ADS Series
Programming Manual

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Fujian LILLIPUT Optoelectronics Technology Co., Ltd.
No. 19, Heming Road
Lantian Industrial Zone, Zhangzhou 363005 P.R. China

Tel: +86-596-2130430 **Fax:** +86-596-2109272

Web: www.owon.com.cn **E-mail:** info@owon.com.cn

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SCPI Introduction

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：

:TRIGger:SINGle:EDGE:SOURce <source>

:TRIGger:SINGle:EDGE:SOURce?

TRIGger is the root keyword of the command. **SINGle**、**EDGE** and **SOURce** are the second level, third level and fourth level keywords.The command string starts with "**:**" which separates the multiple-level keywords. **<source>** represents parameters available for setting,"**?**" represents query and the command:**TRIGger:SINGle:EDGE:SOURce** and the parameter **<source>** 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.Keywords, data, and statements are separated by special characters.

- **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.

7. Square Brackets [ ]

The content (command keyword) enclosed in the square brackets can be omitted.

- **Parameter Type**

1. **Discrete**

   The parameter should be one of the values listed.

   For example：

   :TRIGger:SINGle:EDGE:SOURce <source>

:TRIGger:SINGle:EDGE:SOURce?

Of which：

<source> can be set to: CH1|CH2|EXT|EXT/5|ACLine

The query returns an abbreviated form：CH1、CH2、EXT、EXT/5 or ACLine.

2. **Real**

   Parameters can be any real number in the range of valid values,This command accepts decimal numbers(NR2 format) and scientific notation (NR3 format)parameter input. For example：

   :CH<n>:OFFSet <offset>

   :CH<n>:OFFSet?

   Of which：

   <n> can be set to: 1 or 2 denote channel1 or channel2.

   <offset> can be set to: between -2000 and 2000 .

   The query returns the number between -2000 and 2000.

3. **Bool**

   The parameter could be "OFF"、"0"、"ON"、"1".For example：

   :CH1:DISPlay <bool>

   :CH1:DISPlay?

   Of which：

   <bool> can be set to：{OFF|0}|{ON|1}

   The query returns "OFF" or "ON".

4. **ASCII String**

   The parameter could be ASCII characters combination.For example:

   :TRIGger:SINGle:EDGE:LEVel <level>

   :TRIGger:SINGle:EDGE:LEVel?

   Of which：

   <level> can be set to: 25mV.

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.

Example1：
:ACQuire:MODE SAMPle
Abbreviation Below：
:ACQ:MODE SAMP

Example2：
:CH1:SCALe 1V
Abbreviation Below：
:CH1:SCAL 1V

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E-mail: info@owon.com.cn
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Third-party API

The SCPI protocol communication of this instrument can use USB or network interface.Run the software on the computer.Select "Command Line" under the "Transfer" menu to open the SCPI command control window, and then you can send SCPI commands to control the power supply.

SCPI Command List

IEEE488.2 Common Command

*IDN?

Return the ID character string of the instrument.

Command format

*IDN?

Function Description

The query returns the ID character string of the instrument.

Parameter

None.

Instruction

None.

Return format

<Factory>,<model>,<serial number>,XX.X.X.X.X

<model>: type of instrument.

<serial number>: serial number of instrument.

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

Example

Factory,model,2322011,V1.0.2.0.1

*RST

Restore the instrument to its default value.

Command format

*RST

Function Description

Restore the instrument to its default value.

Parameter

None.

Instruction

None.

Return format

None.

Example

None.

Oscilloscope SCPI Command List

:ACQuire Command subsystem

:ACQuire:MODE

Command format

:ACQuire:MODE <type>

:ACQuire:MODE?

Function Description

Set or query the acquisition method.

