

Programmable DC Electronic Load

Series IT8100A/E Programming Guide



Model: Series IT8100A/E

Revision: V1.1

Statement

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Safety Statement

CAUTION

"Caution" signs indicate danger. It is required to pay attention to the contents of these signs during implementation of operations.

The damage to the product or loss of important data may be caused in case of improper operation steps or failure to follow operation steps. Do not continue to implement any improper operation indicated in "Caution" signs when the specified conditions are not fully understood or these conditions are not satisfied.

WARNING

"Warning" indicates danger. It is required to pay attention to the contents of these signs during implementation of operation steps. Personal casualties may be caused in case of improper operation steps or failure to follow these operation steps. Do not continue to implement any improper operation indicated in "Warning" signs when the specified conditions are not fully understood or these conditions are not satisfied.



NOTE

"Instructions" indicates operation instructions. It is required to refer to the contents of these signs during operation steps. These signs are used for providing tips or supplementary information for operators.

Certification and Quality Assurance

IT8100A/E series electronic load completely reaches nominal technical indicators in the manual.

Warranty service

ITECH Company will provide one-year warranty services for the product materials and manufacturing (excluding the following limitations).

- When warranty service or repair is needed, please send the product to the service unit specified by ITECH Company.
- When the product is sent to ITECH Company for warranty service, the customer must pay the one-way freight to the maintenance department of ITECH, and ITECH will be responsible for return freight.
- If the product is sent to ITECH for warranty service from other countries, the customer will be responsible for all the freight, duties and other taxes.

Limitation of Warranty

Warranty service does not apply to the damage caused in the following circumstances:

- Damage resulting from customer-wired circuits or customer-supplied parts or accessories;
- Product which has been modified or repaired by the customer;
- Damage caused by the circuit installed by the customer or damage caused by operation of the product in non-specified environment;
- The product model or serial number is altered, deleted, removed or made illegible by customer;
- Damage caused by accidents, including but not limited to lightning, water, fire, abuse or negligence.

Safety signs

	DC power		ON (with the power switched on)
	AC power		OFF (with the power supply switched off)
	Both DC and AC power supply		Power supply switching-on status
	Protective grounding terminal		Power supply switching-off status
	Grounding terminal		Reference terminal
	Danger sign		Positive terminal
	Warning sign (refer to specific "Warning" or "Caution" information in the manual)		Negative terminal
	Ground wire connection end sign	-	-

Safety Precautions

General safety precautions below must be followed in each phase of instrument operation. In case of failure to follow these precautions or specific warnings in other parts of the manual, violation against the safety standards related to the design, manufacture and purpose of the instrument will occur. If the user does not follow these precautions, ITECH will bear no responsibility arising there from.

WARNING

- The electronic load is provided with a three-core power line during delivery and should be connected to a three-core junction box. Before operation, be sure that the electronic load is well grounded.
- The electronic load is provided with a three-core power line during delivery and should be connected to a three-core junction box. Before operation, be sure that the electronic load is well grounded.
- Use electric wires of appropriate load. All loading wires should be capable of bearing maximum short-circuit of electronic load without overheating.
- Ensure the voltage fluctuation of mains supply is less than 10% of the working voltage range in order to reduce risks of fire and electric shock.
- To prevent burnout, please pay special attention to positive and negative polarities of electronic load during connection!
- Do not use damaged equipment. Please check the housing before using the equipment. Check whether the instrument is subject to cracking or is lack of plastic. Do not operate the instrument in the environment with explosive gas, steam or dust.
- Observe all tags on the equipment before connection.
- Do not install alternative parts on the instrument or perform any unauthorized modification.
- Do not use the equipment when the removable cover is dismantled or loose.
- Please use the power adapter supplied by the manufacturer to avoid accidental injury.
- We do not accept responsibility for any direct or indirect financial damage or loss of profit that might occur when using the instrument.
- This instrument is used for industrial purposes, do not apply this product to IT power supply system.
- Do not use the equipment on the life support system or other equipment with safety requirements.

CAUTION

- If the equipment is not used in the manner specified by the manufacturer, its protection may be damaged.
- Always use dry cloth to clean the equipment housing. Do not clean the inside of the instrument.
- Do not block the air vent of the equipment.

Environmental conditions

The IT8100A/E series electronic load can only be used indoors or in low condensation areas. The following table shows general environmental requirements for this instrument.

Environmental conditions	Requirement
Operating temperature	0°C - 40°C

Operating humidity	20% - 80% (non condensing)
Storage temperature	-20°C - 70 °C
Altitude	Operating up to 2,000 meters
Installation category	II
Pollution	Pollution degree 2



In order to ensure the accuracy of measurement, it is recommended to operate the instrument half an hour after start-up.

Regulation tag

	The CE tag shows that the product complies with the provisions of all relevant European laws (if the year is shown, it indicates that the year when the design is approved).
	This instrument complies with the WEEE directive (2002/96/EC) tag requirements. This attached product tag shows that the electrical/electronic product cannot be discarded in household waste.
	This symbol indicates that no danger will happen or toxic substances will not leak or cause damage in normal use within the specified period. The service life of the product is 10 years. The product can be used safely within the environmental protection period; otherwise, the product should be put into the recycling system.

Waste electrical and electronic equipment (WEEE) directive



Waste electrical and electronic equipment (WEEE) directive, 2002/96/EC

The product complies with tag requirements of the WEEE directive (2002/96/EC). This tag indicates that the electronic equipment cannot be disposed of as ordinary household waste.

Product Category

According to the equipment classification in Annex I of the WEEE directive, this instrument belongs to the "Monitoring" product.

If you want to return the unnecessary instrument, please contact the nearest sales office of ITECH.

Compliance Information

Complies with the essential requirements of the following applicable European Directives, and carries the CE marking accordingly:

- Electromagnetic Compatibility (EMC) Directive 2014/30/EU
- Low-Voltage Directive (Safety) 2014/35/EU

Conforms with the following product standards:

EMC Standard

IEC 61326-1:2012/ EN 61326-1:2013 ¹²³

Reference Standards

CISPR 11:2009+A1:2010/ EN 55011:2009+A1:2010 (Group 1, Class A)

IEC 61000-4-2:2008/ EN 61000-4-2:2009

IEC 61000-4-3:2006+A1:2007+A2:2010/ EN 61000-4-3:2006+A1:2008+A2:2010

IEC 61000-4-4:2004+A1:2010/ EN 61000-4-4:2004+A1:2010

IEC 61000-4-5:2005/ EN 61000-4-5:2006

IEC 61000-4-6:2008/ EN 61000-4-6:2009

IEC 61000-4-11:2004/ EN 61000-4-11:2004

1. The product is intended for use in non-residential/non-domestic environments. Use of the product in residential/domestic environments may cause electromagnetic interference.
2. Connection of the instrument to a test object may produce radiations beyond the specified limit.
3. Use high-performance shielded interface cable to ensure conformity with the EMC standards listed above.

Safety Standard

IEC 61010-1:2010/ EN 61010-1:2010

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Chapter1 SCPI Introduction

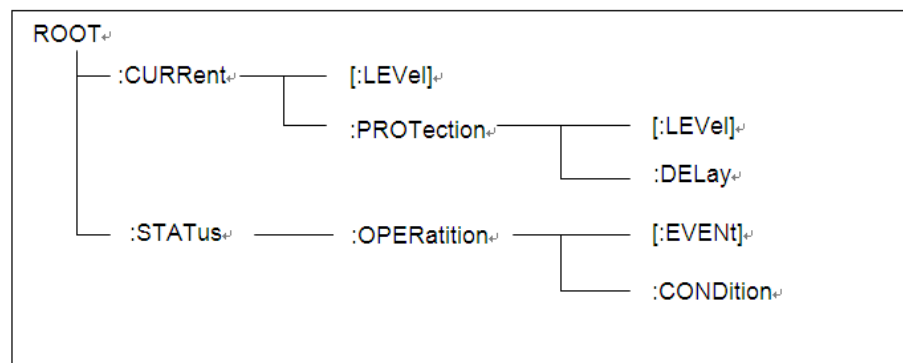
1.1 Overview

SCPI is short for Standard Commands for Programmable Instruments which defines a communication method of bus controller and instrument. It is based on ASCII and supply for testing and measuring instruments. SCPI command is based on hierarchical architecture which also known as tree system. In this system, Relevant Command is returned to a common node or root, so that a subsystem is formed.

1.2 Command Type of SCPI

SCPI has two types of commands, common and subsystem.

- Common commands generally are not related to specific operation but to controlling overall instrument functions, such as reset, status, and synchronization. All common commands consist of a three-letter mnemonic preceded by an asterisk: ***RST *IDN? *SRE 8**.
- Subsystem commands perform specific instrument functions. They are organized into an inverted tree structure with the "root" at the top. The following figure shows a portion of a subsystem command tree, from which you access the commands located along the various paths.



Multiple Commands in a Message

Multiple SCPI commands can be combined and sent as a single message with one message terminator. There are two important considerations when sending several commands within a single message:

- Use a semicolon to separate commands within a message.
- Head paths influence how the instrument interprets commands.

We consider the head path as a string which will be inserted in front of every command of a message. As for the first command of a message, the head path is a null string; for each subsequent command, the head path is a string which is defined to form the current command until and including the head of the last colon separator. A message with two combined commands:

CURR:LEV 3;PROT:STAT OFF

The example indicates the effect of semicolon and explains the concept

of head path. Since the head path is defined to be "CURR" after "curr: lev 3", the head of the second command, "curr", is deleted and the instrument explains the second command as:

CURR:PROT:STAT OFF

If "curr" is explicitly included in the second command, it is semantically wrong. Since combining it with the head path will become "CURR:CURR:PROT:STAT OFF", resulting in wrong command.

Movement in the Subsystem

In order to combine commands from different subsystems, you need to be able to reset the header path to a null string within a message. You do this by beginning the command with a colon (:), which discards any previous header path. For example, you could clear the output protection and check the status of the Operation Condition register in one message by using a root specifier as follows:

PROtection:CLEAr;;STATus:OPERation:CONDition?

