus] < number>` `:LIST:FREQ[Stimulus]?`	Set or query the measurement frequency of the selected point **Range:** 10Hz - 130MHz · **Default:** 1000Hz *→ Stim Table > Frequency*
`:LIST:MODE {SEQuence|STEP}` `:LIST:MODE?`	Set the list type of the list sweep **Range:** SEQ: Sequence STEP: Step · **Default:** SEQ *→ Point/List > List Type*
`:LIST:OSC[Stimulus] {VOLTage|CURRent}` `:LIST:OSC[Stimulus]?`	Set or query the signal source level mode of the selected measurement point **Range:** VOLT: Voltage mode CURR: Current mode · **Default:** VOLT *→ Stim Table > OSC Mode*
`:LIST:PARameter{1|2|3|4}:FORMat {Z|Y|TZR|TZD|TYR|TYD|RS|RP|LS|LP|CS|CP|R|G|X|B|Q|D}` `:LIST:PARameter{1|2|3|4}:FORMat?`	Set or query the parameter name of the specified measurement parameter **Range:** Z:|Z| Y:|Y| TZR.θ z(rad) TZD.θ z(deg) TYR.θ y(rad) TYD.θ y(deg) RS: Rs RP: Rp LS: Ls LP: Lp CS: Cs CP: Cp R: R G: G X: X B: B Q: Q D: D ER: |εr| (requires permittivity module support) ER1: εr' (requires permittivity module support) ER2: εr'' (requires permittivity module support) U1: μ' (requires troidalcore module support) U2: μ'' (requires troidalcore module support) TAN: tan δ (requires troidalcore module support) NONE: None (not displayed) · **Default:** Z *→ Display > Parameter*
`:LIST:PERMittivity:A1 {ON|OFF|1|0}` `:LIST:PERMittivity:A1?`	Set or query the electrode in the calculation of permittivity. This command must be enabled with the permittivity permission before it can be used. **Range:** ON|OFF|1|0 Commands ON: Electrode is A1 OFF: Electrode is A2 · **Default:** ON *→ Point/List > Electrode*
`:LIST:PERMittivity:THICkness < number>` `:LIST:PERMittivity:THICkness?`	Set or query the thickness in the calculation of permittivity. This command must be enabled with the permittivity permission before it can be used. **Range:** 1E-9 - 999 · **Unit:** m · **Default:** 0.01 *→ Point/List > Thickness*
`:LIST:POINt < number>` `:LIST:POINt?`	Set or query the number of measurement points in the list sweep, the measurement point parameter set by this command will be the default parameter. **Range:** 1 - 1601 · **Default:** 1
`:LIST:RANGe [Stimulus] {AUTO|50|500|5K|50K}` `:LIST:RANGe [Stimulus]?`	Set or query the AC range of the selected measurement point **Range:** AUTO: Auto range 50: 50Ω 500: 500Ω 5K: 5kΩ 50K: 50kΩ · **Default:** AUTO *→ Stim Table > AC Range*
`:LIST:TRIG {INTernal|MANualEXTernal|BUS}` `:LIST:TRIG?`	Set the trigger mode of the list sweep **Range:** INT: Internal trigger MAN: Manual trigger EXT: External trigger BUS: Bus trigger · **Default:** INT *→ Point/List > Trigger Mode*
`:LIST:TROIdalcore:HEIGht?` `:LIST:TROIdalcore:HEIGht < number>`	Set and query the troidal core height in the calculation of troidalcore. This command must be enabled with the troidalcore permission before it can be used. **Range:** 1e-9 - 999 · **Unit:** m · **Default:** 0.005 *→ Point/List > Troidal core Height*
`:LIST:TROIdalcore:INNer?` `:LIST:TROIdalcore:INNer < number>`	Set and query the troidal core inner in the calculation of troidalcore. This command must be enabled with the troidalcore permission before it can be used. **Range:** 1e-9 - 999 · **Unit:** m · **Default:** 0.008 *→ Point/List > Troidal core Inner*

Syntax	Description
`:LIST:TROIdalcore:OUTer?` `:LIST:TROIdalcore:OUTer <number>`	Set and query the troidal core outer in the calculation of troidalcore. This command must be enabled with the troidalcore permission before it can be used. **Range:** 1e-9 - 999 · **Unit:** m · **Default:** 0.015 *→ Point/List > Troidal core Outer*
`:LIST:VOLTage[Stimulus] <number>` `:LIST:VOLTage [Stimulus]?`	Set or query the signal source voltage of the selected measurement point in the list sweep. **Range:** 0.005 - 1 · **Unit:** V · **Default:** 0.5 *→ Stim Table > OSC Level*

PERMittivity (2 commands)

Dielectric-constant option (Technical & Applications Guide §9).

Syntax	Description
`:PERMittivity:A1 {ON|OFF|1|0}` `:PERMittivity:A1?`	Set or query the electrode in the calculation of permittivity. This command must be enabled with the permittivity permission before it can be used. **Range:** ON|OFF|1|0 Commands ON: Electrode is A1 OFF: Electrode is A2 · **Default:** ON *→ Meas Setup > Electrode*
`:PERMittivity:THICkness <number>` `:PERMittivity:THICkness?`	Set or query the thickness in the calculation of permittivity. This command must be enabled with the permittivity permission before it can be used. **Range:** 1E-9 - 999 · **Unit:** m · **Default:** 0.01 *→ Meas Setup > Thickness*

MEMory (5 commands)

Point/list setup-state save/recall (Operation Manual §5.4.1).

Syntax	Description
`:MMEMory:LIST < filename>`	Save the list measurement data to the specified file name *→ Save/Reall > Export List Data*
`:MMEMory:LOAD[:STATe] "< filename>"`	Load the measurement state settings file of the specified file path *→ Save/Recall > Recall State > Recall State*
`:MMEMory:LOAD:STATe {1|2|3|4|5|6|7|8}`	Read the measurement state settings saved at the specified location **Range:** 1|2|3|4|5|6|7|8 *→ Save/Recall > Recall State*
`:MMEMory:STOR[:STATe] "< filename>"`	Store the current measurement state settings to the specified file path *→ Save/Recall > Save State > Save State*
`:MMEMory:STORe:STATe {1|2|3|4|5|6|7|8}`	Store the current measurement state settings to the specified location **Range:** 1|2|3|4|5|6|7|8 *→ Save/Recall > Save State*

TRIGger (3 commands)

Trigger source and delay (Operation Manual §4.1.8).

Syntax	Description
`:TRIGger`	Perform a trigger
`:TRIGger:DELay < number>` `:trigger:delay?`	Set or query the trigger delay of the point measurement **Range:** 0s - 30s · **Default:** 0s *→ Meas Setup > Trigger Delay*

Syntax	Description
`:TRIGger:SOURce {INTernal|MANual|EXTernal|BUS}` `:TRIGger:SOURce?`	Set the trigger mode of the point measurement **Range:** INT: Internal trigger MAN: Manual trigger EXT: External trigger BUS: Bus trigger · **Default:** INT *→ Meas Setup > Trigger Mode*

TROIdalcore (3 commands)

Magnetic-permeability option (Technical & Applications Guide §10).

Syntax	Description
`:TROIdalcore:HEIGht?` `:TROIdalcore:HEIGht < number>`	Set and query the troidal core height in the calculation of troidalcore. This command must be enabled with the troidalcore permission before it can be used. **Range:** 1e-9 - 999 · **Unit:** m · **Default:** 0.005 *→ Meas Setup > Troidal core Height*
`:TROIdalcore:INNer?` `:TROIdalcore:INNer < number>`	Set and query the troidal core inner in the calculation of troidalcore. This command must be enabled with the troidalcore permission before it can be used. **Range:** 1e-9 - 999 · **Unit:** m · **Default:** 0.008 *→ Meas Setup > Troidal core Inner*
`:TROIdalcore:OUTer?` `:TROIdalcore:OUTer < number>`	Set and query the troidal core outer in the calculation of troidalcore. This command must be enabled with the troidalcore permission before it can be used. **Range:** 1e-9 - 999 · **Unit:** m · **Default:** 0.015 *→ Meas Setup > Troidal core Outer*

VOLTage (1 command)

Point-measurement AC voltage source level.