Parameter

Name	Type	Range	Default
<type>	Discrete	{SAMPle|AVERage|PEAK|HIREsolution}	SAMP

Instruction

- **SAMPle:** In this mode, the oscilloscope does not perform any processing on the acquire samples, which is the default mode of the oscilloscope.
- **AVERage:** In this mode, the oscilloscope averages the multiple acquired waveforms, reduce random noise on the input signal and improve the vertical resolution.
- **PEAK:** In this mode, the oscilloscope keeps the maximum and minimum values of all waveforms in each acquisition interval.
- **HIREsolution:** In this mode, the oscilloscope improves resolution and reduces noise by extending the sampling time.

Return format

The query returns "SAMPle"、"AVERage"、"PEAK" or "HIREsolution".

Example

Set the acquire mode to AVERage:

:ACQuire:MODE AVERage

Query the acquire mode:

:ACQuire:MODE?

:ACQuire:AVERage:NUM <count>

Command format

:ACQuire:AVERage:NUM <count>

:ACQuire:AVERage:NUM?

Function Description

Set or query the average sampling times.

Parameter

Name	Type	Range	Default
<count>	Discrete	{2|4|8|16|32|64|128|256|512|1024|2048|4096|8192|16384|32768|65536}	4

Instruction

- The average values currently supported are 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096, 8192, 16384, 32768 or 65536.

Return format

The query returns "2", "4", "8", "16", "32", "64", "128", "256", "512", "1024", "2048", "4096", "8192", "16384", "32768" or "65536".

Example

Set the average sampling times to 64:

:ACQuire:AVERage:NUM 64

Query average sampling times:

:ACQuire:AVERage:NUM?

:ACQuire:DEPMEM<mdep>

Command format

:ACQuire:DEPMEM <mdep>

:ACQuire:DEPMEM?

Function Description

Set or query the number of waveform points that the oscilloscope can store in a single trigger acquisition.

Parameter

Name	Type	Range	Default
<mdep>	Discrete	{1k|10k|100k|1M|10M|100M}	10k

Instruction

The range follows the changes in the acquisition mode.

Return format

The query returns "1k"、"10k"、"100k"、"1M"、"10M" or "100M".

Example

Set the storage depth to "10k":

:ACQuire:DEPMEM 10k

Query the storage depth:

:ACQuire:DEPMEM?

:HORIzontal Command subsystem

:HORIzontal:SCALe

Command format

:HORIzontal:SCALe <scale_value>

:HORIzontal:SCALe?

Function Description

Set or query the primary time base gear.

Parameter

Name	Type	Range	Default
<scale_value>	Discrete	See Instruction	1.000ms

Instruction

- Default primary time base gear setting.

The range of time base gear is as follows：

{500.0ps|1.000ns|2.000ns|5.000ns|10.00ns|20.00ns|50.00ns|100.0ns|200.0ns|
500.0ns|1.000us|2.000us|5.000us|10.00us|20.00us|50.00us|100.0us|200.0us|
500.0us|1.000ms|2.000ms|5.000ms|10.00ms|20.00ms|50.00ms|100.0ms|200.0ms|
500.0ms|1.000s|2.000s|5.000s|10.00s|20.00s|50.00s|100.0s|200.0s|500.0s|1.000ks}

Return format

The query returns the time base range value as a string.

Example

Set the primary time base gear to 200.0us:
:HORIzontal:SCALe 200.0us
Query the primary time base gear:
:HORIzontal:SCALe?

:HORIzontal:OFFSet

Command format

:HORIzontal:OFFSet <value>
:HORIzontal:OFFSet?

Function Description

Set or query the horizontal trigger location in primary time base mode.

Parameter

Name	Type	Range	Default
<value>	Real	-800 to 1000000	0

Instruction

- <value> range is related to the current horizontal time base mode and operating state of the oscilloscope.
- If the current primary time base is 500us/div, assuming a horizontal offset of 2 cells, then the time for the horizontal offset is 1.000ms.

Return format

The query returns the horizontal trigger location as a string.

Example

Set the horizontal gear of channel 1 to be offset by 1 square:

:HORIzontal:OFFSet 1

Query the horizontal trigger position:

:HORIzontal:OFFSet?