The following message shows how to combine commands from different subsystems as well as within the same subsystem:

POWER:LEVel 200;PROtection 28; :CURRENT:LEVel 3;PROtection:STATe ON

Note the use of the optional header LEVel to maintain the correct path within the voltage and current subsystems, and the use of the root specifier to move between subsystems.

Including Common Commands

You can combine common commands with subsystem commands in the same message. Treat the common command as a message unit by separating it with a semicolon (the message unit separator). Common commands do not affect the header path; you may insert them anywhere in the message.

**VOLTage:TRIGgered 17.5;:INITialize;*TRG
OUTPut OFF;*RCL 2;OUTPut ON**

Case Sensitivity

Common commands and SCPI commands are not case sensitive. You can use upper or lower, for example:

***RST = *rst
:DATA? = :data?
:SYSTem:PRESet = :system:preset**

Long-Form and Short-Form Versions

A SCPI command word can be sent in its long-form or short-form version. However, the short-form version is indicated by upper case characters. Examples:

:SYSTem:PRESet long-form
:SYST:PRES short form
:SYSTem:PRES long-form and short-form combination

Note that each command word must be in long-form or short-form, and not something in between.

For example, **:SYSTe:PRESe** is illegal and will generate an error. The command will not be executed.

Query

Observe the following precautions with queries:

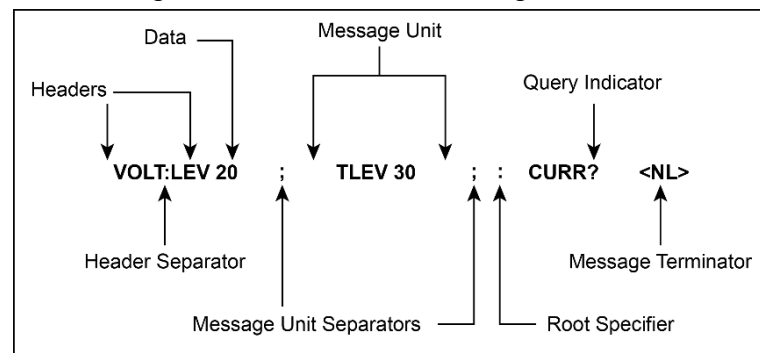
- Set up the proper number of variables for the returned data. For example, if you are reading back a measurement array, you must dimension the array according to the number of measurements that you have placed in the measurement buffer.
- Read back all the results of a query before sending another command to the instrument. Otherwise a Query Interrupted error will occur and the unreturned data will be lost.

1.3 Message Type of SCPI

There are two types of SCPI messages, program and response.

- Program message: A program message consists of one or more properly formatted SCPI commands sent from the controller to the instrument. The message, which may be sent at any time, requests the instrument to perform some action.
- Response message: A response message consists of data in a specific SCPI format sent from the instrument to the controller. The instrument sends the message only when commanded by a program message called a "query."

The next figure illustrates SCPI message structure:



The message unit

The simplest SCPI command is a single message unit consisting of a command header (or keyword) followed by a message terminator. The message unit may include a parameter after the header. The parameter can be numeric or a string.

ABORT<NL>

VOLTage 20<NL>

Headers

Headers, also referred to as keywords, are instructions recognized by the instrument. Headers may be either in the long form or the short form. In the long form, the header is completely spelled out, such as VOLTAGE, STATUS and DELAY. In the short form, the header has only the first three or four letters, such as VOLT, STAT and DEL.

Query indicator

Following a header with a question mark turns it into a query (**VOLTage?**, **VOLTage:PROTection?**). If a query contains a parameter, place the query indicator at the end of the last header (**VOLTage:PROTection?MAX**).

Message unit separator

When two or more message units are combined into a compound message, separate the units with a semicolon (**STATus:OPERation?;QUEStionable?**).

Root specifier

When it precedes the first header of a message unit, the colon becomes the root specifier. It tells the command parser that this is the root or the top node of the command tree.

Message terminator

A terminator informs SCPI that it has reached the end of a message. Three permitted message terminators are:

- newline (<NL>), decimal 10 or hexadecimal 0X0A in ASCII.
- end or identify (<END>)
- both of the above (<NL><END>).

In the examples of this guide, there is an assumed message terminator at the end of each message.

Command execution rules

- Commands execute in the order that they are presented in the program message.
- An invalid command generates an error and, of course, is not executed.
- Valid commands that precede an invalid command in a multiple command program message are executed.
- Valid commands that follow an invalid command in a multiple command program message are ignored.

1.4 Response Data Type

Character strings returned by query statements may take either of the following forms, depending on the length of the returned string:

- **<CRD>**: character response data. Permits the return of character strings.
- **<AARD>**: arbitrary ASCII response data. Permits the return of undelimited 7-bit ASCII. This data type has an implied message terminator.
- **<SRD>**: string response data. Returns string parameters enclosed in double quotes.
- **<Block>**: arbitrary block data.

Response messages

A response message is the message sent by the instrument to the computer in response to a query command.

Sending a response message

After sending a query command, the response message is placed in the Output Queue. When the instrument is then addressed to talk, the response message is sent from the Output Queue to the computer

Multiple response messages

If you send more than one query command in the same program message, the multiple response messages for all the queries is sent to the computer when the instrument is addressed to talk. The responses are sent in the order that the query commands were sent and are separated by semicolons (;). Items within the same query are separated by commas (.). The following example shows the response message for a program message that contains four single item query commands:

```
0; 1; 1; 0
```

Response message terminator (RMT)

Each response is terminated with an LF (line feed) and EOI (end or identify). The following example shows how a multiple response message is terminated:

```
0; 1; 1; 0; <RMT>
```

Message exchange protocol

Two rules summarize the message exchange protocol:

- **Rule 1:** You must always tell the instrument what to send to the computer.

The following two steps must always be performed to send information from the instrument other computer:

1. Send the appropriate query command(s) in a program message.
2. Address the instrument to talk.

- **Rule 2:** The complete response message must be received by the computer before another program message can be sent to the instrument.

1.5 Command Format

Formats for command display are as follows:

[SOURce[1|2]:]VOLTage:UNIT {VPP|VRMS|DBM}

[SOURce[1|2]:]FREQuency:CENTer

{<frequency>|MINimum|MAXimum|DEFault}

Based on the command syntax, most commands (and certain Parameter) are expressed in both upper and lower cases. Upper case refers to abbreviation of commands. Shorter program line may send commands in abbreviated format. Long-format commands may be sent to ensure better program readability.

For example, both formats of VOLT and VOLTAGE are acceptable in the above syntax statements. Upper or lower case may be used. Therefore, formats of VOLTAGE, volt and Volt are all acceptable. Other formats (such as VOL and VOLTAG) are invalid and will cause errors.

- Parameter options with given command strings are included in the brace ({ }). The brace is not sent along with command strings.
- Vertical stripes (|) separate several parameter options with given command strings. For example, {VPP|VRMS|DBM} indicates that you may assign "APP", "VRMS" or "DBM" in the above commands. Vertical stripes are not sent along with command strings.

- Angle brackets (< >) in the second example indicates that a value must be assigned to the parameter in the brace. For example, the parameter in the angle bracket is <frequency> in the above syntax statements. Angle brackets are not sent along with command strings. You must assign a value (such as "FREQ:CEN 1000") to the parameter, unless you select other options displayed in the syntax (such as "FREQ:CEN MIN").
- Some syntax elements (such as nodes and Parameter) are included in square brackets ([]). It indicates that these elements can be selected and omitted. Angle brackets are not sent along with command strings. If no value is assigned to the optional Parameter, the instrument will select a default value. In the above examples, "SOURce[1|2]" indicates that you may refer to source channel 1 by "SOURce" or "SOURce1" or "SOUR1" or "SOUR". In addition, since the whole SOURce node is optional (in the square bracket), you can refer to the channel 1 by omitting the whole SOURce node. It is because the channel 1 is the default channel for SOURce language node. On the other hand, if you want to refer to channel 2, "SOURce2" or "SOUR2" must be used in the program line.

Colon (:)

It is used to separate key words of a command with the key words in next level. As shown below:

APPL:SIN 455E3,1.15,0.0

In this example, APPLy command assigns a sine wave with frequency of 455 KHz, amplitude of 1.15 V and DC offset of 0.0 V.

Semicolon (;)

It is used to separate several commands in the same subsystem and can also minimize typing. For example, to send the following command string:

TRIG:SOUR EXT; COUNT 10

has the same effect as sending the following two commands:

TRIG:SOUR EXT

TRIG:COUN 10

Question mark (?)

You can insert question marks into a command to query current values of most Parameter. For example, the following commands will trigger to set the count as 10:

TRIG:COUN 10

Then, you may query count value by sending the following command:

TRIG:COUN?

You may also query the allowable minimum or maximum count as follows:

TRIG:COUN?MIN

TRIG:COUN?MAX

Comma (,)

If a command requires several Parameter, then a comma must be used to separate adjacent Parameter.

Space

You must use blank characters, [TAB] or [Space] to separate Parameter with key words of commands.

Common commands (*)

The IEEE-488.2 standard defines a set of common commands that perform functions such as reset, self-test, and status operations. Common commands always start with an asterisk (*) and occupy 3 character sizes, including one or more Parameter. Key words of a command and the first parameter are separated by a space. Semicolon (;) can separate several commands as follows:

***RST; *CLS; *ESE 32; *OPC?**

Command terminator

Command strings sent to the instrument must end with a <Newline> (<NL>) character. IEEE-488 EOI (End or Identify) information can be used as <NL> character to replace termination command string of <NL> character. It is acceptable to place one <NL> after a <Enter>. Termination of command string always resets current SCPI command path to root level.