Syntax	Description
`:VOLTage < number>` `:VOLTage?`	Set and query the voltage level of the point measurement signal source, and automatically set the level mode to voltage mode after setting the voltage. **Range:** 0.005 - 1 · **Unit:** V · **Default:** 0.5 *→ Meas Setup > OSC Level > Voltage Level*

Trace Sweep Measurement Commands

Commands specific to trace (graphic) sweep mode — the <Sweep> interface (Operation Manual Chapter 4, §4.3–§4.5).

ABORt (1 command)

Aborts a sweep in progress.

Syntax	Description
`:ABORt`	Immediately terminate the current sweep cycle and start a new one → *Trigger Mode > Restart*

CALCulate (75 commands)

Marker, marker search/function, equivalent-circuit, OSC analysis and trace-comparison results (Operation Manual §4.4–§4.5). The largest subsystem in the command set.

Syntax	Description
`:CALCulate<Ch>:AVERage[:STATe] {ON|OFF|1|0}` `:CALCulate<Ch>:AVERage[:STATe]?`	Set or query the averaging state of the selected measurement channel **Range:** ON|OFF|1|0 · **Default:** OFF → *Avg > Averaging*
`:CALCulate<Ch>:AVERage:CLEar`	Clear the averaging count of the selected measurement channel and restart → *Avg > Averaging Restart*
`:CALCulate<Ch>:AVERage:COUNt < number>` `:CALCulate<Ch>:AVERage:COUNt?`	Set or query the averaging count of the selected measurement channel **Range:** 1 - 999 · **Default:** 1 → *Avg > Avg Factor*
`:CALCulate<Ch>[:SELected]:DATA:FDATa < digit 1>,< digit 2>...< digit n*2>` `:CALCulate<Ch>[:SELected]:DATA:FDATa?`	Set or query the measured value of the current trace of the specified channel
`:CALCulate<Ch>[:SELected]:DATA:FMEMory < digit 1>,< digit 2>...< digit n*2>` `:CALCulate<Ch>[:SELected]:DATA:FMEMory?`	Set or query the measured value of the current memory trace of the specified channel
`:CALCulate<Ch>[:SELected]:DATA:RDATa < digit 1>,< digit 2>...< digit n*2>` `:CALCulate<Ch>[:SELected]:DATA:RDATa?`	Set or query the measurement result of the current trace of the specified channel (R-X)
`:CALCulate<Ch>[:SELected]:DATA:RMEMory < number 1>,< number 2>...< number n*2>` `:CALCulate<Ch>[:SELected]:DATA:RMEMory?`	Set or query the measurement result of the current memory trace of the specified channel (R-X)
`:CALCulate<Ch>[:SELected]:DATA:XAXis?`	Get the value on the X-axis corresponding to each measurement point

Syntax	Description
`:CALCulate<Ch>:EPARameters[:EXECute]`	Execute equivalent circuit analysis of measured data for the selected channels with the selected models → *Analysis > Equivalent Circuit > Calculate*
`:CALCulate<Ch>:EPARameters:CIRCuit[:TYPE] {A|B|C|D|E|F|G}` `:CALCulate<Ch>:EPARameters:CIRCuit[:TYPE]?`	Set or query the equivalent circuit model of the selected channels **Range:** A|B|C|D|E|F|G · **Default:** A → *Analysis > Equivalent Circuit > Select Circuit*
`:CALCulate<Ch>:EPARameters:CIRCuit:{A|B|C|D|E|F|G}:C1 <number>` `:CALCulate<Ch>:EPARameters:CIRCuit:{A|B|C|D|E|F|G}:C1?`	Set or query the capacitance value C1 corresponding to the selected equivalent circuit model in the selected channel **Range:** -1E15 - 1E15 · **Unit:** F · **Default:** 0 → *Analysis > Equivalent Circuit > C1*
`:CALCulate<Ch>:EPARameters:CIRCuit:{A|B|C|D|E|F|G}:L1 < number>` `:CALCulate<Ch>:EPARameters:CIRCuit:{A|B|C|D|E|F|G}:L1?`	Set or query the inductance value L1 corresponding to the selected equivalent circuit model in the selected channel **Range:** -1E15 - 1E15 · **Unit:** H · **Default:** 0 → *Analysis > Equivalent Circuit > L1*
`:CALCulate<Ch>:EPARameters:CIRCuit:{A|B|C|D|E|F|G}:R1 < number>` `:CALCulate<Ch>:EPARameters:CIRCuit:{A|B|C|D|E|F|G}:R1?`	Set or query the resistance value R1 corresponding to the selected equivalent circuit model in the selected channel **Range:** -1E15 - 1E15 · **Unit:** Ω · **Default:** 0 → *Analysis > Equivalent Circuit > R1*
`:CALCulate<Ch>:EPARameters:CIRCuit:E:C0 < number>` `:CALCulate<Ch>:EPARameters:CIRCuit:E:C0?`	Set or query the capacitance value C0 corresponding to the equivalent circuit model E in the selected channel **Range:** -1E15 - 1E15 · **Unit:** F · **Default:** 0 → *Analysis > Equivalent Circuit > C0*
`:CALCulate<Ch>:EPARameters:CIRCuit:{F|G}:R0 < number>` `:CALCulate<Ch>:EPARameters:CIRCuit:{F|G}:R0?`	Set or query the resistance value R0 corresponding to the selected equivalent circuit model F or G in the selected channel **Range:** -1E15 - 1E15 · **Unit:** Ω · **Default:** 0 → *Analysis > Equivalent Circuit > R0*
`:CALCulate<Ch>:EPARameters:DISPlay[:STATe] {ON|OFF|1|0}` `:CALCulate<Ch>:EPARameters:DISPlay[:STATe]?`	Set or query the on-off state of the equivalent circuit model and calculation results displayed on the screen **Range:** ON|OFF|1|0 · **Default:** OFF → *Analysis > Equivalent Circuit > Display*
`:CALCulate<Ch>:EPARameters:SIMulate[:IMMediate]`	Immediately perform an equivalent circuit simulation calculation for the current set value of the selected channel and write the data into the trace and memory trace Related keywords: Analysis > Equivalent Circuit > Stimulate
`:CALCulate<Ch>:EPARameters:SIMulate:AUTO {ON|OFF|1|0}` `:CALCulate<Ch>:EPARameters:SIMulate:AUTO?`	Set or query the open state of the automatic equivalent circuit simulation calculation of the selected channel. When it is set to ON, if an equivalent circuit parameter is modified, the simulation calculation will be performed automatically and the measurement results will be written to the trace and memory trace; when it is set to OFF, the results will not be written to the trace after the equivalent circuit simulation calculation is completed. **Range:** ON|OFF|1|0 · **Default:** OFF → *Analysis > Equivalent Circuit > Stimulate*
`:CALCulate<Ch>[:SELected]:LIMit[:STATe] {ON|OFF|1|0}` `:CALCulate<Ch>[:SELected]:LIMit[:STATe]?`	Set or query the on-off state of the sweep limit test **Range:** ON|OFF|1|0 · **Default:** OFF → *Analysis > Limit Setup > Limit State*