:CH Command subsystem

:CH<n>:DISPlay

Command format

:CH<n>:DISPlay <bool>

:CH<n>:DISPlay?

Function Description

Set or query the channel status.

Parameter

Name	Type	Range	Default
<n>	Discrete	{1|2|3|4}	1
<bool>	Bool	{{OFF|0}|{ON|1}}	OFF|0

Instruction

None.

Return format

The query returns "OFF" or "ON".

Example

Set the display of channel 1 to ON:

:CH1:DISPlay ON

Query the display of channel 1 :

:CH1:DISPlay?

:CH<n>:COUPling

Command format

:CH<n>:COUPling <coupling>

:CH<n>:COUPling?

Function Description

Set or query the coupling mode of channel input.

Parameter

Name	Type	Range	Default
<n>	Discrete	{1|2|3|4}	1
<coupling>	Discrete	{AC|DC|GND}	DC

Instruction

- AC: The DC component of the measured signal is blocked.
- DC: Both the DC and AC components of the measured signal can be passed.
- GDN: Both the DC and AC components of the measured signal are blocked.

Return format

The query returns"AC"、"DC" or "GND".

Example

Set the input coupling mode of channel 1 to "DC":

:CH1:COUPling DC

Query the input coupling mode of channel 1:

:CH1:COUPling?

:CH<n>:PROBe

Command format

:CH<n>:PROBe <atten>

:CH<n>:PROBe?

Function Description

Set or query the attenuation ratio of the probe.

Parameter

Name	Type	Range	Default
<n>	Discrete	{1|2|3|4}	1
<coupling>	Real	0.000001X to 1000000X	10.0X

Instruction

None.

Return format

The query returns probe attenuation ratio.

Example

Set the attenuation ratio of the probe connected to channel 1 to 10X:

:CH1:PROBe 10

Query the attenuation ratio of the probe connected to channel 1:

:CH1:PROBe?

:CH<n>:SCALe

Command format

:CH<n>:SCALe <scale>

:CH<n>:SCALe?

Function Description

Set or query the vertical gear displayed by the specified channel waveform.

Parameter

Name	Type	Range	Default
<n>	Discrete	{1|2|3|4}	1
<scale>	Discrete	{500.0uV|1.000mV|2.000mV|5.000mV| 10.00mV|20.00mV|50.00mV|100.0mV| 200.0mV|500.0mV|1.000V|2.000V|5.000V| 10.00V}	100mV

Instruction

- When setting the command parameters, the influence of the probe ratio parameter should be considered. The probe ratio of the current parameter is 1X, when the probe ratio is 10X and the 10mV is to be set, the command is: CH<n>:SCALe 100mV.

Return format

The query returns the vertical gear value as a string.

Example

Set the vertical gear of channel 1 to 1V/div:

:CH1:SCALe 1V

Query the vertical gear of channel 1:

:CH1:SCALe?

:CH<n>:OFFSet

Command format

:CH<n>:OFFSet <offset>

:CH<n>:OFFSet?

Function Description

Set or query the vertical offset of the waveform display for a specified channel.

Parameter

Name	Type	Range	Default
<n>	Discrete	{1|2|3|4}	1
<offset>	Real	-4000 to 4000 ,the range is related to the current voltage gear of the oscilloscope, please refer to the instructions.	2

Instruction

- <n> 1 indicates channel 1,<offset> is the vertical offset of corresponding channel 1.Default is 2.
- offset*scale<=±2V(1 mV/div - 50 mV/div);Probe ratio is 1X;
- offset*scale<=± 20 V (100 mV/div - 1 V/div);Probe ratio is 1X;
- offset*scale<=± 200 V (2 V/div - 10 V/div);Probe ratio is 1X.

Return format

The query returns the zero lattice position as float data, as in 1.00.

Example

Set the vertical position of channel 1 to 1 grid:

:CH1:OFFSet 1

Query the vertical position of channel 1:

:CH1:OFFSet?