NOTE

As for every SCPI message with one query sent to the instrument, the instrument will use a <NL> or newline sign (EOI) to terminate response of return. For example, if "DISP:TEXT?" is sent, <NL> will be placed after the returned data string to terminate response. If an SCPI message includes several queries separated by semicolon (such as "DISP?:DISP:TEXT?"), <NL> will terminate response returned after response to the last query. In all cases, the program must read <NL> in response before another command is sent to the instrument, otherwise errors will be caused.

1.6 Data Type

SCPI language defines several data types used for program message and response messages.

- Numerical parameter

Commands requiring numerical parameter support the notations of all common decimal notations, including optional signs, decimal points, scientific notation, etc. Special values of numerical parameter are also acceptable, such as MIN, MAX and DEF. In addition, suffixes for engineering units can also be sent together with numerical parameter (including M, k, m or u). If the command accepts only some specific values, the instrument will automatically round the input parameter to acceptable values. The following commands require numerical parameter of frequency value:

**[SOURce[1|2]:]FREQuency:CENTer
{<Frequency>|MINimum|MAXimum}**

- <NR1>: represents an integer value, such as 273;
- <NR2>: represents a real number in floating-point format, such as .273;
- <NR3>: represents a real number in scientific notation, such as 2.73E+2;
- <Nrf>: The extensible form includes <NR1>, <NR2> and <NR3>;
- <Nrf+>: The extensible decimal form includes <Nrf>, MIN, MAX and DEF. MIN and MAX are the minimum and maximum finite number. Within the range of the parameter definition, DEF is the default of the parameter.

- Discrete parameter

Discrete parameter are used for settings with limited number of

programming values (such as IMMEDIATE, EXTERNAL or BUS). They can use short and long format like key words of commands. They may be expressed in both upper and lower case. The query response always returns uppercase Parameter in short format. The following commands require discrete parameter in voltage unit:

```
[SOURce[1|2]:]VOLTage:UNIT {VPP|VRMS|DBM}
```

- Boolean parameter

Boolean parameter refer to true or false binary conditions. In case of false conditions, the instrument will accept "OFF" or "0". In case of true conditions, the instrument will accept "ON" or "1". In query of Boolean settings, the instrument will always return "0" or "1". Boolean parameter are required by the following commands:

```
DISPlay {OFF|0|ON|1}
```

- ASCII string parameter

String parameter may actually include all ASCII character sets. Character strings must start and end with paired quotation marks; and single quotation marks or double quotation marks are both allowed. Quotation mark separators may also act as one part of a string, they can be typed twice without any character added between them. String parameter is used in the following command:

DISPlay:TEXT <quoted string>

For example, the following commands display message of "WAITING..." (without quotation marks) on the front panel of the instrument.

DISP:TEXT "WAITING..."

Single quotation marks may also be used to display the same message.

DISP:TEXT 'WAITING...'

– **<SPD>**: string program data. String parameters enclosed in single or double quotes.

– **<CPD>**: character program data.

1.7 Remote Interface Connections

Please refer to user manual for detailed introductions of the remote interface.



Note

If the user want to change the settings of the instrument, for instance, the input setting value, the command SYST:REM must be sent to the instrument after finishing the connection between the instrument and PC.

Chapter2 Programming Examples

This chapter displays the programming examples to remotely control IT8100A/E load using SCPI commands.



Note

If the user want to change the settings of the instrument, for instance, the input setting value, the command SYST:REM must be sent to the instrument after finishing the connection between the instrument and PC.

Example 1: Identifying the Load in Use

You can verify whether you are communicating with the right IT8100A/E load.

To query the identification of the load, send the command:

```
*IDN?
```

To check the power supply error queue, send the command:

```
SYST:ERR?
```

Example 2: Common input commands

```
SYSTem:REMOte
FUNCTion CURRent
CURRent 3
FUNCTion VOLTage
VOLTage 10
FUNCTion POWer
POWer 10
INPUt ON
MEASure:VOLTage?
MEASure:CURRent?
MEASure:POWer?
```

Example 3: Programming Transients

Transient operation is used to synchronize input changes with internal or external trigger signals, and simulate loading conditions with precise control of timing, duration, and slew. The following transient modes can be generated:

Continuous Transients

Use the following commands to program continuous transients:

```
SYSTem:REMOte
TRANSient:MODE CONTInuous
TRANSient:COUNt 10
CURRent:TRANSient:ALEVel 5
CURRent:TRANSient:AWIDth 0.6mS
CURRent:TRANSient:BLEVel 10
CURRent:TRANSient:BWIDth 0.4mS
TRIGger:TRANSient:SOURce BUS
FUNCTion:MODE TRANSient
INPUt ON
```

TRIGger:TRANSient

Pulse Transients

Use the following commands to program pulsed transients:

```
SYSTem:REMOte
TRANSient:MODE PULSe
CURRENT:TRANSient:ALEVel 10
CURRENT:TRANSient:BLEVel 5
CURRENT:TRANSient:AWIDth 10mS
TRIGger:TRANSient:SOURce BUS
FUNCTION:MODE TRANSient
INPUT ON
TRIGger:TRANSient
```

Toggled Transients

Use the following commands to program toggled transients:

```
SYSTem:REMOte
TRANSient:MODE TOGGLE
CURRENT:TRANSient:ALEVel 10
CURRENT:TRANSient:BLEVel 5
TRIGger:TRANSient:SOURce BUS
FUNCTION:MODE TRANSient
INPUT ON
TRIGger:TRANSient
```

Example 4: Programming Lists

The following procedure shows how to generate a simple 6-step list of current changes.

```
SYSTem:REMOte
LIST:FUNCTION:TYPE CURRENT
LIST:COUNT 10
LIST:STEP AUTO
LIST:TERMinate:MODE LAST
LIST:SLOP:TYPE RATE
LIST:CURRENT:SLEW:RATE HIGH
LIST:CURRENT:RANGE HIGH
LIST:VOLTage:RANGE HIGH
LIST:CURRENT 2,4,6
LIST:CURRENT:SLEW 1,1,1
LIST:DWELL 5,5,5
LIST:TOUTput:SIGNal OFF,OFF,OFF
LIST:CURRENT:APPend 8,10,12
LIST:CURRENT:SLEW:APPend 1,1,1
LIST:DWELL:APPend 5,5,5
LIST:TOUTput:SIGNal:APPend OFF,OFF,OFF
TRIGger:ARB:SOURce BUS
LIST:FILE:SAVE LOCAL,"list1.csv"
```

```
ARB:MODE LIST
INITiate:CONTinuous:ARB 1
FUNction:MODE ARB
*TRG
```

Example 5: Battery function

```
SYSTem:REMOte
FUNction CURRent
CURRent 10
BATTeRy:DISChargE:CUTOFF:VOLTage:STATe 1
BATTeRy:DISChargE:CUTOFF:VOLTage 5
BATTeRy:DISChargE:CUTOFF:CURRent:STATe 1
BATTeRy:DISChargE:CUTOFF:CURRent 3
BATTeRy:DISChargE:CUTOFF:CAPacity:STATe 1
BATTeRy:DISChargE:CUTOFF:CAPacity 20
BATTeRy:DISChargE:CUTOFF:ENERgy:STATe 1
BATTeRy:DISChargE:CUTOFF:ENERgy 50
BATTeRy:DISChargE:CUTOFF:TIMer:STATe 1
BATTeRy:DISChargE:CUTOFF:TIMer 100
BATTeRy:DISChargE:SAVE LOCAL,"battery1.csv"
BATTeRy:DISChargE:START:CONDtion BUS
BATTeRy:DISChargE ON
INPUt ON
*TRG
```

Example 6: Sequence function

For example, take the LIST waveform current mode.

```
SYSTem:REMOte
ARB:SEQuence:COUNt 1
ARB:SEQuence:TERMinate:MODE LAST
ARB:SEQuence:STEP:FUNCTion:TYPE 0,CURR
ARB:SEQuence:STEP:FUNCTion:SHAPE 0,LIST
ARB:SEQuence:STEP:LIST:SLOPe:TYPE 0,RATE
ARB:SEQuence:STEP:LIST:CURRent:SLEW:RATE 0,HIGH
ARB:SEQuence:STEP:CURRent:RANGe 0,HIGH
ARB:SEQuence:STEP:VOLTage:RANGe 0,HIGH
ARB:SEQuence:STEP:PACing 0,AUTO
ARB:SEQuence:STEP:LIST:PACing 0,AUTO
ARB:SEQuence:STEP:CURRent:LIST:LEVEL 0,0.1,0.2,0.3
ARB:SEQuence:STEP:CURRent:LIST:SLEW 0,0.1,0.1,0.1
ARB:SEQuence:STEP:CURRent:LIST:DWELl 0,1,1,1
ARB:SEQuence:STEP:CURRent:LIST:TOUTput 0,OFF,OFF,OFF
ARB:SEQuence:STEP:CURRent:LIST:LEVel:APPend 0,0.1,0.2,0.3
ARB:SEQuence:STEP:CURRent:LIST:SLEW:APPend 0,0.1,0.1,0.1
ARB:SEQuence:STEP:CURRent:LIST:DWELl:APPend 0,1,1,1
ARB:SEQuence:STEP:CURRent:LIST:TOUTput:APPend 0,OFF,OFF,OFF
ARB:SEQuence:FILE:SAVE LOCAL,"Sequence_list_1.csv"
```

```

TRIGger:ARB:SOURce BUS
ARB:MODE SEQuence
INITiate:CONTInuous:ARB 1
FUNCTion:MODE ARB
*TRG