Syntax	Description
`:CALCulate<Ch>[:SELected]:LIMit:ADD<number1>,<number2>,{ABS|DEV|PER|DPER},<number3>,<number4>`	add a segment of limit line for the specified channel and trace, this command only takes effect after the limit reference value is set Parameter: Parameter Data Description Limit line parameter: <Number 1>: the start X value of the limit line, the value should be between the start value and the end value of the trace scanning, if not, it will be adjusted automatically; <Number 2>: the ending X value of the limit line, the value should be taken between the set trace scanning start value and end value, and not less than the starting X value, if not, it will be adjusted automatically; {ABS|DEV|PER|DPER}: the upper and lower limit types of the limit line, which are Absolute Value| Deviation value |Percentage| Deviation Percentage; <number 3>: the upper limit of the limit line, if the upper and lower limit types are percentage or deviation percentage, then the value is a percentage; <number 4>: the lower limit of the limit line, if the upper and lower limit types are percentage or deviation percentage, then the value is a percentage Attention If the parameters are wrong or not all parameters are set, an error will be returned Example: Add a limit line for the selected trace of channel 1: frequency 1MHz-10MHz, deviation percentage type, the upper and lower limits of the limit line are -10%-20%: CALC1:LIM:ADD 1E6,1E7,DPER,20,-10
`:CALCulate<Ch>[:SELected]:LIMit:CLEar`	Clear all the selected channels and traces. Related Keywords: Analysis > Limit Setup > Edit Limit Line >Clear
`:CALCulate<Ch>[:SELected]:LIMit:REFerence`	Set the limit reference value for selected channel and trace, changing the trace parameter will clear the reference value. Related key: Analysis> Limit Setup > Data→Reference
`:CALCulate<Ch>[:SELected]:LIMit:SHOW[:STATe] {ON|OFF|1|0}` `:CALCulate<Ch>[:SELected]:LIMit:SHOW[:STATe]?`	Set or query the display state of the selected trace scanning limit line **Range:** ON|OFF|1|0 Default value OFF Example: Set the trace scanning limit line state of channel 1 to ON: :CALC1:LIM:SHOW ON To query the state of the trace scanning limit line of channel 2: :CALC2:LIM:SHOW? Query Answer: {1|0}<newline><^END> Related key: Analysis>Limit Setup>Limit Line
`:CALCulate<Ch>[:SELected]:LIMit:TEST?`	Query the trace scanning limit result of the currently selected trace. Example: Query the trace scanning limit result of the selected trace of channel 1: :CALC1:LIM:TEST?
`:CALCulate<Ch>[:SELected]:LIMit:TEST:ALL?`	Query the combined result of trace scanning limit and marker limit for the currently selected trace. Example: Query the combined limit result of the selected trace of channel 1: :CALC1:LIM:TEST:ALL?
`:CALCulate<Ch>[:SELected]:MARKer<Mk>[:STATe] {ON|OFF|1|0}` `:CALCulate<Ch>[:SELected]:MARKer<Mk>[:STATe]?`	Set or query the on-off state of the selected marker of the selected channel **Range:** ON|OFF|1|0 · **Default:** OFF *→ Marker > Marker 1 - Marker 9, Reference Marker*
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:ACTivate`	Activate the selected marker of the selected channel in the command *→ Marker > Marker 1 - Marker 9, Reference Marker*
`:CALCulate<Ch>[:SELected]:MARKer:AOFF`	Turn off all markers in the selected channel *→ Marker > Clear Markers > All OFF*
`:CALCulate<Ch>[:SELected]:MARKer:COUPle {ON|OFF|1|0}` `:CALCulate<Ch>[:SELected]:MARKer:COUPle?`	Set or query the on-off state of the marker couple of the selected channel **Range:** ON|OFF|1|0 · **Default:** OFF *→ Marker Function > Discrete*
`:CALCulate<Ch>[:SELected]:MARKer:DISCrete {ON|OFF|1|0}` `:CALCulate<Ch>[:SELected]:MARKer:DISCrete?`	Set or query whether the marker of the selected channel set is allowed to be positioned between the discrete points **Range:** ON|OFF|1|0 · **Default:** OFF *→ Marker Function > Couple*

Syntax	Description
`:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:DOMain[:STATe] {ON|OFF|1|0}` `:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:DOMain[:STATe]?`	Set or query the open state of the marker search range of the selected channel **Range:** ON|OFF|1|0 · **Default:** OFF → *Marker Search > Search Range > Search Range*
`:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:DOMain:STARt < number>` `:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:DOMain:STARt?`	Set or query the start value of the marker search range **Unit:** Hz|V|A → *Marker Search > Search Range > Start*
`:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:DOMain:STOP < number>` `:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:DOMain:STOP?`	Set or query the termination value of the marker search range **Unit:** Hz|V|A → *Marker Search > Search Range > Stop*
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:FUNCtion:EXECute`	Immediately perform a marker search Related keywords: Marker Search > Max | Min | Peak | Target | Multi Peak | Multi Target
`:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:MULTi:PEXCursion < number>` `:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:MULTi:PEXCursion?`	Set or query the multiple peak excursion of the selected channel **Range:** 0 - 1E15 · **Unit:** Depends on measurement parameters · **Default:** 3 → *Marker Search > Multi Peak > Peak Excursion*
`:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:MULTi:PPOLarity {POSitive|NEGative|BOTH}` `:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:MULTi:PPOLarity?`	Set or query the peak polarity of the multiple peaks of the selected channel **Range:** POSitive|NEGative|BOTH · **Default:** BOTH → *Marker Search > Multi Peak > Peak Polarity*
`:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:MULTi:TARGet < number>` `:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:MULTi:TARGet?`	Set and query the target value of the multiple target values of the selected channel Parameter: Parameter Numerical Value Description Target value Data Type Double precision type (double) Range -1E15 - 1E15 Preset Value 0 Unit Depends on measurement parameters → *Marker Search > Multi Target > Target*
`:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:MULTi:TTRansition {POSitive|NEGative|BOTH}` `:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:MULTi:TTRansition?`	Set or query the transition of the multiple target values of the selected channel **Range:** POSitive|NEGative|BOTH · **Default:** BOTH → *Marker Search > Multi Target > Target Transition*
`:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:MULTi:TYPE {OFF|PEAK|TARGet}` `:CALCulate<Ch>[:SELected]:MARKer:FUNCtion:MULTi:TYPE?`	Set or query whether the marker search of the current channel is multiple search **Range:** OFF|PEAK|TARGet · **Default:** BOTH

Syntax	Description
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:FUNCtion:PEXCursion < number>` `:CALCulate<Ch>[:SELected]:MARKer<Mk>:FUNCtion:PEXCursion?`	Set or query the peak excursion of the selected marker of the selected channel **Range:** 0 - 1E15 · **Unit:** Depends on measurement parameters · **Default:** 3 → *Marker Search > Peak > Peak Excursion*
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:FUNCtion:PPOLarity {POSitive|NEGative|BOTH}` `:CALCulate<Ch>[:SELected]:MARKer<Mk>:FUNCtion:PPOLarity?`	Set or query the peak polarity of the selected marker peak of the selected channel **Range:** POSitive|NEGative|BOTH · **Default:** BOTH → *Marker Search > Peak > Peak Polarity*
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:FUNCtion:TARGet < number>` `:CALCulate<Ch>[:SELected]:MARKer<Mk>:FUNCtion:TARGet?`	Set and query the target value of the selected marker of the selected channel **Range:** -1E15 - 1E15 · **Unit:** Depends on measurement parameters · **Default:** 0 → *Marker Search > Target > Target*
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:FUNCtion:TRACking {ON|OFF|1|0}` `:CALCulate<Ch>[:SELected]:MARKer<Mk>:FUNCtion:TRACking?`	Set or query the open state of the marker tracking function of the selected marker of the selected channel. When the marker tracking is turned on, the marker will perform a marker search immediately after each sweep cycle is completed **Range:** ON|OFF|1|0 · **Default:** OFF → *Marker Search > Tracking*
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:FUNCtion:TTRansition {POSitive|NEGative|BOTH}` `:CALCulate<Ch>[:SELected]:MARKer<Mk>:FUNCtion:TTRansition?`	Set or query the transition of the target value of the selected marker of the selected channel **Range:** POSitive|NEGative|BOTH · **Default:** BOTH → *Marker Search > Target > Target Transition*
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:FUNCtion:{MAXimum|MINimum|PEAK|LPEak|RPEak|TARGet|LTARget|RTARget}` `:CALCulate<Ch>[:SELected]:MARKer<Mk>:FUNCtion:TYPE?`	Set or query the mode of the current marker search **Range:** MAXimum: Search maximum value MINimum: Search minimum value PEAK: Search peak value LPEak: Search left peak value RPEak: Search right peak value TARGet: Search target value LTARget: Search left target value RTARget: Search right target value · **Default:** BOTH → *Marker Search > Max | Min | Target | Peak*
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:LIMit {ON|OFF|1|0}` `:CALCulate<Ch>[:SELected]:MARKer<Mk>:LIMit?`	Set or query the marker limit state of the selected marker **Range:** ON|OFF|1|0 · **Default:** OFF Example: Turn on the marker limit for the current trace marker 1 of channel 1: :CALC1:MARK1:LIM ON Query the marker limit state of the current trace marker 2 of channel 1: :CALC1:MARK2:LIM?
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:LIMit:LOWer <numeric>` `:CALCulate<Ch>[:SELected]:MARKer<Mk>:LIMit:LOWer?`	Set or query the lower limit of marker limit for a selected trace Parameter: Parameter Numerical value Description Lower limit Data Type Double Range -1E15 – 1E15 Preset Value 0 Unit Depends on measurement parameter and limit type Example: Set the lower limit of the current trace marker 1 of channel 1 to 0.01: :CALC1:MARK1:LIM:LOW 0.01 Query the lower limit of the current trace marker 2 of channel 1: :CALC1:MARK2:LIM:LOW?