:CH<n>:INVErse

Command format

:CH<n>:INVErse <bool>

:CH<n>:INVErse?

Function Description

Set or query the waveform inversion of a specified channel.

Parameter

Name	Type	Range	Default
<n>	Discrete	{1|2|3|4}	1
<bool>	Bool	{{OFF|0}|{ON|1}}	OFF|0

Instruction

- When the waveform inversion is turned off, the waveform is displayed normally. When the waveform is turned on, the waveform is reversed 180 degrees.

Return format

The query returns"OFF" or "ON".

Example

Set the inverting of channel 1:

:CH1:INVErse ON

Query the inverting of channel 1:

:CH1:INVErse?

:CH<n>:BANDlimit

Command format

:CH<n>:BANDlimit <type>

:CH<n>:BANDlimit?

Function Description

Set or query the bandwidth limit for a specified channel.

Parameter

Name	Type	Range	Default
<type>	Discrete	{20E6|FULL}	20E6

Instruction

- 20E6 denotes 20MHz,FULL denotes full bandwidth.

Return format

The query returns"20E6" or "FULL".

Example

Set the bandwidth limit of channel 1 to 20MHz:

:CH1:BANDlimit 20E6

Query the bandwidth limit of channel 1:

:CH1:BANDlimit?

:TRIGger Command subsystem

:TRIGger:STATus?

Command format

:TRIGger:STATus?

Function Description

Query the current trigger state.

Parameter

Type	Range	Default
Discrete	{AUTO|READy|STOP|SCAN|TRIG}	AUTO

Instruction

None.

Return format

The query returns"AUTO"、"READy"、"STOP"、"SCAN" or "TRIG".

Example

Query the current trigger state:

:TRIGger:STATus?

:TRIGger:SINGle

:TRIGger:SINGle:MODE

Command format

:TRIGger:SINGle:MODE <type>

:TRIGger:SINGle:MODE?

Function Description

Set or query the single trigger type.

Parameter

Name	Type	Range	Default
<type>	Discrete	{EDGE}	EDGE

Instruction

- EDGE: Indicates that the current trigger type is edge trigger.

Return format

The query returns the trigger type currently in use.

Example

Set the single trigger type to EDGE:

:TRIGger:SINGle:MODE EDGE

Query the single trigger type:

:TRIGger:SINGle:MODE?

:TRIGger:SINGle:EDGE

:TRIGger:SINGle:EDGE:SOURce

Command format

:TRIGger:SINGle:EDGe:SOURce <source>

:TRIGger:SINGle:EDGe:SOURce?

Function Description

Set or query the source of the single trigger.

Parameter

Name	Type	Range	Default
<source>	Discrete	{CH1|CH2|CH3|CH4|EXT|EXT/5|ACLine}	CH1

Instruction

None.

Return format

The query returns"CH1"、"CH2"、"EXT"、"EXT/5" or "ACLine"

Example

Set the source of the single trigger to CH2:

:TRIGger:SINGle:EDGE:SOURce CH2

Query the source of the single trigger:

:TRIGger:SINGle:EDGE:SOURce?

:TRIGger:SINGle:EDGE:COUPling

Command format

:TRIGger:SINGle:EDGE:COUPling <coupling>

:TRIGger:SINGle:EDGE:COUPling?

Function Description

Set or query the coupling mode for single trigger.

Parameter

Name	Type	Range	Default
<coupling>	Discrete	{DC|AC|HF}	DC

Instruction

- DC:Allow DC and AC components to pass through the trigger path.
- AC:Block any DC components from passing through the trigger path.
- HF:Suppression of high-frequency components through the trigger path.

Return format

The query returns"DC"、"AC" or "HF".

Example

Set the coupling mode of the single trigger to AC:

:TRIGger:SINGle:EDGE:COUPling AC

Query the coupling mode of the single trigger:

:TRIGger:SINGle:EDGE:COUPling?

