



XDM Series Digital Multimeter Programming Manual

- **XDM3051**
- **XDM3041**

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Table of Contents

Introduction to the SCPI Language.....	1
Syntax.....	1
Syntax Rules.....	1
Rule to format mnemonics.....	2
Usage of symbols.....	2
Parameter Type.....	3
Command Abbreviation.....	4
Contact Us.....	4
Third-party API.....	4
IEEE488.2 Common Commands.....	6
*CLS.....	6
*IDN.....	6
*OPC ?.....	7
*RST.....	7
SCPI Command List.....	7
SENSE command subsystem.....	7
[SENSe:]FUNCTion[1 2].....	8
[SENSe:]VOLTage:{AC DC}:RANGe.....	10
[SENSe:]VOLTage:{AC DC}:RANGe:AUTO.....	11
[SENSe:]VOLTage:{AC DC}:NULL.....	11
[SENSe:]VOLTage[:DC]:FILTer.....	12

Content

[SENSe:]VOLTage[:DC]:IMPedance:AUTO	13
[SENSe:]CONT:THREshold	13
[SENSe:]CURRent:{AC DC}:RANGe	14
[SENSe:]CURRent:{AC DC}:RANGe:AUTO	15
[SENSe:]CURRent:{AC DC}:NULL	15
[SENSe:]CURRent[:DC]:FILTer	16
[SENSe:]{RESistance FRESistance}:RANGe	16
[SENSe:]{RESistance FRESistance}:RANGe:AUTO	17
[SENSe:]{RESistance FRESistance}:NULL	17
[SENSe:]{FREQuency PERiod}:VOLTage:RANGe	18
[SENSe:]{FREQuency PERiod}:VOLTage:NULL	19
[SENSe:]CAPacitance:RANGe	19
[SENSe:]CAPacitance:RANGe:AUTO	20
[SENSe:]CAPacitance:NULL	20
[SENSe:]TEMPerature:RTD:TYPE	21
[SENSe:]TEMPerature:RTD:NULL	22
[SENSe:]TEMPerature:RTD:UNIT	22
[SENSe:]TEMPerature:RTD:SHOW	23
CONFigure command sub system	23
CONFigure[:SCALar][:VOLTage]:{AC DC}	23
CONFigure[:SCALar]:CURRent:{AC DC}	24
CONFigure[:SCALar]:{RESistance FRESistance}	24
CONFigure[:SCALar]:{FREQuency PERiod}	25

Content

CONFigure[:SCALar]:CAPacitance	26
CONFigure[:SCALar]:TEMPerature:RTD	26
CONFigure[:SCALar]:DIODE.....	27
CONFigure[:SCALar]:CONTInuity.....	27
CALCulate command Subsystem.....	27
CALCulate:AVERAge:ALL?.....	28
CALCulate:AVERAge:AVERAge?	28
CALCulate:AVERAge:COUNT?.....	29
CALCulate:AVERAge:MAXimum?	29
CALCulate:AVERAge:MINimum?	30
CALCulate:DB:REFerence	30
CALCulate:DBM:REFerence	31
CALCulate:FUNction.....	31
CALCulate:LIMit:FAIL?	31
CALCulate:LIMit:{LOWer UPPer}.....	32
CALCulate:LIMit:RESet.....	32
CALCulate:NULL:OFFSet	33
CALCulate:STATe	33
SYSTEM command Subsystem	34
SYSTEM:BEEPPer:STATe	34
SYSTEM:DATE?	34
SYSTEM:TIME?	35
SYSTEM:VERSion?	35

Content

SYSTem:LOCal.....	36
SYSTem:REMOte.....	36
Other commands	37
AUTO	37
RANGE.....	37
RANGE1?	38
RANGE2?	39
RATE.....	40
MEAS?	40
MEAS1?	41
MEAS2?	41

Introduction to the SCPI Language

Syntax

SCPI commands present a hierarchical tree structure and contain multiple sub-systems, each of which is made up of a root keyword and one or more sub-keywords. The command string usually starts with ":", the keywords are separated by ":" and are followed by the parameter settings available, "?" is added at the end of the command string to indicate query and the command and parameter are separated by "space".

For example:

```
SENSe:VOLTage:DC:RANGe {<range>|MINimum|MAXimum}  
SENSe:VOLTage:DC:RANGe? [{MINimum|MAXimum}]
```

SENSe is the root keyword of the command. **VOLTage** and **DC** are the second-level and third-level keywords respectively. The command string starts with ":" which separates the multiple-level keywords. **<range>** represents parameters available for setting, "?" represents query and the command : **SENSe:VOLTage:DC:RANGe** and the parameter {<range>|MINimum|MAXimum} are separated by "space".