Syntax	Description
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:LIMit:REFerence <numbers>` `:CALCulate<Ch>[:SELected]:MARKer<Mk>:LIMit:REFerence?`	Set or query the reference value of the marker limit for the selected trace **Range:** -1E15 – 1E15 · **Unit:** Depends on measurement parameter Example: Set the reference value of the current trace marker 1 of channel 1 to 100: :CALC1:MARK1:LIM:REF 100 Query the reference value of the current trace marker 2 of channel 1: :CALC1:MARK2:LIM:REF? · **Default:** 0
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:LIMit:TEST?`	Query the marker limit results for a selected trace
`CALCulate<Ch>[:SELected]:MARKer<Mk>:LIMit:TYPE {ABS|DEV|PER|DPER}` `:CALCulate<Ch>[:SELected]:MARKer<Mk>:LIMit:TYPE?`	Set or query the marker limit type of the selected marker **Range:** ABS: Absolute value DEV: Deviation PER: Percentage DPER: Deviation Percentage · **Default:** ABS Instruction In Percentage and Deviation percentage types, upper and lower limits as percentages Example: Set the limit type of the current trace marker 1 of channel 1 to Deviation type: :CALC1:MARK1:LIM:TYPE DEV Query the limit type of the current trace marker 2 of channel 1: :CALC1:MARK2:LIM:TYPE?
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:LIMit:UPPer <Number>` `:CALCulate<Ch>[:SELected]:MARKer<Mk>:LIMit:UPPer?`	Set or query the upper limit of marker limit for a selected marker Parameter: Parameter Numerical value Description Upper Limit Data Type Double Range -1E15 – 1E15 Preset Value 0 Unit Depends on measurement parameter and limit type Example: Set the upper limit of the current trace marker 1 of channel 1 to 1000: :CALC1:MARK1:LIM:UPP 1000 Query the upper limit of the current trace marker 2 of channel 1: :CALC1:MARK2:LIM:UPP?
`:CALCulate<Ch>[:SELected]:MARKer:MATH:STATistics[:STATe] {ON|OFF|1|0}` `:CALCulate<Ch>[:SELected]:MARKer:MATH:STATistics[:STATe]?`	Set or query the open state of the marker statistics **Range:** ON|OFF|1|0 · **Default:** OFF *→ Marker Function > Statistics*
`:CALCulate<Ch>[:SELected]:MARKer:MATH:STATistics:DATA?`	Query the current statistics data
`:CALCulate<Ch>[:SELected]:MARKer:REFerence[:STATe] {ON|OFF|1|0}` `:CALCulate<Ch>[:SELected]:MARKer:REFerence[:STATe]?`	Set or query the on-off state of the reference marker of the selected channel **Range:** ON|OFF|1|0 · **Default:** OFF *→ Marker > Ref Marker Mode*
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:SET {CENTer|STARt|STOP|RLEVel|ZOOM}`	Set the position of the selected marker of the selected channel to the Stimulus **Range:** STARt: Set the marker position to the stimulus start value STOP: Set the marker position to the stimulus termination value CENTer: Set the marker position to the stimulus center value RLEVel: Set the marker value to the reference value of the response value ZOOM: Zoom the horizontal axis according to the set zoom ratio *→ Marker Function > Marker→Start | Marker→Stop | Marker→Center |*
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:X[:DATA] < number>` `:CALCulate<Ch>[:SELected]:MARKer<Mk>:X[:DATA]?`	Set or query the stimulus value of the selected marker of the selected channel *→ Marker > Marker1 - Marker9 | Ref Marker*
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:X:POSition < number>` `:CALCulate<Ch>[:SELected]:MARKer<Mk>:X:POSition?`	Set or query the position of the selected marker of the selected channel relative to the measurement point **Range:** 1 - Number of measurement points · **Default:** 1

Syntax	Description
`:CALCulate<Ch>[:SELected]:MARKer<Mk>:Y?`	Query the measured (response) value of the selected marker of the selected channel
`:CALCulate<Ch>[:SELected]:MARKer:ZAPerture < number>` `:CALCulate<Ch>[:SELected]:MARKer:ZAPerture?`	Set or query the marker zooming aperture of the selected channel **Range:** 0.01 - 100 · **Unit:** % · **Default:** 10 *→ Marker Function > Zooming Aperture*
`:CALCulate<Ch>[:SELected]:MATH:FUNCtion {NORMal|DIVide|MULTiply|SUBTract|ADD}` `:CALCulate<Ch>[:SELected]:MATH:FUNCtion?`	Set or query the data math mode of the selected channel. When the memory trace of the trace does not exist, only NORMal can be set; when the number of measurement points of the channel is changed, the value is automatically modified to NORMal **Range:** NORMal: DATA (no arithmetic) DIVide: DATA/MEM MULTiply: DATA*MEM SUBTract: DATA-MEM ADD: DATA+MEM DATA refers to the data in the measurement trace, MEM refers to the data in the memory trace · **Default:** NORMal *→ Display > Data Math*
`:CALCulate<Ch>[:SELected]:MATH:MEMorize`	Copy the measurement data of the current trace of the selected channel to the corresponding memory trace *→ Display > Data→Mem*
`:CALCulate<Ch>[:SELected]:MATH:OFFSet < number>` `:CALCulate<Ch>[:SELected]:MATH:OFFSet?`	Set or query the data math offset of the current trace of the selected channel **Range:** -1E15 - 1E15 · **Unit:** Depends on measurement parameters · **Default:** 0 *→ Display > Data Math Offset*
`:CALCulate<Ch>[:SELected]:MSTatistics[:STATe] {ON|OFF|1|0}` `:CALCulate<Ch>[:SELected]:MSTatistics[:STATe]?`	Set or query the on-off state of the statistics of the selected channel **Range:** ON|OFF|1|0 · **Default:** OFF *→ Marker Function > Statistics*
`:CALCulate<Ch>[:SELected]:MSTatistics:DATA?`	Query the statistical values of the selected channel
`:CALCulate<Ch>:OSweepalysis:DATA?`	Query the parameters of OSC analysis of the selected channel
`:CALCulate<Ch>:OSweepalysis:EQUAtion {1|2}` `:CALCulate<Ch>:OSweepalysis:EQUAtion?`	Set or query the equation of calculating the quality factor Qm in the OSC analysis of the selected channel **Range:** 1|2 Fs 1: Qm □ F2 □ F1 Fp2 2 : Qm □ □ 2□FsRCt Fp2 □ FS2 □ In the above equation: Qm: Quality factor Fs: Resonance frequency F1, F2: Half-power point and F2 > F1 Fp: Anti-resonance frequency R: Impedance min. Ct: Free capacitance · **Default:** 1 *→ Analysis > OSC Analysis > Q Equation*
`:CALCulate<Ch>:OSweepalysis:STATe {ON|OFF|1|0}` `:CALCulate<Ch>:OSweepalysis:STATe?`	Set or query the OSC analysis state of the selected channel, and it is effective only when the sweep mode of the selected channel is sweep **Range:** ON|OFF|1|0 · **Default:** OFF *→ Analysis > OSC Analysis > State*
`:CALCulate<Ch>:PARameter:COUNt <number>` `:CALCulate<Ch>:PARameter:COUNt?`	Set or query the number of traces of the selected channel **Range:** 1|2|3|4 · **Default:** 2 *→ Display > Num of Traces*