```

Example 7: EIS function (IT8100A)

```

SYSTem:REMOte
SENSe:IMPedance:DUT:TYPE DUTP
SENSe:IMPedance:CURREnt:PROBe:COEFFicient 10
SENSe:IMPedance:CURREnt:PROBe:PRECision 1
SENSe:IMPedance:SAMPle:CYCLE 10
SENSe:IMPedance:SAMPle:TIME 1
SENSe:IMPedance:SAMPle:CYCLE:DELay 1
SENSe:IMPedance:SAMPle:TIME:DELay 0.1
FUNC CCSine
CURREnt:RANGE LOW
CURREnt:SINusoid:OFFSet 2
CURREnt:SINusoid:AMPLitude 0.5
IMPedance:ZERO:ADJust:RANGE LOW,0
IMPedance:ZERO:ADJust:RANGE MID,1
IMPedance:ZERO:ADJust:RANGE HIGH,0
IMPedance:FREQuency:SWEep:MODE LOGarithm
IMPedance:FREQuency:SWEep:START 100
IMPedance:FREQuency:SWEep:STOP 20000
IMPedance:FREQuency:SWEep:PDECade 100

IMPedance:ZERO:ADJust // Execute zero calibration.
Wait until zero calibration is completed before executing the next
command. During zero calibration, use IMPedance:ZERO:ADJust:ERTime?
to query the remaining time.
EIS:CURREnt:MODE SWEep
EIS:CURREnt:LIST:POINTS 3
EIS:CURREnt:RANGE LOW
EIS:CURREnt:LIST:STEP:OFFSet 1,1
EIS:CURREnt:LIST:STEP:OFFSet 2,2
EIS:CURREnt:LIST:STEP:OFFSet 3,3
EIS:CURREnt:LIST:STEP:AMPLitude 1,0.5
EIS:CURREnt:LIST:STEP:AMPLitude 2,0.5
EIS:CURREnt:LIST:STEP:AMPLitude 3,0.5
EIS:FREQuency:MODE SWEep
EIS:FREQuency:SWEep:MODE LOGarithm
EIS:FREQuency:SWEep:START 100
EIS:FREQuency:SWEep:STOP 20000
EIS:FREQuency:SWEep:PDECade 100
INITiate:EIS

```

Chapter3 INITiate Subsystem

INITiate[:IMMediate]:TRANsient

The command initiates the transient trigger system.

Command Syntax

INITiate[:IMMediate]:TRANsient

Parameter

None

Defaults

None

Example

INIT:TRAN

Return Parameters

None

INITiate:CONTInuous:TRANsient <Bool>

The command continuously initiates the transient trigger system. This allows multiple triggers to generate multiple input transients with no intermediate commands. The enabled state is ON (1); the disabled state is OFF (0). With continuous triggering disabled, the trigger system must be initiated for each trigger using the INITiate:TRANsient command.

Command Syntax

INITiate:CONTInuous:TRANsient <Bool>

Parameter

Bool
0|OFF|1|ON

Defaults

1

Example

INIT:CONT:TRAN 1

Return Parameters

Bool

INITiate[:IMMediate]:DLOG <"filename">

Initialize the DLOG function.

Command Syntax

INITiate[:IMMediate]:DLOG <"filename">

Parameter

SPD

Defaults

None

Example

INIT:DLOG "Test.csv"

Return Parameters

SPD

INITiate[:IMMediate]:ELOG

Initialize the ELOG function.

Command Syntax

INITiate[:IMMediate]:ELOG

Parameter

None

Defaults

None

Example

INIT:ELOG

Return Parameters

None

INITiate[:IMMediate]:ARB

The command initiates the ARB trigger system.

Command Syntax

INITiate[:IMMediate]:ARB

Parameter

None

None

Defaults

None

Example

INIT:ARB

Return Parameters

None

INITiate[:IMMediate]:SWEep

The command initiates the sweep trigger system.

Command Syntax

INITiate[:IMMediate]:SWEep

Parameter

None

Defaults

None

Example

INIT:SWE

Return Parameters

None

INITiate:CONTInuous:ARB <Bool>

Continuously trigger ARB.

Command Syntax

INITiate:CONTInuous:ARB <Bool>

ParameterBOOL
0|OFF|1|ON**Defaults**

1|ON

Example

INIT:CONT:ARB 1

Return Parameters

BOOL

INITiate:CONTInuous:SWEep <Bool>

Continuously trigger Sweep.

Command Syntax

INITiate:CONTinuous:SWEep <Bool>

Parameter

BOOL
0|OFF|1|ON

Defaults

1|ON

Example

INIT:CONT:SWE 1

Return Parameters

BOOL

INITiate:EIS

Initialize operation of the EIS function.

Command Syntax

INITiate:EIS

Parameter

None

Defaults

None

Example

INIT:EIS

Return Parameters

None

INITiate:IMPedance

Initialize the impedance measurement function.

Command Syntax

INITiate:IMPedance

Parameter

None

Defaults

None

Example

INIT:IMP

Return Parameters

None

Chapter4 STATus Subsystem

Status register programming lets you determine the operating condition of the instrument at any time. The instrument has three groups of status registers; Operation, Questionable, and Standard Event. The Operation and Questionable status groups each consist of the Condition, Enable, and Event registers as well as NTR and PTR filters.

Status Register

The Operation and Questionable status groups use four different types of registers to track qualify, flag, and enable instrument events. The Standard Event group only uses Event and Enable registers.

- A Condition register continuously monitors the state of the instrument. The bits in the condition register are updated in real time and the bits are not latched.
- An PTR/NTR register qualifies the signal that passes to the event register. When a PTR bit is set, signals with positive edge transition pass to the event register. When an NTR bit is set, signals with a negative edge transition pass to the event register. When both bits are set, all signal pass. When neither bits are set, no signals pass.
- An Event register latches transitions that pass through the PTR and NTR registers. When an event bit is set, it remains set until the Event register is read. Reading the Event register clears it.
- An Enable register defines which bits in the event register will be reported to the Status Byte register. You can write to or read from an enable register.

Operation Status Group

These registers record signals that occur during normal operation. The groups consist of a Condition, PTR/NTR, Event, and Enable register.

Questionable Status Group

These registers record signals that indicate abnormal operation. The groups consist of a Condition, PTR/NTR, Event, and Enable register.

Standard Event Status Group

These registers are programmed by Common commands. The group consists of an Event and Enable register. The Standard Event event register latches events relating to communication status. It is a read-only register that is cleared when read. The Standard Event enable register functions similarly to the enable registers of the Operation and Questionable status groups.

Status Byte Register

This register summarizes the information from all other status groups as defined in the IEEE 488.2 Standard Digital Interface for Programmable Instrumentation.

Master Status Summary and Request for Service Bits

MSS is a real-time (unlatched) summary of all Status Byte register bits that are enabled by the Service Request Enable register. MSS is set whenever the instrument has one or more reasons for requesting service. ***STB?** reads the MSS in bit position 6 of the response but does not clear any of the bits in the

Status Byte register.

The RQS bit is a latched version of the MSS bit. Whenever the instrument requests service, it sets the SRQ interrupt line true and latches RQS into bit 6 of the Status Byte register. When the controller does a serial poll, RQS is cleared inside the register and returned in bit position 6 of the response. The remaining bits of the Status Byte register are not disturbed.

Error and Output Queues

The Error Queue is a first-in, first-out (FIFO) data register that stores numerical and textual description of an error or event. Error messages are stored until they are read with **SYSTEM:ERROR?**. If the queue overflows, the last error/event in the queue is replaced with error -350, "Queue overflow". The Output Queue is a first-in, first-out (FIFO) data register that stores messages until the controller reads them.

Bit Assignments

Questionable status register			
Mnemonic	Bit	Value Bit Weight	Meaning
OV	0	1	Overvoltage
OC	1	2	Overcurrent
OP	2	4	Overpower
OT1	3	8	Overtemperature
OT2	4	16	Overtemperature
UV	5	32	Undervoltage
VF	6	64	Voltage fault: local reverse connection or out-of-range voltage.
Errsense	7	128	Sense fault
Hardware	8	256	Hardware fault
PS	9	512	Fault protection bit
UVI	10	1024	Low voltage input disabled
LIVE	11	2048	Output disabled by Live protection, output stopped but on/off state unchanged.
LATCHING	12	4096	Output disabled by latch protection.
WDOG	13	8192	Output disabled by watchdog protection.
Plimit	14	16384	Input is limited by the positive power limit.
Multi-Host	15	32768	Multiple master devices configured in parallel mode.
OSC	16	65536	Current oscillation
PVF	17	131072	Large voltage difference between master and slave in parallel mode.
OT3	18	262144	Inlet overtemperature.
Operating Status Bits			
CC	0	1	Constant Current mode
CV	1	2	Constant Voltage mode
CR	2	4	Constant Resistance mode
CP	3	8	Constant Power mode
CE	4	16	Circuit simulation mode
ONOFF	5	32	Instrument output off.
SH	6	64	Short circuit
TRAN-WTG	7	128	Transient system waiting for trigger.
DLOG-WTG	8	256	DLOG/ELOG system waiting for trigger.

SWEEP-WTG	9	512	SWEEP system waiting for trigger.
ARB-WTG	10	1024	ARB system waiting for trigger.
TRAN-Active	11	2048	Transient system running.
DLOG-Active	12	4096	DLOG/ELOG system running.
SWEEP-Active	13	8192	SWEEP system running.
ARB-Active	14	16384	ARB system running.
Source-WTG	15	32768	Fix/Pulse mode waiting for trigger after setpoint change.
Source-Active	16	65536	Fix/Pulse mode executing output after setpoint change.

STATus:OPERation[:EVENT]?

Query the value of the Operation Event Register. This read-only register stores (latches) all events filtered by NTR and PTR filters. Reading this register clears it.

Command Syntax

STATus:OPERation[:EVENT]?

Parameter

None

Defaults

None

Example

STATus:OPERation?

Return Parameters

NR1

STATus:OPERation:CONDition?

Query the Condition Register of the Operation Status group. This read-only register reflects the real-time (non-latched) status. Bits are cleared when the condition clears. The return value is a binary-weighted sum of all bits.

Command Syntax

STATus:OPERation:CONDition?

Parameter

None

Defaults

None

Example

STATus:OPERation:CONDition?

Return Parameters

NR1

STATus:OPERation:ENABLE<value>

Set and query the bits in the Enable Register of the Operation Status group. This register is a mask used to enable specific bits in the Operation Event Register, affecting the OPER bit in the status byte register. STATus:PRESet clears all bits in this register.