Syntax Rules

SCPI language itself defines a group of sub-system keywords, and at the same time allows users to add or reduce keywords. Those keywords can be some meaningful English words and are easy to remember, which are called mnemonics. Mnemonic has long and short types. The short are the abbreviation of the long. Use specific character to separate keywords, data and sentences.

Rule to format mnemonics

- 1) If the letter number of an English word is less than or equal to 4, then the word itself can be the mnemonic.(such as "Free" can be "FREE");
- 2) If the letter number of an English word exceeds 4, then the first four letters will be the mnemonic.(such as "Frequency" can be "FREQ");
- 3) If the forth letter is vowel, then mnemonic uses the former three letters. Vowels consists of a, e, i, o, and u.(such as "Power" can be "POW");
- 4) If it is not a word but a sentence, then use the first letters of the former words and the whole of the last word. (such as "Input Voltage " can be "IVOLTage")

Usage of symbols

- 1) Space

The space is used to separate command and parameter.

- 2) Colon:

If the colon is in front of the first character, it means the following is Root Command. When the colon is set between two keywords, then it means moving from the current level to the next level.

- 3) *asterisk

The commands start with asterisk are named Common Command, which is used to execute IEEE488.2 common commands.

- 4) Braces{}

The parameters enclosed in the braces are optional and are usually separated by the vertical bar

"|". When using this command, one of the parameters must be selected.

5) Vertical Bar |

The vertical bar is used to separate multiple parameters and one of the parameters must be selected when using the command.

6) Triangle Brackets < >

The parameter enclosed in the triangle brackets must be replaced by an effective value.

Parameter Type

1) **Value**

The command required to use value type parameter. It's compatible with all the common decimal display terms including optional symbol, decimal point, scientific notation and etc.

Specific value such as MIN, MAX and DEF are available.

VOLTage:{AC|DC}:RANGe {<range>|MINimum|MAXimum}

2) **Discrete**

The parameter should be one of the values listed. For example,

TEMPerature:RTD:UNIT {C|F|K}

3) **Integer**

Unless otherwise noted, the parameter can be any integer (NR1 format) within the effective value range. Note that, do not set the parameter to a decimal, otherwise errors will occur.

4) **Bool**

The parameter could be "OFF", "ON", for example,

TEMPerature:RTD:NULL {OFF|ON}

Command Abbreviation

Each SCPI command can be written mixed with uppercase and lowercase according to the syntax rules, and the capital letter part is just the abbreviation of the command. If abbreviation is used, all the capital letters in the command must be written completely. For parameters with units, please refer to the detail parameter specifications in the sub-system.

VOLTage:DC:RANGe

Abbreviation Below:

VOLT:DC:RANG

Contact Us

If you have any problem or requirement when using our products, please contact OWON.

Service & Support Hotline:**4006 909 365**

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Website : www.owon.com.cn

Third-party API

The SCPI protocol of this product adopts USB port or LAN port to communication.

If you want to use the software of our company, after you open the software, click to enter

remote control, then click the SCPI command on the remoter control interface to enable SCPI protocol and communicate through SCPI protocol.

IEEE488.2 Common Commands

***CLS**

Clear all the event registers in the register set and clear the error queue.

***IDN**

Return the ID character string of the instrument

Description

The query returns the ID character string of the instrument.

Return Format

OWON,<model>,<serial number>,X.XX.XX,{1|2}

<model> : the model number of the instrument

<serial number> : the serial number of the instrument

X.XX.XX : the software version of the instrument.

{1|2} : 1(3041) 2(3051)

Example

OWON,XDM3051,1546011,V2.0.2.0,2

OWON,XDM3051,1546011,V2.0.2.0,1

***OPC ?**

Query whether the current operation is finished.

Explanation

Note the difference between the *OPC? and *OPC commands: the latter sets the "Operation Complete" bit (bit 0) in the standard event register to 1 after the current operation is finished.

Return Format

The query returns "1" if the current operation is finished, otherwise returns "0".

***RST**

Restore the instrument to its default value.

SCPI Command List

SENSe command subsystem

SenSe subsystem configuration. The basic SenSe command is [SENSe:]FUNcTion[1|2], which can choose main display and sub display measurement function. FUNcTion[1|2] to switch mode.