Syntax	Description
`:CALCulate<Ch>:PARameter<Tr>:DEFine {Z|Y|R|X|G|B|LS|LP|CS|CP|RS|RP|Q|D|TZR|TZD|TYR|TYD|VAC|IAC}` `:CALCulate<Ch>:PARameter<Tr>:DEFine?`	Set or query the measurement parameters of the selected trace of the selected channel **Range:** Z: Absolute impedance value Y: Absolute admittance value TZR: Impedance phase (radian) TZD: Impedance phase (angle) TYR: admittance phase (radian) TYD: admittance phase (angle) RS: Equivalent circuit series resistance RP: Equivalent circuit parallel resistance LS: Equivalent circuit series inductance LP: Equivalent circuit parallel inductance CS: Equivalent circuit series capacitance CP: Equivalent circuit parallel capacitance R: Equivalent circuit resistance G: Equivalent circuit conductance X: Equivalent circuit reactance B: Equivalent circuit susceptance Q: Quality factor D: Dissipation factor VAC: Signal source AC voltage IAC: Signal source AC current IMP: Complex Z ADM: Complex Y ER: Relative permittivity |εr| (requires permittivity module support) ER1: Relative permittivity real part εr' (requires permittivity module support) ER2: Relative permittivity imaginary part εr'' (requires permittivity module support) U1: Complex permeability real part μ' (requires troidalcore module support) U2: Complex permeability imaginary part μ'' (requires troidalcore module support) TAN: Phase tan δ (requires troidalcore module support) *→ Meas > Trace1 | Trace2 | Trace3 | Trace4*
`:CALCulate<Ch>:PARameter<Tr>:SELect`	Set the selected trace of the selected channel as the active trace
`:CALCulate<Ch>:PERMittivity:A1 {ON|OFF|1|0}` `:CALCulate<Ch>:PERMittivity:A1?`	Set or query the electrode in the calculation of the permittivity of the selected channel; this command must be enabled with the permittivity permission before it can be used. **Range:** ON|OFF|1|0 Command ON: Electrode is A1 OFF: Electrode is A2 · **Default:** ON *→ Meas > Electrode*
`:CALCulate<Ch>:PERMittivity:THICkness <number>` `:CALCulate<Ch>:PERMittivity:THICkness?`	Set or query the thickness in the calculation of the permittivity of the selected channel; this command must be enabled with the permittivity permission before it can be used. **Range:** 1E-9 - 999 · **Unit:** m · **Default:** 0.01 *→ Meas > Thickness*
`:CALCulate<Ch>:TROIdalcore:HEIGht?` `:CALCulate<Ch>:TROIdalcore:HEIGht <number>`	Set and query the troidal core height in the calculation of the troidalcore of the selected channel; this command must be enabled with the troidalcore permission before it can be used. **Range:** 1e-9 - 999 · **Unit:** m · **Default:** 0.005 *→ Meas > Troidal Core Height*
`:CALCulate<Ch>:TROIdalcore:INNer?` `:CALCulate<Ch>:TROIdalcore:INNer <number>`	Set and query the troidal core inner in the calculation of the troidalcore of the selected channel; this command must be enabled with the troidalcore permission before it can be used. **Range:** 1e-9 - 999 · **Unit:** m · **Default:** 0.008 *→ Meas > Troidal Core Inner*
`:CALCulate<Ch>:TROIdalcore:OUTer?` `:CALCulate<Ch>:TROIdalcore:OUTer <number>`	Set and query the troidal core outer in the calculation of the troidalcore of the selected channel; this command must be enabled with the troidalcore permission before it can be used. **Range:** 1e-9 - 999 · **Unit:** m · **Default:** 0.015 *→ Meas > Troidal Core Outer*

DISPlay (sweep) (17 commands)

Trace-sweep display layout, split-screen, channel/trace visibility (Operation Manual §4.3.2–§4.3.3).

Syntax	Description
`:DISPlay:MAXimize {ON|OFF|1|0}` `:DISPlay:MAXimize?`	Set or query whether the currently selected channel is in the maximum display state. When the display is maximized, only the selected channel will be displayed on the measurement screen. **Range:** ON|OFF|1|0 · **Default:** OFF *→ Channel Max*
`:DISPlay:SPLit {D1|D1_2|D12|D1_2_3|D12_34|D1_1_2|D112|D12_33|D13_23|D123|D11_23|D12_13|D1234|D1_2_3_4}` `:DISPlay:SPLit?`	Set or query the channel distribution method **Range:** D1|D1_2|D12|D1_2_3|D12_34|D1_1_2|D112|D12_33|D13_23|D123|D11_23|D12_13|D1234|D1_2_3_4 · **Default:** D1 *→ Display > Allocate Channels*

Syntax	Description
`:DISPlay:WINDow<Ch>:ACTivate`	Set the selected channel as the active channel. Only the currently displayed channel can be set, otherwise an error will be returned. → *Channel Prev | Channel Next*
`:DISPlay:WINDow<Ch>:LABel {ON|OFF|1|0}`	**Range:** ON|OFF|1|0 · **Default:** ON → *Display > Graticule Label*
`:DISPlay:WINDow<Ch>:MAXimize {ON|OFF|1|0}` `:DISPlay:WINDow<Ch>:MAXimize?`	Set or query whether the active trace of the currently selected channel is in the maximum display state. When it is in the maximum display, only the active traces will be displayed on the channel interface **Range:** ON|OFF|1|0 · **Default:** OFF → *Trace Max*
`:DISPlay:WINDow<Ch>:SPLit {D1|D1_2|D12|D1_2_3|D12_34|D1_1_2|D112|D12_33|D13_23|D123|D11_23|D12_13|D1234|D1_2_3_4}` `:DISPlay:WINDow<Ch>:SPLit?`	Set or query the distribution methods of traces in the selected channel **Range:** D1|D1_2|D12|D1_2_3|D12_34|D1_1_2|D112|D12_33|D13_23|D123|D11_23|D12_13|D1234|D1_2_3_4 · **Default:** D1 → *Display > Allocate Trace*
`:DISPlay:WINDow<Ch>:TRACe<Tr>:DATA[:STATe] {ON|OFF|1|0}` `:DISPlay:WINDow<Ch>:TRACe<Tr>:DATA[:STATe]?`	Set or query the on-off state of the data trace of the selected trace of the selected channel **Range:** ON|OFF|1|0 · **Default:** ON → *Display > Display*
`:DISPlay:WINDow<Ch>:TRACe<Tr>:MEMory[:STATe] {ON|OFF|1|0}` `:DISPlay:WINDow<Ch>:TRACe<Tr>:MEMory[:STATe]?`	Set or query the on-off state of the memory trace of the selected trace of the selected channel **Range:** ON|OFF|1|0 · **Default:** OFF → *Display > Display*
`:DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:AUTO`	Automatically scale the Y axis of the selected trace of the selected channel → *Scale > Auto Scale*
`:DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:BOTTom < number>` `:DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:BOTTom?`	Set or query the minimum value of the selected trace of the selected channel when the vertical coordinate is logarithmic axis. This command will only be responded to when the vertical coordinate is logarithmic **Range:** 1E-18 - 1E15 · **Unit:** Depends on measurement parameters · **Default:** 10 → *Scale > Log-Y Bottom*
`:DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:PDIVision < number>` `:DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:PDIVision?`	Set or query the scale of each region of the selected trace of the selected channel when the vertical coordinate is linear axis. This command will only be responded to when the vertical coordinate is linear **Range:** 1E-18 - 1E15 · **Unit:** Depends on measurement parameters · **Default:** 0.01 → *Scale > Scale/Div*
`:DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:RLEVel < number>` `:DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:RLEVel?`	Set or query the reference value of the selected trace of the selected channel when the vertical coordinate is linear axis. This command will only be responded to when the vertical coordinate is linear **Range:** -1E15 - 1E15 · **Unit:** Depends on measurement parameters · **Default:** 99 → *Scale > Reference Y Value*
`:DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:RPOSition < number>` `:DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:RPOSition?`	Set or query the relative position of selected trace of the selected channel in the vertical coordinate reference value on the vertical coordinate, the value can be set from 0 to the set number of vertical coordinate partitions. This command will only be responded to if the vertical coordinate is linear **Range:** 0 - 30 · **Default:** 5 → *Scale > Reference Position*
`:DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:TOP < number>` `:DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:TOP?`	Set or query the maximum value of the selected trace of the selected channel when the vertical coordinate is logarithmic axis. This command is only responded to when the vertical coordinate is logarithmic **Range:** 1E-18 - 1E15 · **Unit:** Depends on measurement parameters · **Default:** 10k → *Scale > Log-Y Top*