Command Syntax

STATus:OPERation:ENABLE<value>

Parameter

NR1
0-0x7ffffff

Defaults

0|OFF

Example

STATus:OPERation:ENABLE 24

Query Syntax

STATus:OPERation:ENABLE?

Return Parameters

CPD

STATus:OPERation:NTRansition<value>

Set and query the NTR (Negative Transition Register) value. It acts as a polarity filter between the condition and event registers. When a bit is set to 1, a 1→0 transition in the corresponding bit of the condition register sets the event register bit. STATus:PRESet clears all NTR bits.

Command Syntax

STATus:OPERation:NTRansition<value>

Parameter

NR1
0-0x7ffffff

Defaults

0

Example

STATus:OPERation:NTRansition 24

Query Syntax

STATus:OPERation:NTRansition?

Return Parameters

NR1

STATus:OPERation:PTRansition<value>

Set and query the PTR (Positive Transition Register) value. It acts as a polarity filter between the condition and event registers. When a bit is set to 1, a 0→1 transition in the corresponding bit of the condition register sets the event register bit. STATus:PRESet sets all PTR bits and clears NTR bits.

Command Syntax

STATus:OPERation:PTRansition<value>

Parameter

NR1
0-0x7ffffff

Defaults

0x7ffffff

Example

STATus:OPERation:PTRansition 24

Query Syntax

STATus:OPERation:PTRansition?

Return Parameters

NR1

STATus:PRESet

Reset all Enable, PTR, and NTR registers.

Command Syntax

STATus:PRESet

Parameter

None

Defaults

None

Example

STATus:PRESet

Return Parameters

None

STATus:QUESTionable[:EVENT]?

Query the Questionable Event Register. This read-only register stores latched event information filtered by PTR/NTR. Reading it clears the value.

Command Syntax

STATus:QUESTionable[:EVENT]?

Parameter

None

Defaults

None

Example

STATus:QUESTionable 24

Return Parameters

NR1

STATus:QUESTionable:CONDition?

Query the Questionable Condition Register. This read-only register reflects real-time questionable status. Bits are not latched and are not cleared by reading.

Command Syntax

STATus:QUESTionable:CONDition?

Parameter

None

Defaults

None

Example

STATus:QUESTionable:CONDition?

Return Parameters

NR1

STATus:QUESTionable:ENABLE<value>

Set/query the enable register for questionable status. It determines which bits in the questionable event register will set the QUES bit in the status byte.
STATus:PRESet clears all bits.

Command Syntax

STATus:QUEStionable:ENABLE<value>

Parameter

NR1
0-0x7ffffff

Defaults

0|OFF

Example

STATus:QUEStionable:ENABLE 24

Query Syntax

STATus:QUEStionable:ENABLE?

Return Parameters

CPD

STATus:QUEStionable:NTRansition<value>

Set/query the NTR (Negative Transition Register) for questionable status. A bit set to 1 causes a 1→0 transition in the condition register to set the event bit. STATus:PRESet sets PTR and clears NTR.

Command Syntax

STATus:QUEStionable:NTRansition<value>

Parameter

NR1
0-0x7ffffff

Defaults

0

Example

STATus:QUEStionable:NTRansition 24

Query Syntax

STATus:QUEStionable:NTRansition?

Return Parameters

NR1

STATus:QUEStionable:PTRansition<value>

Set/query the PTR (Positive Transition Register) for questionable status. A bit set to 1 causes a 0→1 transition in the condition register to set the event bit. STATus:PRESet sets PTR and clears NTR.

Command Syntax

STATus:QUEStionable:PTRansition<value>

Parameter

NR1

0-0x7ffffff

Defaults

0x7ffffff

Example

STATus:QUEStionable:PTRansition 24

Query Syntax

STATus:QUEStionable:PTRansition?

Return Parameters

NR1

Chapter5 INPut&OUTPut Subsystem

These commands control load input, and the INPut and OUTPut commands are equivalent.

<INPut|OUTPut>[:STATe] <BOOL>

Load input on and off.

Command Syntax

<INPut|OUTPut>[:STATe] <BOOL>

Parameter

BOOL
ON|OFF|1|0

Defaults

0

Example

OUTP 1
OUTP?
INP 1
INP?

Query Syntax

<INPut|OUTPut>[:STATe]?

Return Parameters

0|1

<INPut|OUTPut>:INHibit:MODE <CPD>

Set the electronic load input method, used in conjunction with [SOURce:]DIGital:PIN1:FUNctIon.

Command Syntax

<INPut|OUTPut>:INHibit:MODE <CPD>

Parameter

CPD
OFF|LIVE|LATChing

Defaults

OFF

Example

```
OUTP:INH:MODE LIVE
OUTP:INH:MODE?
INP:INH:MODE LATC
INP:INH:MODE?
```

Query Syntax

```
<INPut|OUTPut>:INHibit:MODE?
```

Return Parameters

```
CRD
```

<INPut|OUTPut>:PROTection:CLEAr

This command is used to clear the corresponding protection latch and restore the electronic load input to the state before the protection was triggered.

Command Syntax

```
<INPut|OUTPut>:PROTection:CLEAr
```

Parameter

```
None
```

Defaults

```
None
```

Example

```
INP:PROT:CLE
OUTP:PROT:CLE
```

Return Parameters

```
None
```

<INPut|OUTPut>:PON:STATe <CPD>

Set the instrument power-on state.

- RST: The instrument powers on to the *RST default state.
- LAST: The instrument powers on to the state before power-off.
- LAST_OFF: The instrument powers on to the state before power-off, but with the input turned off.

Command Syntax

```
<INPut|OUTPut>:PON:STATe <CPD>
```

Parameter

```
CPD
RST|LAST|LOFF
```

Defaults

RST

Example

```
INP:PON:STAT RST
INP:PON:STAT?
OUTP:PON:STAT LAST
OUTP:PON:STAT?
```

Query Syntax

<INPut|OUTPut>:PON:STATe?

Return Parameters

CRD

<INPut|OUTPut>:SHORT[:STATe] <BOOL>

Set the short circuit mode switch of the electronic load.

Note: The short circuit mode can take effect under all operating modes of the electronic load.

Command Syntax

<INPut|OUTPut>:SHORT[:STATe] <BOOL>

Parameter

```
BOOL
ON|OFF|1|0
```

Defaults

0|OFF

Example

```
INP:SHOR 1
INP:SHOR?
OUTP:SHOR 0
OUTP:SHOR?
```

Query Syntax

<INPut|OUTPut>:SHORT[:STATe]?

Return Parameters

0|1

<INPut|OUTPut>:PROTection:WDOG[:STATe] <BOOL>

Enable/disable the software watchdog.

Command Syntax

<INPut|OUTPut>:PROTection:WDOG[:STATe] <BOOL>

Parameter

BOOL
ON|OFF|1|0

Defaults

0|OFF

Example

INP:PROT:WDOG 1
INP:PROT:WDOG?
OUTP:PROT:WDOG 0
OUTP:PROT:WDOG?

Query Syntax

<INPut|OUTPut>:PROTection:WDOG[:STATe]?

Return Parameters

0|1

<INPut|OUTPut>:PROTection:WDOG:DELaY <NRf+>

Set the timeout period for the software watchdog.

Command Syntax

<INPut|OUTPut>:PROTection:WDOG:DELaY <NRf+>

Parameter

NRf+
1-3600s| MINimum|MAXimum|DEFault]

Defaults

60

Example

INP:PROT:WDOG:DEL 10
INP:PROT:WDOG:DEL?
OUTP:PROT:WDOG:DEL 20
OUTP:PROT:WDOG:DEL?

Query Syntax

<INPut|OUTPut>:PROTection:WDOG:DELaY?

Return Parameters

NR3

Chapter6 SOURce Subsystem

[SOURce:]FUNCTION <CPD>

Set the constant mode of the electronic load.

Command Syntax

[SOURce:]FUNCTION <CPD>

Parameter

CPD
CURRent|VOLTage|POWer|RESistance|CCCV|CCCR|CRCV|CPCV|AUTO|CE|CCSine|CCPulse|TABLE|CRLed

Defaults

None

Example

FUNC CURR
FUNC?

Query Syntax

[SOURce:]FUNCTION?

Return Parameters

CRD



Note

The IT8100E series do not support advanced modes such as CE, CC Pulse, CC Sine, and Table.

[SOURce:]MODE <CPD>

Set the operating mode of the electronic load, identical to the [SOURce:]FUNCTION command.

Command Syntax

[SOURce:]MODE <CPD>

Parameter

CPD
CURRent|VOLTage|POWer|RESistance|CCCV|CCCR|CRCV|CPCV|AUTO|CE|CCSine|CCPulse|TABLE|CRLed

Defaults

None

Example

```
MODE VOLT
MODE?
```

Query Syntax

```
[SOURce:]MODE?
```

Return Parameters

```
CRD
```



Note

The IT8100E series do not support advanced modes such as CE, CC Pulse, CC Sine, and Table.

[SOURce:]MODE:CHANge:AUTO:OFF <BOOL>

Set input state behavior when switching mode. On: Input turns off automatically. Off: Input remains unchanged.

Command Syntax

```
[SOURce:]MODE:CHANge:AUTO:OFF <BOOL>
```

Parameter

```
BOOL
0|OFF|1|ON
```

Defaults

```
1
```

Example

```
MODE:CHAN:AUTO:OFF 1
MODE:CHAN:AUTO:OFF?
```

Query Syntax

```
[SOURce:]MODE:CHANge:AUTO:OFF?
```

Return Parameters

```
BOOL
```

[SOURce:]FUNCTION:MODE <FIXed|ARB|TRANSient|SWEep|IMPedance>

Set the function mode.

Command Syntax

```
[SOURce:]FUNCTION:MODE <FIXed|ARB|TRANSient|SWEep|IMPedance>
```

Parameter

CPD
FIXed|ARB|TRANSient|SWEep|IMPedance

Defaults

None

Example

FUNC:MODE TRAN
FUNC:MODE?