Other SenSe command only change specific mode parameter, don't change mode, for example:

VOLT:AC:RANGE:AUTO ON command will start AC voltage mode and auto-measure, but don't switch to AC voltage mode.

[SENSe:]FUNction[1|2]

Command format

[SENSe:]FUNction[1|2] "<function>"

[SENSe:]FUNction[1|2]?

Function description

Select measure function, some functions can only be selected as main display.

Parameter

[1|2]

1 for main display, 2 for sub display. If leave out this parameter, display defaults at 1 (main display).

The parameter for [SENSe:]FUNction[1|2] "<function>", that is, can both been used as main or sub display:

Name	Type	Parameter	Measure Function
<function>	discrete	VOLTage:AC	AC voltage measure
		VOLTage[:DC]	DC voltage measure
		CURRent:AC	AC current measure
		CURRent[:DC]	DC current measure
		FREQuency	Frequency measure
		PERiod	Period measure

The parameter for [SENSe:]FUNction[1] "<function>", that is, can only be used as main display :

Name	Type	Parameter	Measure Function
<function>	discrete	CAPacitance	Capacitor measure
		CONTinuity	Continuity test
		DIODe	Diode test
		FRESistance	Four-wire Resistance measure
		RESistance	Resistance measure
		TEMPerature:RTD	Temperature measure

The parameter for [SENSe:]FUNction[2] "<function>", that is, can only be used as sub display :

Name	Type	Parameter	Measure Function
<function>	discrete	NONE	close sub display

Return format

Use quotation to keep abbreviated selected return function, no available keyword.

Return value	Measure function
VOLT AC	AC voltage measure
VOLT	DC voltage measure

CURR AC	AC current measure
CURR	DC current measure
FREQ	Frequency measure
PER	Period measure
CAP	Capacitance measure
CONT	Continuity test
DIOD	Diode test
FRES	Four-wire Resistance measure
RES	Resistance measure
TEMP	Temperature measure

For FUNCTION2? command, if not start dual display, then return NONE.

[SENSe:]VOLTage:{AC|DC}:RANGe

Syntax

[SENSe:]VOLTage:{AC|DC}:RANGe {<range>|MINimum|MAXimum}

[SENSe:]VOLTage:{AC|DC}:RANGe? [{MINimum|MAXimum}]

Description

Select valid measuring range for AC or DC voltage measure

Parameter

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

<range>	discrete	3051: AC: 200E-3(200mV), 2(2V), 20(20V), 200(200V), 750(750V) DC: 200E-3(200mV), 2(2V), 20(20V), 200(200V), 1000(1000V) 3041: AC: 600E-3(600mV), 6(6V), 60(60V), 600(600V), 750(750V) DC: 600E-3(600mV), 6(6V), 60(60V), 600(600V), 1000(1000V)
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Return format

Return query result by scientific notation.

[SENSe:]VOLTage:{AC|DC}:RANGe:AUTO

Syntax

[SENSe:]VOLTage:{AC|DC}:RANGe:AUTO {OFF|ON}

[SENSe:]VOLTage:{AC|DC}:RANGe:AUTO?

Description

Close or start auto-scale for AC or DC voltage measurement

Parameter

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

Return format

Return 0 (OFF) or 1 (ON) after query

[SENSe:]VOLTage:{AC|DC}:NULL

Syntax

[SENSe:]VOLTage:{AC|DC}:NULL {OFF|ON}

Description

Close or start relative value for AC or DC measurement.

Parameter

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

Return format

Return 0 (OFF) or 1 (ON) after query

[SENSe:]VOLTage[:DC]:FILTer

Syntax

[SENSe:]VOLTage[:DC]:FILTer[:STATe] {OFF|ON}

[SENSe:]VOLTage[:DC]:FILTer[:STATe]?

Description

Close or start simulated filter for DC measurement

Parameter

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

Return format

Return 0 (OFF) or 1 (ON) after query

[SENSe:]VOLTage[:DC]:IMPedance:AUTO**Syntax**

[SENSe:]VOLTage[:DC]:IMPedance:AUTO {OFF|ON}

[SENSe:]VOLTage[:DC]:IMPedance:AUTO?

Description

Close or start auto input impedance mode for DC measurement

Parameter

Name	Type	Range	Default
<bool>	bool	{OFF ON}	OFF

Note

OFF: for all the measuring range, DC voltage input impedance is fixed at 10 M Ω

ON: DC voltage measurement input impedance changes in accordance with measuring range.