Syntax	Description
`:DISPlay:WINDow<Ch>:TRACe<Tr>:Y:SPACing {LINear|LOGarithmic}` `:DISPlay:WINDow<Ch>:TRACe<Tr>:Y:SPACing?`	Set and query the Y-axis type (linear/logarithmic axis) of the selected trace of the selected channel **Range:** LINear|LOGarithmic · **Default:** LINear *→ Format > Y-Axis*
`:DISPlay:WINDow<Ch>:X:SPACing {LINear|OBASe}` `:DISPlay:WINDow<Ch>:X:SPACing?`	Set and query the type of the X-axis as frequency mode | sequential mode when the sweep type is Segment (Segment) **Range:** LINear: Frequency base OBASe: Order base · **Default:** OBASe *→ Sweep Setup > Segment Display*
`:DISPlay:WINDow<Ch>:Y[:SCALe]:Divisions < number>` `:DISPlay:WINDow<Ch>:Y[:SCALe]:DIVisions?`	Set and query the number of divisions of the Y-axis of the coordinate system. This command will only be responded to if the vertical coordinate is linear **Range:** 4 - 30 · **Default:** 10 *→ Scale > Divisions*

INITiate (1 command)

Arms/starts a sweep or point measurement.

Syntax	Description
`:INITiate<Ch>[:IMMediate]`	When the command is input, if the trigger state of the selected channel is in hold mode, the trigger state of the channel will be set to single mode for one sweep cycle; when the sweep cycle is finished, the trigger state returns to hold mode. If the trigger mode of this channel is not in hold mode, then return an error **Range:** ON|OFF|1|0 · **Default:** ON *→ Trigger Mode > Single*

MMEMory (16 commands)

Trace-sweep state/trace-data save/recall and export (Operation Manual §5.4.3).

Syntax	Description
`:MMEMory:COPY "< filename1>", "< filename2>"`	Copy the file from file name 1 to file name 2 Example: :MMEM:COPY "D:\temp1.txt", "D:\temp2.txt"
`:MMEMory:DEL "< filename>"`	Delete the file in the specified location Example: :MMEM:DEL "D:\temp1.txt"
`:MMEMory:LOAD[:STATe] "< filename>"`	Load the sweep state settings file of the specified location *→ Save/Recall > Recall State > Recall State*
`:MMEMory:LOAD:CHANnel[:STATe] {A|B|C|D}`	Load the sweep channel state settings of the specified gear *→ Save/Recall > Recall Channel*
`:MMEMory:LOAD:LIMit "< filename>"`	Load the sweep limit test file of the specified location *→ Analysis > Limit Test > Edit Limit Line > Import*
`:MMEMory:LOAD:SEGMemt "< filename>"`	Load the sweep segment state settings file of the specified location *→ Sweep Setup > Edit Frequency Segment > Import*
`:MMEMory:STORe[:STATe] "< filename>"`	Save the sweep state settings file in the specified location *→ Save/Recall > Save State > Save State*
`:MMEMory:STORe:CHANnel[:STATe] {A|B|C|D}`	Load the sweep channel state settings in the specified gear *→ Save/Recall > Save Channel*
`:MMEMory:STORe:CHANnel:CLEar`	Clear all saved channel settings *→ Save/Recall > Save Channel > Clear States*
`:MMEMory:STORe:EPARameters[:STATe] "< filename>"`	Save the equivalent circuit simulation result file in the specified location *→ Analysis > Equivalent Circuit > Export*

Syntax	Description
`:MMEMory:STORe:FDATa "<filename>"`	Save the measurement data of the current active channel of the active trace at the specified location → *Save/Recall > Save Trace Data > Scope > Single*
`:MMEMory:STORe:IMAGe "<filename>"`	Save the screenshot of the current screen in the specified location (please do not set the file path to the root of the C drive) → *System > Dump Screen Image*
`:MMEMory:STORe:LIMit "<filename>"`	Save the sweep limit test settings file in the specified location → *Analysis > Limit Test > Edit Limit Line > Export*
`:MMEMory:STORe:SALL {ON|OFF|1|0}` `:MMEMory:STORe:SALL?`	Set or query the save mode when the sweep state is saved, it only saves the currently displayed channels and traces, or saves all channels and traces **Range:** ON|OFF|1|0 · **Default:** OFF → *Save/Recall > Channel/Trace*
`:MMEMory:STORe:SEGMemt "<filename>"`	Save the sweep segment state settings file in the specified location → *Sweep Setup > Edit Frequency Segment > Export*
`:MMEMory:STORe:STYPe {STATe|DSTate}` `:MMEMory:STORe:STYPe?`	Set or query the save range when the sweep state is saved, only the setup state is saved, or the trace data is also saved **Range:** STATe: Save the setting state only DSTate: Save both setup state and trace data · **Default:** STATe → *Save/Recall > Save Type*

SENSe (21 commands)

Sweep-side measurement configuration — range, impedance format, correction.

Syntax	Description
`:SENSe<Ch>:APERture[:TIME] {1|2|3|4|5}` `:SENSe<Ch>:APERture[:TIME]?`	Set and query the sweep time of the selected channel **Range:** 1|2|3|4|5 · **Default:** 1 Examples. Set the measurement time of channel 1 to 2: :SENS1:APER 2 Query the measurement time of channel 2: :SENS2:APER? → *Avg > Meas Time*
`:SENSe<Ch>:AVERage[:STATe] {ON|OFF|1|0}` `:SENSe<Ch>:AVERage[:STATe]?`	Set or query the point average of the selected channel **Range:** ON|OFF|1|0 · **Default:** OFF → *Avg > Point Avg*
`:SENSe<Ch>:AVERage:COUNt <number>` `:SENSe<Ch>:AVERage:COUNt?`	Set or query the point average count of the selected channel **Range:** 1 - 999 · **Default:** 1 → *Avg > Point Avg Factor*
`:SENSe<Ch>:DC:MEASure:CLEar`	Clear the DC monitor data of the selected channel → *Meas > DC Monitor Setup > Clear*
`:SENSe<Ch>:DC:MEASure:DATA:DCI?`	Query the DC monitor current of the specified channel
`:SENSe<Ch>:DC:MEASure:DATA:DCV?`	Query the DC monitoring voltage of the specified channel
`:SENSe<Ch>:DC:MEASure:ENABle {ON|OFF|1|0}` `:SENSe<Ch>:DC:MEASure:ENABle?`	Set or query the open state of DC monitor of the selected channel **Range:** ON|OFF|1|0 · **Default:** ON → *Meas > DC Monitor Setup*
`:SENSe<Ch>:FREQuency[:CW] <number>` `:SENSe<Ch>:FREQuency[:CW]?`	Set or query the CW frequency of the selected channel **Range:** 10 - 130M · **Unit:** Hz · **Default:** 1M → *Sweep Setup > CW Frequency*
`:SENSe<Ch>:FREQuency:CENTer <number>` `:SENSe<Ch>:FREQuency:CENTer?`	Set or query the center value of the sweep frequency of the selected channel **Range:** 10 - 130M · **Unit:** Hz · **Default:** 50.5k → *Center*