Query Syntax

[SOURce:]FUNCTION:MODE?

Return Parameters

CRD

[SOURce:]ARB:MODE <STEP|LIST|CDARb|SEQuense>

Set the ARB waveform mode.

Command Syntax

[SOURce:]ARB:MODE <STEP|LIST|CDARb|SEQuense>

Parameter

CPD
STEP|LIST|CDARb|SEQuense

Defaults

None

Example

ARB:MODE LIST
ARB:MODE?

Query Syntax

[SOURce:]ARB:MODE?

Return Parameters

CRD

**[SOURce:]CURRENT[:LEVel][:IMMediate][:AMPLitude]
<current>| MINimum|MAXimum|DEFAULT**

Set current value of electronic load. Only applicable to CC|CVCC|CRCC|AUTO.

Command Syntax

[SOURce:]CURRENT[:LEVel][:IMMediate][:AMPLitude] <current>|

MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each current range.

Defaults

0

Example

CURR 1
CURR?

Query Syntax

[SOURce:]CURRent[:LEVel][:IMMediate][:AMPLitude]?
[MINimum|MAXimum|DEFault]

Return Parameters

NRf

[SOURce:]CURRent[:LEVel]:TRIGGered[:AMPLitude] <current>| MINimum|MAXimum]

Set trigger current value of electronic load. Only applicable to CC in step mode.

Command Syntax

[SOURce:]CURRent[:LEVel]:TRIGGered[:AMPLitude] <current>|
MINimum|MAXimum]

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each current range.

Defaults

0

Example

CURR:TRIG 1
CURR:TRIG?

Query Syntax

[SOURce:]CURRent[:LEVel]:TRIGGered[:AMPLitude]?
[MINimum|MAXimum|Default]

Return Parameters

NRf

[SOURce:]CURRent:LIMit[:POSitive][:IMMediate][:AMPLitude] <current>|MINimum|MAXimum|Default

Set current limit value of electronic load.

Command Syntax

[SOURce:]CURRent:LIMit[:POSitive][:IMMediate][:AMPLitude]
<current>|MINimum|MAXimum|Default

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each current range.

Defaults

Default value for each resistance range

Example

CURR:LIM 60
CURR:LIM?

Query Syntax

[SOURce:]CURRent:LIMit[:POSitive][:IMMediate][:AMPLitude]?
[MINimum|MAXimum,]

Return Parameters

NRf

[SOURce:]CURRent:RANGe <current>|MINimum|MAXimum|HIGH|MID

Set current range.

Command Syntax

[SOURce:]CURRent:RANGe <current>|MINimum|MAXimum|HIGH|MID

Parameter

NRf+
Each current range.

Defaults

Max current range

Example

CURR:RANG 24
CURR:RANG?

Query Syntax

[SOURce:]CURRent:RANGe? [MINimum|MAXimum]

Return Parameters

NRf

[SOURce:]CURRent:SLEW[:POSitive][:IMMediate] <slew rate>|MINimum|MAXimum|INFinity

Set current rising slew rate. Note: INFinity is equivalent to MAXimum.

Command Syntax

[SOURce:]CURRent:SLEW[:POSitive][:IMMediate] <slew
rate>|MINimum|MAXimum|INFinity

Parameter

NRf+

MINimum|MAXimum|INFinity

Slew rate Min|Max|Max values for each current range.

Defaults

Default slew rate for each current range.

Example

CURR:SLEW 1

CURR:SLEW?

Query Syntax

[SOURce:]CURRent:SLEW[:POSitive][:IMMediate]?

Return Parameters

NRf

[SOURce:]CURRent:SLEW:TIME[:POSitive][:IMMediate] <slew rate>|MINimum|MAXimum|DEFault

Set current rising slew time.

Command Syntax

[SOURce:]CURRent:SLEW:TIME[:POSitive][:IMMediate] <slew
rate>|MINimum|MAXimum|DEFault

Parameter

NRf+

2us-10s

Defaults

1ms

Example

CURR:SLEW:TIME 10ms
CURR:SLEW:TIME?

Query Syntax

[SOURce:]CURRent:SLEW:TIME[:POSitive][:IMMEDIATE]?

Return Parameters

NRf

[SOURce:]CURRent:SLEW:NEGative[:IMMEDIATE] <slew rate>|MINimum|MAXimum|INFinity

Set current falling slew rate. Note: INFinity is equivalent to MAXimum.

Command Syntax

[SOURce:]CURRent:SLEW:NEGative[:IMMEDIATE] <slew
rate>|MINimum|MAXimum|INFinity

Parameter

NRf+
MINimum|MAXimum|INFinity
Slew rate Min|Max|Max values for each current range.

Defaults

Default slew rate for each current range.

Example

CURR:SLEW:NEG 1
CURR:SLEW:NEG?

Query Syntax

[SOURce:]CURRent:SLEW:NEGative[:IMMEDIATE]?

Return Parameters

NRf

[SOURce:]CURRent:SLEW:TIME:NEGative[:IMMEDIATE] <slew rate>|MINimum|MAXimum|DEFault

Set current falling slew time.

Command Syntax

[SOURce:]CURRent:SLEW:TIME:NEGative[:IMMEDIATE] <slew
rate>|MINimum|MAXimum|DEFault

Parameter

NRf+

2us-10s

Defaults

1ms

Example

CURR:SLEW:TIME:NEG 10ms

CURR:SLEW:TIME:NEG?

Query Syntax

[SOURce:]CURRent:SLEW:TIME:NEGative[:IMMediate]?

Return Parameters

NRf

[SOURce:]CURRent:SLEW:RATE <HIGH|LOW>

Set slew rate speed in current mode.

Command Syntax

[SOURce:]CURRent:SLEW:RATE <HIGH|LOW>

Parameter

CPD

HIGH|LOW

Defaults

HIGH

Example

CURR:SLEW:RATE HIGH

CURR:SLEW:RATE?

Query Syntax

[SOURce:]CURRent:SLEW:RATE?

Return Parameters

RPD

[SOURce:]CURRent:SLEW:TYPE <RATE|TIME>

Set slew rate type in current mode.

Command Syntax

[SOURce:]CURRent:SLEW:TYPE <RATE|TIME>

Parameter

CPD

RATE|TIME

Defaults

RATE

Example

CURR:SLEW:TYPE RATE
CURR:SLEW:TYPE?

Query Syntax

[SOURce:]CURRent:SLEW:TYPE?

Return Parameters

RPD

[SOURce:]CURRent:SLEW:COUPle <BOOL>

Set slew coupling switch. CURRent:SLEW:MAXimum is coupled with CURRent:SLEW.

Command Syntax

[SOURce:]CURRent:SLEW:COUPle <BOOL>

Parameter

Bool
0|OFF|1|ON

Defaults

None

Example

CURR:SLEW:COUP 1
CURR:SLEW:COUP?

Query Syntax

[SOURce:]CURRent:SLEW:COUPle?

Return Parameters

Bool

[SOURce:]CURRent:SLEW[:POSitive]:MAXimum <BOOL>

Set override switch for max rising slew rate in current mode. ON: Use max, OFF: Use CURRent:SLEW value.

Command Syntax

[SOURce:]CURRent:SLEW[:POSitive]:MAXimum <BOOL>

Parameter

Bool
0|OFF|1|ON

Defaults

None

Example

CURR:SLEW:MAX 1
CURR:SLEW:MAX?

Query Syntax

[SOURce:]CURRent:SLEW[:POSitive]:MAXimum?

Return Parameters

Bool

[SOURce:]CURRent:SLEW:NEGative:MAXimum <BOOL>

Set override switch for max falling slew rate in current mode. ON: Use max, OFF: Use CURRent:SLEW value.

Command Syntax

[SOURce:]CURRent:SLEW:NEGative:MAXimum <BOOL>

Parameter

Bool
0|OFF|1|ON

Defaults

None

Example

CURR:SLEW:NEG:MAX 1
CURR:SLEW:NEG:MAX?

Query Syntax

[SOURce:]CURRent:SLEW:NEGative:MAXimum?

Return Parameters

Bool

[SOURce:]CURRent:FILTer:BANDwidth:COEFficient

Sets the current bandwidth coefficient for the CP and CR control loops. Increasing the value speeds up the response but may cause instability; decreasing it improves stability but slows down the response.

Command Syntax

[SOURce:]CURRent:FILTer:BANDwidth:COEFficient

Parameter

NRf+
0.1-10

Defaults

1

Example

CURR:FILT:BAND:COEF 1
CURR:FILT:BAND:COEF?

Query Syntax

[SOURce:]CURRent:FILTer:BANDwidth:COEFficient?

Return Parameters

NRf

**[SOURce:]VOLTage[:LEVel][:IMMediate][:AMPLitude]
<voltage>|MINimum|MAXimum|DEFault**

Set voltage value of electronic load. Only for CV|CVCC|CVCR|CVCP|AUTO.

Command Syntax

[SOURce:]VOLTage[:LEVel][:IMMediate][:AMPLitude]
<voltage>|MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each voltage range.

Defaults

0

Example

VOLT 80
VOLT?

Query Syntax

[SOURce:]VOLTage[:LEVel][:IMMediate][:AMPLitude]

Return Parameters

NRf

[SOURce:]VOLTage[:LEVel]:TRIGgered[:AMPLitude] <voltage>| MINimum|MAXimum

Set trigger voltage. Only available in CV step mode.

Command Syntax

[SOURce:]VOLTage[:LEVel]:TRIGgered[:AMPLitude] <voltage>|
MINimum|MAXimum

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each voltage range.

Defaults

0

Example

VOLT:TRIG 50
VOLT:TRIG?

Query Syntax

[SOURce:]VOLTage[:LEVel]:TRIGgered[:AMPLitude]? MINimum|MAXimum

Return Parameters

NRf

[SOURce:]VOLTage:ON

Set Von value. Available in all modes:
CC|CV|CP|CR|CVCC|CVCR|CRCC|CVCP|AUTO.