Input impedance is 10 G Ω at 200mV and 2V measuring range, 10 M Ω at 20V, 200V and 1000V measuring range.

Return format

Return 0 (OFF) or 1 (ON) after query

[SENSe:]CONT:THREshold**Syntax**

[SENSe:]CONT:THREshold <values>

Description

Sets the continuity threshold.

[SENSe:]CURRent:{AC|DC}:RANGe

Syntax

[SENSe:]CURRent:{AC|DC}:RANGe {<range>|MINimum|MAXimum}

[SENSe:]CURRent:{AC|DC}:RANGe? [{MINimum|MAXimum}]

Description

Select fixed measuring range for AC/DC current measurement

Parameter

Name	Type	Range
<range>	discrete	3051: AC: 20E-3(20mA), 200E-3(200mA), 2(2A), 10(10A) DC: 200E-6(200uA), 2E-3(2mA), 20E-3(20mA), 200E-3(200mA), 2(2A), 10(10A) 3041: AC: 60E-3(60mA), 600E-3(600mA), 6(6A), 10(10A) DC: 600E-6(600uA), 6E-3(6mA), 60E-3(60mA), 600E-3(600mA), 6(6A), 10(10A)

Return format

Return query result by scientific notation.

[SENSe:]CURRent:{AC|DC}:RANGe:AUTO**Syntax***[SENSe:]CURRent:{AC|DC}:RANGe:AUTO {OFF|ON}**[SENSe:]CURRent:{AC|DC}:RANGe:AUTO?***Description**

Close or start auto-scale adjustment for AC/DC current measurement

Parameter

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

Return format

Return 0 (OFF) or 1 (ON) after query

[SENSe:]CURRent:{AC|DC}:NULL**Syntax***[SENSe:]CURRent:{AC|DC}:NULL {OFF|ON}***Description**

Close or start relative value for AC/DC current measurement

Parameter

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

Return format

Return 0 (OFF) or 1 (ON) after query

[SENSe:]CURRent[:DC]:FILTer

Syntax

[SENSe:]CURRent[:DC]:FILTer[:STATe] {OFF|ON}

[SENSe:]CURRent[:DC]:FILTer[:STATe]?

Description

Close or start the simulated filter for DC current measurement.

Parameter

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

Return format

Return 0 (OFF) or 1 (ON) after query

[SENSe:]{RESistance|FRESistance}:RANGe

Syntax

[SENSe:]{RESistance|FRESistance}:RANGe {<range>|MINimum|MAXimum}

[SENSe:]{RESistance|FRESistance}:RANGe? [{MINimum|MAXimum}]

Description

Select fixed measuring range for RESistance or FRESistance

Parameter

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

<range>	Bool	3051: 200(200Ω), 2E3(2KΩ), 20E3(20KΩ), 200E3(200KΩ), 2E6(2MΩ), 10E6(10MΩ), 100E6(100MΩ) 3041: 600(600Ω), 6E3(6KΩ), 60E3(60KΩ), 600E3(600KΩ), 6E6(6MΩ), 60E6(60MΩ), 100E6(100MΩ)
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Return format

Return query result by scientific notation.

[SENSe:]{RESistance|FRESistance}:RANGe:AUTO

Syntax

[SENSe:]{RESistance|FRESistance}:RANGe:AUTO {OFF|ON}

[SENSe:]{RESistance|FRESistance}:RANGe:AUTO?

Description

Close or start auto-scale adjustment for resistance measurement

Parameter

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

Return format

Return 0 (OFF) or 1 (ON) after query

[SENSe:]{RESistance|FRESistance}:NULL

Syntax

[SENSe:]{RESistance|FRESistance}:NULL {OFF|ON}

Description

Close or start relative value for resistance measurement.

Parameter

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

Return format

Return 0 (OFF) or 1 (ON) after query

[SENSe:]{FREQuency|PERiod}:VOLTage:RANGe

Syntax

[SENSe:]{FREQuency|PERiod}:VOLTage:RANGe {<range>|MINimum|MAXimum}
[SENSe:]{FREQuency|PERiod}:VOLTage:RANGe? [{MINimum|MAXimum}]

Description

Select fixed voltage measuring range for FREQuency or PERiod.

Parameter

Name	Type	Range
<range>	Discrete	3051: 200E-3(200mV), 2(2V), 20(20V), 200(200V), 750(750V) 3041: 600E-3(600mV), 6(6V), 60(60V), 600(600V), 750(750V)

Return format

Return query result by scientific notation.