Syntax	Description
`:SENSe<Ch>:FREQuency:DATA?`	Query the measurement frequency of all measurement points in the specified channel
`:SENSe<Ch>:FREQuency:SPAN <number>` `:SENSe<Ch>:FREQuency:SPAN?`	Set or query the span value of the sweep frequency of the selected channel **Range:** 0 - 129000000 · **Unit:** Hz · **Default:** 99k → *Span*
`:SENSe<Ch>:FREQuency:STARt <number>` `:SENSe<Ch>:FREQuency:STARt?`	Set or query the start value of the sweep frequency of the selected channel **Range:** 10 - 130M · **Unit:** Hz · **Default:** 1k → *Start*
`:SENSe<Ch>:FREQuency:STOP <number>` `:SENSe<Ch>:FREQuency:STOP?`	Set or query the termination value of the sweep frequency of the selected channel **Range:** 10 - 130M · **Unit:** Hz · **Default:** 100k → *Stop*
	Set or query the segment setting data of the specified channel **Default:** 7,0,0,0,0,0,0,0,0,0,1,20,1000000,2 → *Sweep Setup > Edit Segment Table*
`:SENSe<Ch>:SEGMent:SWEep:POINts?`	Query the total number of points in the segment settings of the specified channel
`:SENSe<Ch>:SWEep:DELay <Digital>` `:SENSe<Ch>:SWEep:DELay?`	Set or query the sweep delay of the specified channel **Range:** 0s - 30s · **Default:** 0s → *Sweep Setup > Sweep Delay*
`:SENSe<Ch>:SWEep:DIRection {UP|DOWN}` `:SENSe<Ch>:SWEep:DIRection?`	Set and query the sweep direction of the specified channel **Range:** UP: Up DOWN: Down · **Default:** UP → *Sweep Setup > Direction*
`:SENSe<Ch>:SWEep:PDEL <number>` `:SENSe<Ch>:SWEep:PDEL?`	Set or query the point delay of the specified channel **Range:** 0s - 30s · **Default:** 0s → *Sweep Setup > Point Delay*
`:SENSe<Ch>:SWEep:POINts <number>` `:SENSe<Ch>:SWEep:POINts?`	Set or query the number of measurement points of the specified channel **Range:** 2 - 1601 · **Default:** 201 → *Sweep Setup > Points*
`:SENSe<Ch>:SWEep:TIME <number>` `:SENSe<Ch>:SWEep:TIME?`	Set or query the sweep time of the specified channel **Range:** 0s - 86400s · **Default:** 0s → *Sweep Setup > Sweep Time*
`:SENSe<Ch>:SWEep:TYPE {LINear|LOGarithmic|SEGMent|POWer|BIAS|LBIas}` `:SENSe<Ch>:SWEep:TYPE?`	Set and query the sweep type (stimulus value) of the specified channel **Range:** LINear: Stimulus value is linear frequency LOGarithmic: Stimulus value is logarithmic frequency SEGMent: Stimulus value is segment POWer: Stimulus value is signal source level BIAS: Stimulus value is linear DC bias LogBIas: Stimulus value is logarithmic DC bias · **Default:** LINear → *Sweep Type*

SERVice (10 commands)

Service-level functions (factory/Techmize use).

Syntax	Description
`:SERVice:ACHannel:ACTive <Value>` `:SERVice:ACHannel:ACTive?`	Set or query the currently active channel **Range:** 1-4 · **Default:** 1 → *Channel Prev | Channel Next*
`:SERVice:AChannel:COUNt?`	Query the number of currently displayed channels
`:SERVice:CHANnel<Ch>:ATRace:ACTive < Digital>` `:SERVice:CHANnel<Ch>:ATRace:ACTive?`	Set and query the active trace of the selected channel **Range:** 1-4 · **Default:** 1 → *Trace Prev | Trace Next*

Syntax	Description
`:SERVice:CHANnel<Ch>:ATRace:COUNt?`	Query the number of traces of the currently selected channel
`:SERVice:CHANnel<Ch>:SEGMent:DATA?`	Query the number of data to be set for the trace segments of the currently selected channel
`:SERVice:CHANnel<Ch>:SWEep:POINt?`	Query the number of measurement points in the current sweep span
`:SERVice:CHANnel<Ch>:TRACe<Tr>:AMRKer:ACTive < Digital>` `:SERVice:CHANnel<Ch>:TRACe<Tr>:AMRKer:ACTive?`	Set and query the active marker of the selected trace of the selected channel **Range:** 0 - 10 0: Marker not selected 10: Reference marker · **Default:** 0 *→ Marker > Marker 1 - Marker 9, Reference Marker*
`:SERVice:SWEep:FREQuency:MAXimum?`	Query the maximum frequency of this machine
`:SERVice:SWEep:FREQuency:MINimum?`	Query the minimum frequency of this machine
`:SERVice:SWEep:POINts?`	Query the maximum number of measurement points of this machine

SOURce (28 commands)

Sweep-side source configuration — frequency/level sweep range, DC bias.

Syntax	Description
`:SOURce<Ch>:ALC[:STATe] {ON|OFF|1|0}` `:SOURce<Ch>:ALC[:STATe]?`	Set or query the on-off state of automatic level control (ALC) of the specified channel **Range:** ON|OFF|1|0 · **Default:** ON *→ Sweep Setup > OSC Level > ALC > ALC Control*
`:SOURce<Ch>:ALC:COUNt < number>` `:SOURce<Ch>:ALC:COUNt?`	Set or query the maximum number of attempts of automatic level control of the specified channel **Range:** 2 - 10 · **Default:** 10 *→ Sweep Setup > OSC Level > ALC > Max Iteration*
`:SOURce<Ch>:ALC:TOLerance <Value>` `:SOURce<Ch>:ALC:TOLerance?`	Set or query the target accuracy of automatic level control of the specified channel **Range:** 0.05 - 10 · **Unit:** % · **Default:** 5 *→ Sweep Setup > OSC Level > ALC > Target %*
`:SOURce<Ch>:BIAS:CURRent[:LEVel][:IMMediate]:AMPLitude < number>` `:SOURce<Ch>:BIAS:CURRent[:LEVel][:IMMediate]:AMPLitude?`	Set or query the DC bias current output of the specified channel **Range:** -0.1 - 0.1 · **Unit:** A · **Default:** 0 *→ Sweep Setup > DC Bias > Current Level*
`:SOURce<Ch>:BIAS:CURRent:CENTer <number>` `:SOURce<Ch>:BIAS:CURRent:CENTer?`	Set or query the center value of the bias current of the specified channel when the stimulus value is DC bias **Range:** -0.1 - 0.1 · **Unit:** A · **Default:** 0 *→ Center (Sweep mode is DC bias)*
`:SOURce<Ch>:BIAS:CURRent:SPAN < number>` `:SOURce<Ch>:BIAS:CURRent:SPAN?`	Set or query the span value of the bias current of the specified channel when the stimulus value is DC bias **Range:** 0 - 0.2 · **Unit:** A · **Default:** 0
`:SOURce<Ch>:BIAS:CURRent:STARt <number>` `:SOURce<Ch>:BIAS:CURRent:STARt?`	Set or query the start value of the bias current of the specified channel when the stimulus value is DC bias **Range:** -0.1 - 0.1 · **Unit:** A · **Default:** 0 *→ Start (Sweep mode is DC bias)*