Command Syntax

[SOURce:]VOLTage:ON

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each voltage range.

Defaults

0

Example

VOLT:ON 10
VOLT:ON?

Return Parameters

NRf

[SOURce:]VOLTage:ON:HYSTeresis[:LEVel]<value> [MINimum|MAXimum|DEFault]

Set and query Von hysteresis voltage.

Command Syntax

[SOURce:]VOLTage:ON:HYSTeresis[:LEVel]<value>
[MINimum|MAXimum|DEFault]

Parameter

NRf+
MINimum|MAXimum|DEFault
0-Von voltage

Defaults

0

Example

VOLT:ON:HYST 1
VOLT:ON:HYST?

Query Syntax

[SOURce:]VOLTage:ON:HYSTeresis[:LEVel]?

Return Parameters

NRf

[SOURce:]VOLTage:LATCh[:STATe]

Set Von mode: 0 = living mode, 1 = latch mode.

Command Syntax

[SOURce:]VOLTage:LATCh[:STATe]

Parameter

Bool
0|OFF|1|ON

Defaults

None

Example

VOLT:LATC 1
VOLT:LATC?

Query Syntax

[SOURce:]VOLTage:LATCh[:STATe]?

Return Parameters

Bool

[SOURce:]VOLTage:RANGe <level>|MINimum|MAXimum

Set voltage range.

Command Syntax

[SOURce:]VOLTage:RANGe <level>|MINimum|MAXimum

Parameter

NRf+
Each voltage range.

Defaults

Max voltage range

Example

VOLT:RANG 30
VOLT:RANG?

Query Syntax

[SOURce:]VOLTage:RANGe?

Return Parameters

NRf

[SOURce:]VOLTage:BWIDth:RANGe FAST|MEDIum|SLOW

Set and query loop bandwidth.

Command Syntax

[SOURce:]VOLTage:BWIDth:RANGe FAST|MEDIum|SLOW

Parameter

CPD
FAST|MEDIum|SLOW

Defaults

None

Example

VOLT:BWID FAST

VOLT:BWID?

Query Syntax

[SOURce:]VOLTage:BWIDth:RANGe?

Return Parameters

CRD

[SOURce:]REMOte:SENSe[:STATe] 0|OFF|1|ON

Set sense function on/off.

Command Syntax

[SOURce:]REMOte:SENSe[:STATe] 0|OFF|1|ON

Parameter

Bool
0|OFF|1|ON

Defaults

None

Example

REM:SENS 1
REM:SENS?

Query Syntax

[SOURce:]REMOte:SENSe[:STATe]?

Return Parameters

Bool

[SOURce:]RESistance[:LEVel][:IMMediate][:AMPLitude] <resistance>|MINimum|MAXimum|DEFault

Set resistance value. Only for CR|CVCR|CRCC|AUTO.

Command Syntax

[SOURce:]RESistance[:LEVel][:IMMediate][:AMPLitude]
<resistance>|MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each resistance range.

Defaults

Max value of current resistance range

Example

RES 100
RES?

Query Syntax

[SOURce:]RESistance[:LEVel][:IMMediate][:AMPLitude]?
[MINimum|MAXimum|DEFault]

Return Parameters

NRf

[SOURce:]RESistance[:LEVel]:TRIGgered[:AMPLitude] <resistance>|MINimum|MAXimum

Set resistance trigger value. Only for CR in step mode.

Command Syntax

[SOURce:]RESistance[:LEVel]:TRIGgered[:AMPLitude]
<resistance>|MINimum|MAXimum

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each resistance range.

Defaults

Max value of current resistance range

Example

RES:TRIG 100
RES:TRIG?

Query Syntax

[SOURce:]RESistance[:LEVel]:TRIGgered[:AMPLitude]? [MINimum|MAXimum]

Return Parameters

NRf

[SOURce:]RESistance:SLEW[:POSitive][:IMMediate] <slew rate>|MINimum|MAXimum|INFinity

Set resistance mode rising slew rate. INFinity = MAXimum.

Command Syntax

[SOURce:]RESistance:SLEW[:POSitive][:IMMediate] <slew
rate>|MINimum|MAXimum|INFinity

Parameter

NRf+
MINimum|MAXimum|DEFault
Slew rate Min|Max|Max values for each current range.

Defaults

Max slew rate of current range

Example

RES:SLEW 0.1
RES:SLEW?

Query Syntax

[SOURce:]RESistance:SLEW[:POSitive][:IMMediate]?
MINimum|MAXimum|INFinity

Return Parameters

NRf

**[SOURce:]RESistance:SLEW:NEGative[:IMMediate]
<slew rate>|MINimum|MAXimum|INFinity**

Set resistance mode falling slew rate. INFinity = MAXimum.

Command Syntax

[SOURce:]RESistance:SLEW:NEGative[:IMMediate] <slew
rate>|MINimum|MAXimum|INFinity

Parameter

NRf+
MINimum|MAXimum|DEFault
Slew rate Min|Max|Max values for each current range.

Defaults

Max slew rate of current range

Example

COND:SLEW:NEG 0.1
COND:SLEW:NEG?

Query Syntax

[SOURce:]RESistance:SLEW:NEGative[:IMMediate]?
MINimum|MAXimum|INFinity

Return Parameters

NRf

[SOURce:]RESistance:SLEW:RATE <HIGH|LOW>

Set slew rate speed in resistance mode.

Command Syntax

[SOURce:]RESistance:SLEW:RATE <HIGH|LOW>

Parameter

CPD
HIGH|LOW

Defaults

HIGH

Example

RES:SLEW:RATE HIGH
RES:SLEW:RATE?

Query Syntax

[SOURce:]RESistance:SLEW:RATE?

Return Parameters

HIGH|LOW

[SOURce:]RESistance:RANGe <level>|MINimum|MAXimum

Set resistance range.

Command Syntax

[SOURce:]RESistance:RANGe <level>|MINimum|MAXimum

Parameter

NRf+
Each resistance range.

Defaults

Max resistance range

Example

RES:RANG 50
RES:RANG?

Query Syntax

[SOURce:]RESistance:RANGe?

Return Parameters

NRf

[SOURce:]CRLed:RESistance[:LEVel]

Set CRLed resistance value.

Command Syntax

[SOURce:]CRLed:RESistance[:LEVel]

Parameter

NRf+

MINimum|MAXimum|DEFault

Min|Max|Def values for each resistance range.

Defaults

Max value of current resistance range

Example

CRL:RES 100

CRL:RES?

Query Syntax

[SOURce:]CRLed:RESistance[:LEVel]?

Return Parameters

NRf

[SOURce:]CRLed:VDRop

Set CRLed conduction voltage.

Command Syntax

[SOURce:]CRLed:VDRop

Parameter

NRf+

MINimum|MAXimum|DEFault

Max values for max voltage range.

Defaults

0

Example

CRL:VDR 10

CRL:VDR?

Query Syntax

[SOURce:]CRLed:VDRop?

Return Parameters

NRf

[SOURce:]RESistance:LED[:STATe]

Set CRLed mode state.

Command Syntax

[SOURce:]RESistance:LED[:STATe]

Parameter

Bool
0|OFF|1|ON

Defaults

None

Example

RES:LED 1
RES:LED?

Query Syntax

[SOURce:]RESistance:LED[:STATe]?

Return Parameters

Bool

[SOURce:]POWer[:LEVeL][:IMMediate][:AMPLitude] <power>| MINimum|MAXimum|DEFault

Set power value. Only for CP|CVCP|AUTO.

Command Syntax

[SOURce:]POWer[:LEVeL][:IMMediate][:AMPLitude] <power>|
MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each power range.

Defaults

Max value of current power range

Example

POW 100
POW?

Query Syntax

[SOURce:]POWer[:LEVel][:IMMediate][:AMPLitude]?
[MINimum|MAXimum|DEFault]

Return Parameters

NRf

[SOURce:]POWer[:LEVel]:TRIGgered[:AMPLitude] <power| MINimum|MAXimum

Set power trigger value. Used in step mode.

Command Syntax

[SOURce:]POWer[:LEVel]:TRIGgered[:AMPLitude] <power|
MINimum|MAXimum

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each power range.

Defaults

Max value of current power range

Example

POW:TRIG 100
POW:TRIG?

Query Syntax

[SOURce:]POWer[:LEVel]:TRIGgered[:AMPLitude]? [MINimum|MAXimum]

Return Parameters

NRf

[SOURce:]POWer:SLEW[:POSitive][:IMMediate]<value >|MINimum|MAXimum|INFinity

Set power mode rising slew rate. INFinity = MAXimum.

Command Syntax

[SOURce:]POWer:SLEW[:POSitive][:IMMediate]<value>|MINimum|MAXimum|
NFinity

Parameter

NRf+
MINimum|MAXimum|DEFault
Slew rate Min|Max|Max values for each current range.

Defaults

Max slew rate of current range

Example

POW:SLEW 1
POW:SLEW?

Query Syntax

[SOURce:]POWER:SLEW[:POSitive][:IMMediate]? [MINimum|MAXimum]

Return Parameters

NRf

[SOURce:]POWER:SLEW:NEGative[:IMMediate]<value> |MINimum|MAXimum|INFinity

Set power mode falling slew rate. INFinity = MAXimum.

Command Syntax

[SOURce:]POWER:SLEW:NEGative[:IMMediate]<value>|MINimum|MAXimum|INFinity

Parameter

NRf+
MINimum|MAXimum|DEFault
Slew rate Min|Max|Max values for each power range.

Defaults

Max slew rate of current power range

Example

POW:SLEW:NEG 1
POW:SLEW?

Query Syntax

[SOURce:]POWER:SLEW:NEGative[:IMMediate]? [MINimum|MAXimum]

Return Parameters

NRf

[SOURce:]POWER:SLEW:RATE <HIGH|LOW>

Set slew rate speed in power mode.