[SENSe:]{FREQuency|PERiod}:VOLTage:NULL

Syntax

[SENSe:]{FREQuency|PERiod}:VOLTage:NULL {OFF|ON}

Description

Close or start relative value for FREQuency or PERiod measurement.

Parameter

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

Return format

Return 0 (OFF) or 1 (ON) after query

[SENSe:]CAPacitance:RANGe

Syntax

[SENSe:]CAPacitance:RANGe {<range>|MINimum|MAXimum}

[SENSe:]CAPacitance:RANGe? [{MINimum|MAXimum}]

Description

Select fixed measuring range for capacitance measurement.

Parameter

Name	Type	Range
<range>	Discrete	2E-9(2nF), 20E-9(20nF), 200E-9(200nF), 2E-6(2uF), 20E-6(20uF),

		200E-6(200uF), 10E-3(10mF)
--	--	----------------------------

Return format

Return query result by scientific notation

[SENSe:]CAPacitance:RANGe:AUTO**Syntax**

[SENSe:]CAPacitance:RANGe:AUTO {OFF|ON}

[SENSe:]CAPacitance:RANGe:AUTO?

Description

Close or start auto-scale adjustment for capacitance measurement.

Parameter

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

Return format

Return 0 (OFF) or 1 (ON) after query

[SENSe:]CAPacitance:NULL**Syntax**

[SENSe:]CAPacitance:NULL {OFF|ON}

Description

Close or start relative value for capacitance measurement.

Parameter

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

Return format

Return 0 (OFF) or 1 (ON) after query

[SENSe:]TEMPerature:RTD:TYPe

Syntax

[SENSe:]TEMPerature:RTD:TYPe {<RTD Type>}

[SENSe:]TEMPerature:RTD:TYPe?

Description

Select RTD type for temperature measurement.

Parameter

Name	Type	Range
<RTD Type >	Discrete	KITS90, NITS90, EITS90, JITS90, TITS90, SITS90, RITS90, BITS90, W5_26, W3_25, PT100, PT10, Cu100, Cu50

Return format

Return the query result by character.

[SENSe:]TEMPerature:RTD:NULL**Syntax***[SENSe:]TEMPerature:RTD:NULL {OFF|ON}***Description**

Close or start relative value for temperature measurement.

Parameter

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

Return format

Return 0 (OFF) or 1 (ON) after query

[SENSe:]TEMPerature:RTD:UNIT**Syntax***[SENSe:]TEMPerature:RTD:UNIT {C|F|K}***Description**

Select temperature unit for temperature measurement, optional for C (Celsius), F(Fahrenheit), K(Kelvin).

Return format

Return the query result by character

[SENSe:]TEMPerature:RTD:SHOW**Syntax***[SENSe:]TEMPerature:RTD:SHOW {TEMP|MEAS|ALL}***Description**

Select temperature measurement display mode, optional for TEMP (only display temperature), MEAS (only display measured value), ALL (display both temperature and measured value)

Return format

Return the query result by character

CONFigure command sub system

CONFigure sub system is used to switch measure mode

CONFigure[:SCALar][:VOLTage]:{AC|DC}**Syntax***CONFigure[:SCALar][:VOLTage]:{AC|DC} [{<range>|MINimum|MAXimum|DEF|AUTO}]***Description**

Restore all the measurement and trigger parameters to default, process AC/DC voltage measurement. Then set the measuring range.

Parameter

Name	Type	Range
<range>	Discret	3051:

e	AC: 200E-3(200mV), 2(2V), 20(20V), 200(200V), 750(750V) DC: 200E-3(200mV), 2(2V), 20(20V), 200(200V), 1000(1000V) 3041: AC: 600E-3(600mV), 6(6V), 60(60V), 600(600V), 750(750V) DC: 600E-3(600mV), 6(6V), 60(60V), 600(600V), 1000(1000V)
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CONFigure[:SCALar]:CURRent:{AC|DC}**Syntax**

CONFigure[:SCALar]:CURRent:{AC|DC} [{<range>|MINimum|MAXimum|DEF|AUTO}]

Description

Restore all the measurement and trigger parameters to default, process AC/DC current measurement. Then set the measuring range.