:TRIGger:SINGle:EDGE:SLOPe

Command format

:TRIGger:SINGle:EDGE:SLOPe <slope>

:TRIGger:SINGle:EDGE:SLOPe?

Function Description

Set or query the slope of the single trigger.

Parameter

Name	Type	Range	Default
<slope>	Discrete	{RISE|FALL}	RISE

Instruction

- RISE: Rising edge.
- FALL: Falling edge.

Return format

The query returns"RISE" or "FALL".

Example

Set the single trigger slope toFALL:

:TRIGger:SINGle:EDGE:SLOPe FALL

Query the single trigger slope to:

:TRIGger:SINGle:EDGE:SLOPe?

:TRIGger:SINGle:EDGE:LEVel

Command format

:TRIGger:SINGle:EDGE:LEVel <level>

:TRIGger:SINGle:EDGE:LEVel?

Function Description

Set or query the single trigger level.

Parameter

Name	Type	Range	Default
<level>	String	-5×VerticalScale-OFFSet to 5×VerticalScale-OFFSet	0.000pV

Instruction

None.

Return format

The query returns the trigger level voltage value in the form of float data.

Example

Set the trigger level of the single trigger source to CH1 to 25mV:

:TRIGger:SINGle:EDGE:SOURce CH1;

:TRIGger:SINGle:EDGE:LEVel 25mV

Query the trigger level of the single trigger source:

:TRIGger:SINGle:EDGE:LEVel?

:TRIGger:SINGle:HOLDoff

Command format

:TRIGger:SINGle:HOLDoff <time>

:TRIGger:SINGle:HOLDoff?

Function Description

Set or query the time for single trigger release.

Parameter

Name	Type	Range	Default
<time>	String	100ns to10s	100ns

Instruction

None.

Return format

The query returns release time.

Example

Set the time of single trigger release to 1ms:

:TRIGger:SINGle:HOLDoff 1ms

Query the time of single trigger release:

:TRIGger:SINGle:HOLDoff?

:TRIGger:SINGle:SWEEp

Command format

:TRIGger:SINGle:SWEEp <mode>

:TRIGger:SINGle:SWEEp?

Function Description

Set or query the single trigger mode.

Parameter

Name	Type	Range	Default
<mode>	Discrete	{AUTO|NORMal|SINGle}	AUTO

Instruction

- AUTO:Automatically triggered, waveform display regardless of whether the trigger conditions are met;
- NORMal:Normally triggered.When the trigger conditions are met, the waveform is displayed. If not , the original waveform is displayed and the next trigger is displayed;
- SINGle:Single trigger,the oscilloscope waits for the trigger, displays the waveform when the trigger conditions are met, and then stops.

Return format

The query returns"AUTO"、"NORMal" or "SINGle".

Example

Set the single trigger mode to NORMal:

:TRIGger:SINGle:SWEEp NORMal

Query the single trigger mode:

:TRIGger:SINGle:SWEEp?

:MEASUrement Command subsystem

:MEASUrement:CH<n>:<items>

Command format

:MEASUrement:CH<n>:<items>?

Function Description

Gets the value of the channel measurement term.

Parameter

Name	Type	Range	Default
<n>	Discrete	{1|2|3|4}	1
<items>	Discrete	{MAX|MIN|PKPK|VTOP|VBASe|VAMP|AVERage|SQUAresum|CYCRms|OVERShoot|PREShoot|PERiod|FREQuency|RTime|FTime|PWIDth|NWIDth|PDUTy|NDUTy|SCREenduty|StdDev|CYCLearea|HARDfrequency|FALLedgenum|AREA|PPULsenum|NPULsenum|RISEedgenum}	--