Syntax	Description
`:SOURce<Ch>:BIAS:CURRent:STOP < number>` `:SOURce<Ch>:BIAS:CURRent:STOP ?`	Set or query the termination value of the bias current of the specified channel when the stimulus value is DC bias **Range:** -0.1 - 0.1 · **Unit:** A · **Default:** 0
`:SOURce<Ch>:BIAS:DELay <Value>` `:SOURce<Ch>:BIAS:DELay?`	Set or query the bias delay of the specified channel **Range:** 0s - 30s · **Default:** 0s *→ Sweep Setup > DC Bias > Bias Delay*
`:SOURce<Ch>:BIAS:MODE {VOLTage|CURRent}` `:SOURce<Ch>:BIAS:MODE?`	Set or query the DC bias mode of the specified channel **Range:** VOLT: Voltage mode CURR: Current mode · **Default:** VOLT *→ Sweep Setup > DC Bias > DC Bias Mode*
`:SOURce<Ch>:BIAS:RANGe {M1|M10|M100}` `:SOURce<Ch>:BIAS:RANGe?`	Set or query the DC bias range of the specified channel. **Range:** M1: 1mA M10: 10mA M100: 100mA · **Default:** M1 Examples. Set the DC bias range of channel 1 to 1mA: :SOUR1:BIAS:RANG M1 Query the DC bias range of channel 2: :SOUR2:BIAS:RANG? *→ Sweep Setup > DC Bias > Meas Range*
`:SOURce<Ch>:BIAS:STATe {ON|OFF|1|0}` `:SOURce<Ch>:BIAS:STATe?`	Set or query the on-off state of the DC bias of the specified channel **Range:** ON|OFF|1|0 · **Default:** OFF *→ Sweep Setup > DC Bias > DC Bias State*
`:SOURce<Ch>:BIAS:VOLTage[:LEVel][:IMMediate]:AMPLitude < number>` `:SOURce<Ch>:BIAS:VOLTage [:LEVel] [:IMMediate]:AMPLitude?`	Set or query the DC bias voltage output of the specified channel **Range:** -40 - 40 · **Unit:** V · **Default:** 0 *→ Sweep Setup > DC Bias > Voltage Level*
`:SOURce<Ch>:BIAS:VOLTage:CENTer <number>` `:SOURce<Ch>:BIAS:VOLTage:CENTer?`	Set or query the center value of the bias voltage of the specified channel when the stimulus value is DC bias **Range:** -40 - 40 · **Unit:** V · **Default:** 0 *→ Center (Sweep mode is DC bias)*
`:SOURce<Ch>:BIAS:VOLTage:SPAN <number>` `:SOURce<Ch>:BIAS:VOLTage:SPAN ?`	Set or query the span value of the bias voltage of the specified channel when the stimulus value is DC bias **Range:** 0 - 80 · **Unit:** V · **Default:** 0
`:SOURce<Ch>:BIAS:VOLTage:STARt <number>` `:SOURce<Ch>:BIAS:VOLTage:STARt?`	Set or query the start value of the bias voltage of the specified channel when the stimulus value is DC bias **Range:** -40 - 40 · **Unit:** V · **Default:** 0 *→ Start (Sweep mode is DC bias)*
`:SOURce<Ch>:BIAS:VOLTage:STOP < number>` `:SOURce<Ch>:BIAS:VOLTage:STOP ?`	Set or query the termination value of the bias voltage of the specified channel when the stimulus value is DC bias **Range:** -40 - 40 · **Unit:** V · **Default:** 0
`:SOURce<Ch>:CURRent[:LEVel][:IMMediate][:AMPLitude] < number>` `:SOURce<Ch>:CURRent[:LEVel][:IMMediate][:AMPLitude]?`	Set or query the signal source current output of the specified channel **Range:** 0.0002 - 0.02 · **Unit:** A · **Default:** 0.02 *→ Sweep Setup > OSC Level > Current Level*
`:SOURce<Ch>:CURRent:CENTer <number>` `:SOURce<Ch>:CURRent:CENTer?`	Set or query the center value of the signal source current of the specified channel when the stimulus value is signal source level **Range:** 0.0002 - 0.02 · **Unit:** A · **Default:** 0.0101 *→ Center (Sweep mode is signal source level)*

Syntax	Description
`:SOURce<Ch>:CURRent:SPAN <number>` `:SOURce<Ch>:CURRent:SPAN?`	Set or query the span value of the signal source current of the specified channel when the stimulus value is signal source level **Range:** 0 - 0.0198 · **Unit:** A · **Default:** 0.0198 *→ Span (Sweep mode is signal source level)*
`:SOURce<Ch>:CURRent:STARt <number>` `:SOURce<Ch>:CURRent:STARt?`	Set or query the start value of the signal source current of the specified channel when the stimulus value is signal source level **Range:** 0.0002 - 0.02 · **Unit:** A · **Default:** 0.0002 *→ Start (Sweep mode is signal source level)*
`:SOURce<Ch>:CURRent:STOP <number>` `:SOURce<Ch>:CURRent:STOP?`	Set or query the termination value of the signal source current of the specified channel when the stimulus value is signal source level **Range:** 0.0002 - 0.02 · **Unit:** A · **Default:** 0.02 *→ Stop (Sweep mode is DC bias)*
`:SOURce<Ch>:MODE {VOLTage|CURRent}` `:SOURce<Ch>:MODE?`	Set or query the signal source mode of the specified channel **Range:** VOLT: Voltage mode CURR: Current mode · **Default:** VOLT *→ Sweep Setup > OSC Level > OSC Unit*
`:SOURce<Ch>:VOLTage[:LEVel][:IMMediate][:AMPLitude] <number>` `:SOURce<Ch>:VOLTage[:LEVel][:IMMediate][:AMPLitude]?`	Set or query the signal source voltage output of the specified channel **Range:** 0.005 - 1 · **Unit:** V · **Default:** 0.5 *→ Sweep Setup > OSC Level > Voltage Level*
`:SOURce<Ch>:VOLTage:CENTer <number>` `:SOURce<Ch>:VOLTage:CENTer?`	Set or query the center value of the signal source voltage of the specified channel when the stimulus value is signal source level **Range:** 0.005 - 1 · **Unit:** V · **Default:** 0.5025 *→ Center (Sweep mode is signal source level)*
`:SOURce<Ch>:VOLTage:SPAN <number>` `:SOURce<Ch>:VOLTage:SPAN?`	Set or query the span value of the signal source voltage of the specified channel when the stimulus value is signal source level **Range:** 0 - 0.995 · **Unit:** V · **Default:** 0.995 *→ Span (Sweep mode is signal source level)*
`:SOURce<Ch>:VOLTage:STARt <number>` `:SOURce<Ch>:VOLTage:STARt?`	Set or query the start value of the signal source voltage of the specified channel when the stimulus value is signal source level **Range:** 0.005 - 1 · **Unit:** V · **Default:** 0.005 *→ Start (Sweep mode is signal source level)*
`:SOURce<Ch>:VOLTage:STOP <number>` `:SOURce<Ch>:VOLTage:STOP?`	Set or query the termination value of the signal source voltage of the specified channel when the stimulus value is signal source level **Range:** 0.005 - 1 · **Unit:** V · **Default:** 1 *→ Stop (Sweep mode is DC bias)*

TRIGger (7 commands)

Trigger source and delay (Operation Manual §4.1.8).

Syntax	Description
`:TRIGger`	When the trigger source is manual trigger and the trigger mode is not hold mode, a trigger is performed
`:TRIGger[:SEQuence]:AVERage {ON|OFF|1|0}` `:TRIGger[:SEQuence]:AVERage?`	Set or query the open state of the average trigger of the current channel **Range:** ON|OFF|1|0 · **Default:** OFF *→ Avg > Avg Trigger*
`:TRIGger[:SEQuence]:POINt {ON|OFF|1|0}` `:TRIGger[:SEQuence]:POINt?`	Set whether the point-by-point mode of the trigger is turned on **Range:** ON|OFF|1|0 · **Default:** OFF *→ Trigger Mode > Trigger Event*

Syntax	Description
`:TRIGger[:SEQuence]:EXTernal:DELay < number>` `:TRIGger[:SEQuence]:EXTernal:DELay?`	Set or query the trigger delay of the external trigger **Range:** 0 - 10 · **Unit:** s · **Default:** 0 *→ Trigger Mode > Trigger Delay*
`:TRIGger[:SEQuence]:SOURce {INTernal|EXTernal|MANual|BUS}` `:TRIGger[:SEQuence]:SOURce?`	Set or query the trigger source of the sweep mode **Range:** INTernal: Internal trigger MANual: Manual trigger EXTernal: External trigger BUS: Bus trigger · **Default:** INTernal *→ Trigger Mode > Trigger Source*
`:TRIGger[:SEQuence]:SCOPe {ALL|ACTive}` `:TRIGger[:SEQuence]:SCOPe?`	Set or query the trigger scope for all channels in turn or only the active channels **Range:** ALL: Trigger all channels ACTive: Trigger the active channel only · **Default:** ALL *→ Trigger Mode > Trigger Scope*
`:TRIGger[:SEQuence]:SINGle`	When the trigger source is bus trigger and the trigger mode is not hold mode, immediately perform a trigger

Support & Contact

This reference is a companion to the TH2851 Series Operation Manual. For anything that does not behave as documented on your unit, contact Techmize or your authorized distributor.

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