Parameter

Name	Type	Range
<range>	Discrete	3051: AC: 20E-3(20mA), 200E-3(200mA), 2(2A), 10(10A) DC: 200E-6(200uA), 2E-3(2mA), 20E-3(20mA), 200E-3(200mA), 2(2A), 10(10A) 3041: AC: 60E-3(60mA), 600E-3(600mA), 6(6A), 10(10A) DC: 600E-6(600uA), 6E-3(6mA), 60E-3(60mA), 600E-3(600mA), 6(6A), 10(10A)

CONFigure[:SCALar]:{RESistance|FRESistance}**Syntax**

CONFigure[:SCALar]:{RESistance|FRESistance} [{<range>|MINimum|MAXimum|DEF|AUTO}]

Description

Restore all the measurement and trigger parameters to default, process RESistance and FRESistance measurement. Then set the measuring range.

Parameter

Name	Type	Range
<range>	Discrete	3051: 200(200Ω), 2E3(2KΩ), 20E3(20KΩ), 200E3(200KΩ), 2E6(2MΩ), 10E6(10MΩ), 100E6(100MΩ) 3041: 600(600Ω), 6E3(6KΩ), 60E3(60KΩ), 600E3(600KΩ), 6E6(6MΩ), 60E6(60MΩ), 100E6(100MΩ)

CONFigure[:SCALar]:{FREQuency|PERiod}

Syntax

CONFigure[:SCALar]:{FREQuency|PERiod} [{<range>|MINimum|MAXimum|DEF|AUTO}]

Description

Restore all the measurement and trigger parameters to default, process FREQuency/PERiod measurement. Then set the measuring range.

Parameter

Name	Type	Range
<range>	Discrete	3051: 200E-3(200mV), 2(2V), 20(20V), 200(200V), 750(750V) 3041: 600E-3(600mV), 6(6V), 60(60V), 600(600V), 750(750V)

CONFigure[:SCALar]:CAPacitance**Syntax**

CONFigure[:SCALar]:CAPacitance [{<range>|MINimum|MAXimum|DEF|AUTO}]

Description

Restore all the measurement and trigger parameters to default, process capacitance measurement. Then set the scale.

Parameter

Name	Type	Range
<range>	Discrete	2E-9(2nF), 20E-9(20nF), 200E-9(200nF), 2E-6(2uF), 20E-6(20uF), 200E-6(200uF), 10E-3(10mF)

CONFigure[:SCALar]:TEMPerature:RTD**Syntax**

CONFigure[:SCALar]:TEMPerature:RTD [{<RTD Type>}]

Description

Restore all the measurement and trigger parameters to default, process temperature measurement. Then set the RTD type.

Parameter

Name	Type	Range
<RTD Type >	Discrete	KITS90, NITS90, EITS90, JITS90, TITS90, SITS90, RITS90, BITS90, W5_26, W3_25, PT100, PT10, Cu100, Cu50

CONFigure[:SCALar]:DIODE**Syntax***CONFigure[:SCALar]:DIODE***Description**

Restore all the measurement and trigger parameters to default, process diode measurement.

Parameter**CONFigure[:SCALar]:CONTInuity****Syntax***CONFigure[:SCALar]:CONTInuity***Description**

Restore all the measurement and trigger parameters to default, process continuity test.

Parameter**CALCulate command Subsystem**

CALCulate command is used to manage math function (Sum up, limit, db/dbm, relative value),

Function command is used to switch math mode (from four modes). AVERage, DB,DBM, LIMit,

NULL command is used to set corresponding function parameter, won't change the current math function.

CALCulate:AVERage:ALL?

Syntax

CALCulate:AVERage:ALL?

Description

Query returns the minimum value, maximum value , average value and count of all measurements taken since the statistics were last cleared.

Parameter

(none)

CALCulate:AVERage:AVERage?

Syntax

CALCulate:AVERage:AVERage?

Description

Query returns the average value of all measurements taken since the statistics were last cleared.

Parameter

(none)

CALCulate:AVERage:COUNT?

Syntax

CALCulate:AVERage:COUNT?

Description

Query returns the number of measurements taken since the statistics were last cleared.

Parameter

(none)

CALCulate:AVERage:MAXimum?

Syntax

CALCulate:AVERage:MAXimum?

Description

Query returns the maximum value of all measurements taken since the statistics were last cleared.

Parameter

(none)

CALCulate:AVERage:MINimum?**Syntax***CALCulate:AVERage:MINimum?***Description**

Query returns the minimum value of all measurements taken since the statistics were last cleared.

Parameter

(none)

CALCulate:DB:REference**Syntax***CALCulate:DB:REference {<Ref R>|MINimum|MAXimum}**CALCulate:DB:REference?***Description**

Set DB relative resistance.