Parameter annotation

Items(voltage)	annotation	Items（time）	annotation
MAX	Maximum value	PERiod	Period
MIN	Minimum value	FREQuency	Frequency
PKPK	Peak-to-peak value	RTime	Rise time
VTOP	Top value	FTime	Fall time
VBASe	Base value	PWIDth	Positive pulsewidth
VAMP	Amplitude	NWIDth	Negative pulsewidth
AVERage	Average value	PDUTy	Positive duty cycle
SQUAresum	RMS value	NDUTy	Negative duty cycle
CYCRms	Periodic root mean square	SCREenduty	Screen pulsewidth ratio
OVERShoot	Overshoot	StdDev	Standard deviation
PREShoot	Preshoot		

Items（Count values and others）	annotation
CYCLearea	Cycle Area
HARDfrequency	Hardware frequency meter
FALLedgenum	Falling edges number
AREA	Area

PPULsenum	Positive pulse number
NPULsenum	Negative pulse number
RISEedgenum	Rising edges number

Instruction

None.

Return format

The query returns current measurement type.

Example

Query period for the channel 1:

:MEASUrement:CH1:PERiod?

:MEASUrement:CH<n>

Command format

:MEASUrement:CH<n>?

Function Description

Gets all measurements for the specified channel (JSON format).

Parameter

Name	Type	Range	Default
<n>	Discrete	{1|2|3|4}	1

Instruction

None.

Return format

{"MAX":"-100.0mV,ON","MIN":"-180.0mV,ON","AVERage":"-132.8mV,ON","SQUAres
um":"135.0mV,ON","StdDev":"2.220V,ON","PKPK":"80.00mV,ON","VTOP":"-120.0m
V,ON","VBASe":"-160.0mV,ON","VAMP":"40.00mV,ON","OVERShoot":"50.00%,ON",
"PREShoot":"50.00%,ON","CYCRms":"0.000pV,ON","CYCMean":"0.000pV,ON","PE
Riod":"?,ON","FREQuency":"?,ON","RTime":"?,ON","FTime":"?,ON","PWIDth":"0s,O

N","NWIDth":"0s,ON","PDUTy":"?,ON","NDUTy":"?,ON","SCREenduty":"?,ON","BurstW":"0s,ON","PPULsenum":"0,ON","NPULsenum":"0,ON","RISEedgenum":"0,ON","FALLedgenum":"0,ON","CYCLearea":"0.000pVs,ON","AREA":"-15.30Vs,ON"}

Example

Query all measurements for channel 1:
:MEASUrement:CH1?

:MEASUrement:ALL

Command format

:MEASUrement:ALL?

Function Description

Get all measurements for channel 1 , channel 2, channel 3 and channel 4 (JSON format).

Parameter

None.

Instruction

None.

Return format

{"CH1":{"MAX":"-100.0mV,ON","MIN":"-180.0mV,ON","AVERage":"-139.5mV,ON","SQUAresum":"141.7mV,ON","StdDev":"2.220V,ON","PKPK":"80.00mV,ON","VTOP":"-140.0mV,ON","VBASe":"-160.0mV,ON","VAMP":"20.00mV,ON","OVERShoot":"200.00%,ON","PREShoot":"100.00%,ON","CYCRms":"0.000pV,ON","CYCMean":"0.000pV,ON","PERiod":"?,ON","FREQuency":"?,ON","RTime":"?,ON","FTime":"?,ON","PWIDth":"0s,ON","NWIDth":"0s,ON","PDUTy":"?,ON","NDUTy":"?,ON","SCREenduty":"?,ON","BurstW":"0s,ON","PPULsenum":"0,ON","NPULsenum":"0,ON","RISEedgenum":"0,ON","FALLedgenum":"0,ON","CYCLearea":"0.000pVs,ON","AREA":"-16.07Vs,ON"},"CH2":{"MAX":"-40.00mV,ON","MIN":"-120.0mV,ON","AVERage":"-80.00mV,ON","SQUAresum":"83.75mV,ON","StdDev":"2.000V,ON","PKPK":"80.00mV,ON","VTOP":"-80.00mV,ON","VBASe":"-100.0mV,ON","VAMP":"20.00mV,ON","OVERShoot":"200.00%,

ON","PREShoot":"100.00%,ON","CYCRms":"0.000pV,ON","CYCMean":"0.000pV,ON","PERiod":"?,ON","FREQuency":"?,ON","RTime":"?,ON","FTime":"?,ON","PWIDth":"0s,ON","NWIDth":"0s,ON","PDUTy":"?,ON","NDUTy":"?,ON","SCREenduty":"?,ON","BurstW":"0s,ON","PPULsenum":"0,ON","NPULsenum":"0,ON","RISEedgenum":"0,ON","FALLedgenum":"0,ON","CYCLearea":"0.000pVs,ON","AREA":"-9.221Vs,ON"}}

Example

None.

:DATA Command subsystem

:DATA command obtains a large amount of data,so the data returned by each instruction has a four-byte file length that indicates the amount of data returned by this instruction.

:DATA:WAVE:SCREen:HEAD?

Command format

:DATA:WAVE:SCREen:HEAD?

Function Description

Get screen waveform file header information.

Parameter

None.

Instruction

- ?\03\00\00 indicates the data length of the returned text, and the data format is in binary mode.
- “XXXX,XXXXXXX” denote “Manufacturer information,Model information”.

Return format

The query returns a piece of text in json format.

Example

Query the text returned by the command:

:DATA:WAVE:SCREen:HEAD?

?\03\00\00{"DATATYPE":"SCREEN","RUNSTATUS":"TRIG","IDN":"XXXX,XXXXXXX,2225036,V1.0.2.1.2","MODEL":"610201101","TIMEBASE":{"SCALE":"200.0us","HOFFSET":0},"SAMPLE":{"FULLSCREEN":1800,"SLOWMOVE":-1,"DATALEN":1800,"SAMPLERATE":"(2.5MS\\/s)","TYPE":"SAMPle","DEPMEM":"10K","PRECISION":0},"CHANNEL":[{"NAME":"CH1","DISPLAY":"ON","Current_Rate":10000,"Current_Ratio":50,"Measure_Current_Switch":"OFF","COUPLING":"DC","PROBE":1,"SCALE":0.5,"OFFSET":125,"FREQUENCY":1000.0047059044983,"INVERSE":false},{"NAME":"CH2","DISPLAY":"ON","Current_Rate":10000,"Current_Ratio":50,"Measure_Current_Switch" :"OFF","COUPLING":"DC","PROBE":10,"SCALE":0.001,"OFFSET":-125,"FREQUENCY":912.5230166382427,"INVERSE":false}],"Trig":{"Mode":"SINGle","Type":"EDGE","Sweep":"AUTO","Items":{"Channel":"CH1","Level":"-80.0mV","Edge":"RISE","Coupling":"DC","HoldOff":"100ns "}}}.

:DATA:WAVE:SCREen:CH<x>?

Command format

:DATA:WAVE:SCREen:CH<x>?

Function Description

Gets the number of screen waveform channels.

Parameter

None.

Instruction

- Data points are two bytes per dot, using LITTLE_ENDIAN byte order.
- Must first execute :DATA:WAVE:SCREen:HEAD? command and then can be execute :DATA:WAVE:SCREen:CH1? command, otherwise the data cannot be obtained.

Return format

The query returns data for the screen waveform channel.

Example

A complete acquisition of the waveform file at once

:DATA:WAVE:SCREen:HEAD?

:DATA:WAVE:SCREen:CH1?

:DATA:WAVE:SCREen:CH2?

:DATA:WAVE:SCREen:BMP?

Command format

:DATA:WAVE:SCREen:BMP?

Function Description

Get screenshots.

Parameter

None.

Instruction

None.

Return format

The query returns a BMP screenshot.

Example

Query a BMP file format:

:DATA:WAVE:SCREen:BMP?

Other Command

:AUTOset ON

Function Description

:AUTOset ON

Function Description

Automatic setup.

Parameter

None.

Instruction

None.

Return format

None.

Example

None.