Parameter

Name	Type	Range
<Ref R>	Discrete	50, 75, 93, 110, 124, 125, 135, 150, 250, 300, 500, 600, 800, 900, 1000, 1200, 8000

CALCulate:DBM:REFerence**Syntax***CALCulate:DBM:REFerence {<Ref R>|MINimum|MAXimum}**CALCulate:DBM:REFerence?***Description**

Set DBM relative resistance.

Parameter

Name	Type	Range
<Ref R>	Discrete	50, 75, 93, 110, 124, 125, 135, 150, 250, 300, 500, 600, 800, 900, 1000, 1200, 8000

CALCulate:FUNction**Syntax***CALCulate:FUNction {NULL|DB|DBM|AVERage|LIMit}**CALCulate:FUNction?***Description**

Set mathematic calculation as NULL, DB, DBM, AVERage or LIMit.

CALCulate:LIMit:FAIL?**Syntax***CALCulate:LIMit:FAIL?***Description**

Query returns the limit test results.

Parameter

(none)

CALCulate:LIMit:{LOWer|UPPer}

Syntax

CALCulate:LIMit:{LOWer|UPPer} {<value>|MINimum|MAXimum}

CALCulate:LIMit:{LOWer|UPPer}?

Description

Set lower or upper line for limit value

Parameter

Name	Type	Range
<value>		

CALCulate:LIMit:RESet

Syntax

CALCulate:LIMit:RESet

Description

Clears the flag bit and count of limit test.

Parameter

(none)

CALCulate:NULL:OFFSet**Syntax***CALCulate:NULL:OFFSet {<value>|MINimum|MAXimum}**CALCulate:NULL:OFFSet? [MINimum|MAXimum]***Description**

Set relative value.

Parameter

Name	Type	Range
<value>		

CALCulate:STATe**Syntax***CALCulate:STATe {OFF}***Description**

Close MATH function

Parameter

Name	Type	Range
<bool>	Bool	{OFF}

SYSTEM command Subsystem

SYSTEM:BEEPer:STATe

Syntax

SYSTEM:BEEPer:STATe {ON|OFF}

SYSTEM:BEEPer:STATe?

Description

Start or close the buzzer

Parameter

Name	Type	Range	默认值
<bool>	Bool	{ON OFF}	ON

Return format

Return 0 (OFF) or 1 (ON) after query.

SYSTEM:DATE?

Syntax

SYSTEM:DATE?

Description

Query date (includes year, month and day) inside device real-time clock

Parameter

Return format

Return query result

SYSTem:TIME?

Syntax

SYSTem:TIME?

Description

Query time (includes hour, minute and second) inside device real-time clock

Parameter

Return format

Return query result

SYSTem:VERSion?

Syntax

SYSTem:VERSion?

Description

Query SCPI version

Parameter

Return format

Return query result

SYSTem:LOCal

Syntax

SYSTem:LOCal

Description

Exit SCPI mode

Parameter

SYSTem:REMOte

Syntax

SYSTem:REMOte

Description

Enter SCPI mode

Parameter

Other commands

AUTO

Syntax

AUTO

AUTO?

Description

Enable autoscale

Parameter

Return format

Return autoscale setting, 1 for auto, 0 for manual

RANGE

Syntax

RANGE {<range1>|DEF}

Description

Set measuring range

Parameter

Name	Type	Range	
<range1>	Discre	DCV	3051 : 1(200mV), 2(2V), 3(20V), 4(200V), 5(1000V) 3041 : 1(600mV), 2(6V), 3(60V), 4(600V), 5(1000V)

	te	ACV	3051 : 1(200mV), 2(2V), 3(20V), 4(200V), 5(750V) 3041 : 1(600mV), 2(6V), 3(60V), 4(600V), 5(750V)
		DCI	3051 : 1(200uA), 2(2mA), 3(20mA), 4(200mA), 5(2A), 6(10A) 3041 : 1(600uA), 2(6mA), 3(60mA), 4(600mA), 5(6A), 6(10A)
		ACI	3051 : 1(20mA), 2(200mA), 3(2A), 4(10A) 3041 : 1(60mA), 2(600mA), 3(6A), 4(10A)
		RES/FRES	3051 : 1(200Ω), 2(2KΩ), 3(20KΩ), 4(200KΩ), 5(2MΩ), 6(10MΩ), 7(100MΩ) 3041 : 1(600Ω), 2(6KΩ), 3(60KΩ), 4(600KΩ), 5(6MΩ), 6(60MΩ), 7(100MΩ)
		CAP	1(2nF), 2(20nF), 3(200nF), 4(2uF), 5(20uF), 6(200uF), 7(10mF)
		FREQ/PER	3051 : 1(200mV), 2(2V), 3(20V), 4(200V), 5(750V) 3041 : 1(600mV), 2(6V), 3(60V), 4(600V), 5(750V)
		TEMP	1(KITS90),2(NITS90),3(EITS90),4(JITS90),5(TITS90),6(SITS90),7(RI TS90),8(BITS90),9(W5_26),10(W3_25),11(P T100),12(PT10),13(Cu100),14(Cu50)

RANGE1?**Syntax****RANGE1?****Description**

Query main display measuring range

Parameter**Return format**

DCV	3051 : 1(200mV), 2(2V), 3(20V), 4(200V), 5(1000V) 3041 : 1(600mV), 2(6V), 3(60V), 4(600V), 5(1000V)
ACV	3051 : 1(200mV), 2(2V), 3(20V), 4(200V), 5(750V) 3041 : 1(600mV), 2(6V), 3(60V), 4(600V), 5(750V)
DCI	3051 : 1(200uA), 2(2mA), 3(20mA), 4(200mA), 5(2A), 6(10A) 3041 : 1(600uA), 2(6mA), 3(60mA), 4(600mA), 5(6A), 6(10A)
ACI	3051 : 1(20mA), 2(200mA), 3(2A), 4(10A) 3041 : 1(60mA), 2(600mA), 3(6A), 4(10A)
RES/FRES	3051 : 1(200Ω), 2(2KΩ), 3(20KΩ), 4(200KΩ), 5(2MΩ), 6(10MΩ), 7(100MΩ) 3041 : 1(600Ω), 2(6KΩ), 3(60KΩ), 4(600KΩ), 5(6MΩ), 6(60MΩ), 7(100MΩ)

IEEE488.2 Common Commands

CAP	1(2nF), 2(20nF), 3(200nF), 4(2uF), 5(20uF), 6(200uF), 7(10mF)
FREQ/PER	3051 : 1(200mV), 2(2V), 3(20V), 4(200V), 5(750V) 3041 : 1(600mV), 2(6V), 3(60V), 4(600V), 5(750V)
TEMP	1(KITS90),2(NITS90),3(EITS90),4(JITS90),5(TITS90),6(SITS90),7(RITS90),8(BITS90),9(W5_26),10(

If measure function is diode or continuity test, then return None.

RANGE2?

Syntax

RANGE2?

Description

Query sub display measuring range.

Parameter

Return format

DCV	3051 : 1(200mV), 2(2V), 3(20V), 4(200V), 5(1000V) 3041 : 1(600mV), 2(6V), 3(60V), 4(600V), 5(1000V)
ACV	3051 : 1(200mV), 2(2V), 3(20V), 4(200V), 5(750V) 3041 : 1(600mV), 2(6V), 3(60V), 4(600V), 5(750V)
DCI	3051 : 1(200uA), 2(2mA), 3(20mA), 4(200mA), 5(2A), 6(10A) 3041 : 1(600uA), 2(6mA), 3(60mA), 4(600mA), 5(6A), 6(10A)
ACI	3051 : 1(20mA), 2(200mA), 3(2A), 4(10A) 3041 : 1(60mA), 2(600mA), 3(6A), 4(10A)
FREQ/PER	3051 : 1(200mV), 2(2V), 3(20V), 4(200V), 5(750V) 3041 : 1(600mV), 2(6V), 3(60V), 4(600V), 5(750V)

If measure function is diode or continuity test, then return None.

RATE**Syntax***RATE <speed>**RATE?***Description**

Set speed.

Parameter

Name	Type	Range
<speed>	Discrete	F:high speed; M:middle speed; L:low speed

Return format

Return current speed, F for high speed, M for middle speed, L for low speed.

MEAS?**Syntax***MEAS?***Description**

If start dual display, return main and sub display measured value; or return main display measure value.

Parameter**Return format**

Return measured result by scientific notation. If start dual display, the return format is: main display measured value, sub display measured value.

MEAS1?

Syntax

MEAS1?

Description

Return main display measured value

Parameter

Return format

Return measured result by scientific notation.

MEAS2?

Syntax

MEAS2?

Description

Return sub display measured value

Parameter

Return format

Return measured result by scientific notation.