Command Syntax

[SOURce:]POWER:SLEW:RATE <HIGH|LOW>

Parameter

CPD
HIGH|LOW

Defaults

HIGH

Example

POW:SLEW:RATE HIGH
POW:SLEW:RATE?

Query Syntax

[SOURce:]POWer:SLEW:RATE?

Return Parameters

HIGH|LOW

[SOURce:]POWer:SLEW:COUPle <BOOL>

Set power slew coupling switch. Coupled with POWer:SLEW.

Command Syntax

[SOURce:]POWer:SLEW:COUPle <BOOL>

Parameter

Bool
0|OFF|1|ON

Defaults

None

Example

POW:SLEW:COUP 1
POW:SLEW:COUP?

Query Syntax

[SOURce:]POWer:SLEW:COUPle?

Return Parameters

Bool

**[SOURce:]POWer:SLEW[:POSitive]:MAXimum
<BOOL>**

Override max rising slew in power mode. ON: Use max, OFF: Use POWer:SLEW.

Command Syntax

[SOURce:]POWer:SLEW[:POSitive]:MAXimum <BOOL>

Parameter

Bool
0|OFF|1|ON

Defaults

None

Example

POW:SLEW:MAX 1
POW:SLEW:MAX?

Query Syntax

[SOURce:]POWer:SLEW[:POSitive]:MAXimum?

Return Parameters

Bool

[SOURce:]POWer:SLEW:NEGative:MAXimum <BOOL>

Override max falling slew in power mode. ON: Use max, OFF: Use
POWer:SLEW.

Command Syntax

[SOURce:]POWer:SLEW:NEGative:MAXimum <BOOL>

Parameter

Bool
0|OFF|1|ON

Defaults

None

Example

POW:SLEW:NEG:MAX 1
POW:SLEW:NEG:MAX?

Query Syntax

[SOURce:]POWer:SLEW:NEGative:MAXimum?

Return Parameters

Bool

[SOURce:]POWer:LIMit <power>| MINimum|MAXimum|DEFault

Set power value. Only for CP|CVCP|AUTO.

Command Syntax

[SOURce:]POWer:LIMit <power>| MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each power range.

Defaults

Max value of current power range

Example

POW:LIMit 100
POW:LIMit?

Query Syntax

[SOURce:]POWer:LIMit?

Return Parameters

NRf

[SOURce:]EXTErn:PROGrama[:STATe] <BOOL>

Set external programming state.

Command Syntax

[SOURce:]EXTErn:PROGrama[:STATe] <BOOL>

Parameter

Bool
0|OFF|1|ON

Defaults

None

Example

EXT:PROG 1
EXT:PROG?

Query Syntax

[SOURce:]EXTErn:PROGrama[:STATe]?

Return Parameters

Bool

**[SOURce:]EXTErn:PROGrama:CHANnel:MX
<NR1>,<NRf>**

Query Mx value of external analog input channel.

Command Syntax

[SOURce:]EXTErn:PROGrama:CHANnel:MX <NR1>,<NRf>

Parameter

<NRf>

MIN: 0.001

MAX: Model rated value

DEF: Rated value / 10

Defaults

None

Example

EXT:PROG:CHAN:MX 1,60

EXT:PROG:CHAN:MX? 1

Query Syntax

[SOURce:]EXTErn:PROGrama:CHANnel:MX? <NR1>

Return Parameters

NRf

**[SOURce:]EXTErn:PROGrama:CHANnel:MB
<NR1>,<NRf>**

Set Mb value for each external analog mode channel.

Command Syntax

[SOURce:]EXTErn:PROGrama:CHANnel:MB <NR1>,<NRf>

Parameter

<NRf>

MIN: 0

MAX: Model rated value

DEF: 0

Defaults

None

Example

EXT:PROG:CHAN:MB 1,1
EXT:PROG:CHAN:MB? 1

Query Syntax

[SOURce:]EXTErn:PROGrama:CHANnel:MB? <NR1>

Return Parameters

NRf

[SOURce:]EXTErn:PROGrama:SOURce DVM|ANALog

Select input source for external programming.

Command Syntax

[SOURce:]EXTErn:PROGrama:SOURce DVM|ANALog

Parameter

CPD
DVM|ANALog

Defaults

None

Example

EXT:PROG:SOUR DVM
EXT:PROG:SOUR?

Query Syntax

[SOURce:]EXTErn:PROGrama:SOURce?

Return Parameters

CRD

Chapter7 SOURce Subsystem (IT8100A)

The commands described in this chapter are only applicable to the IT8100A series, the IT8100E series does not support these commands.

[SOURce:]CURRent:PULSe:BASE<value>

Set and query base value in CC Pulse mode.

Command Syntax

[SOURce:]CURRent:PULSe:BASE<value>

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each current range.

Defaults

0

Example

CURR:PULS:BASE 1
CURR:PULS:BASE?

Query Syntax

[SOURce:]CURRent:PULSe:BASE?

Return Parameters

NRf

[SOURce:]CURRent:PULSe:DELay <delay>

Set and query base duration in CC Pulse mode.

Command Syntax

[SOURce:]CURRent:PULSe:DELay <delay>

Parameter

NRf+
MINimum|MAXimum|DEFault
10us-100s

Defaults

10ms

Example

CURR:PULS:DEL 0.1

CURR:PULS:DEL?

Query Syntax

[SOURce:]CURRent:PULSe:DELay

Return Parameters

NRf

[SOURce:]CURRent:PULSe:PRiority <mode>

Set and query output priority in CC Pulse mode.

Command Syntax

[SOURce:]CURRent:PULSe:PRiority <mode>

Parameter

CPD
BASE|PEAK

Defaults

None

Example

CURR:PULS:PRI PEAK
CURR:PULS:PRI?

Query Syntax

[SOURce:]CURRent:PULSe:PRiority

Return Parameters

CRD

[SOURce:]CURRent:PULSe:PEAK<value>

Set and query peak value in CC Pulse mode.

Command Syntax

[SOURce:]CURRent:PULSe:PEAK<value>

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each current range.

Defaults

0

Example

CURR:PULS:PEAK 10
CURR:PULS:PEAK?

Query Syntax

[SOURce:]CURRent:PULSe:PEAK

Return Parameters

NRf

[SOURce:]CURRent:PULSe:WIDTh <width>

Set and query peak duration in CC Pulse mode.

Command Syntax

[SOURce:]CURRent:PULSe:WIDTh <width>

Parameter

NRf+
MINimum|MAXimum|DEFault
10us-100s

Defaults

10ms

Example

CURR:PULS:WIDT 0.1
CURR:PULS:WIDT?

Query Syntax

[SOURce:]CURRent:PULSe:WIDTh

Return Parameters

NRf

[SOURce:]CURRent:PULSe:SUPer:POWer <Bool>

Set and query super power status in CC Pulse mode.

Command Syntax

[SOURce:]CURRent:PULSe:SUPer:POWer <Bool>

Parameter

bool
0|OFF|1|ON

Defaults

0

Example

CURR:PULS:SUP:POW 1
CURR:PULS:SUP:POW?

Query Syntax

[SOURce:]CURRent:PULSe:SUPer:POWer

Return Parameters

Bool

[SOURce:]CURRent:SINusoid:AMPLitude<value>

Set and query amplitude in CC Sine mode. Max = min[(range max - offset)*2, offset*2].

Command Syntax

[SOURce:]CURRent:SINusoid:AMPLitude<value>

Parameter

NRf+
MINimum|MAXimum|DEFault
0-(Max range - offset)*2 or offset*2, whichever is smaller.

Defaults

0

Example

CURR:SIN:AMPL 10
CURR:SIN:AMPL?

Query Syntax

[SOURce:]CURRent:SINusoid:AMPLitude?

Return Parameters

NRf

[SOURce:]CURRent:SINusoid:OFFSet<value>

Set and query offset from 0V in CC Sine mode.

Command Syntax

[SOURce:]CURRent:SINusoid:OFFSet<value>

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each current range.

Defaults

0

Example

CURR:SIN:OFFS 10
CURR:SIN:OFFS?

Query Syntax

[SOURce:]CURRent:SINusoid:OFFSet?

Return Parameters

NRf

[SOURce:]CURRent:SINusoid:FREQuency<value>

Set and query frequency in CC Sine mode.

Command Syntax

[SOURce:]CURRent:SINusoid:FREQuency<value>

Parameter

NRf+
MINimum|MAXimum|DEFault
0.01-20000

Defaults

50

Example

CURR:SIN:FREQ 100
CURR:SIN:FREQ?

Query Syntax

[SOURce:]CURRent:SINusoid:FREQuency?

Return Parameters

NRf

**[SOURce:]CE:CL[:LEVel][:IMMediate]<value>|
MINimum|MAXimum|DEFault**

Set the equivalent parallel load capacitance for constant CE mode.

Command Syntax

[SOURce:]CE:CL[:LEVel][:IMMediate]<value>| MINimum|MAXimum|DEFault

Parameter

NRf+

MINimum|MAXimum|DEFault
30uF-50000uF

Defaults

30uF

Example

CE:CL 30
CE:CL?

Query Syntax

[SOURCE:]CE:CL[:LEVel][:IMMediate]? [MINimum|MAXimum|DEFault]

Return Parameters

NRf

[SOURCE:]CE:RL[:LEVel][:IMMediate]<value>| MINimum|MAXimum|DEFault

Set the equivalent parallel load resistance for constant CE mode.

Command Syntax

[SOURCE:]CE:RL[:LEVel][:IMMediate]<value>| MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each range.

Defaults

Default value for each resistance range.

Example

CE:RL 100
CE:RL?

Query Syntax

[SOURCE:]CE:RL[:LEVel][:IMMediate]? [MINimum|MAXimum|DEFault]

Return Parameters

NRf

[SOURCE:]CE:LS[:LEVel][:IMMediate]<value>| MINimum|MAXimum|DEFault

Set the equivalent series inductance for constant CE mode.

Command Syntax

[SOURce:]CE:LS[:LEVel][:IMMediate]<value>| MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
0.1uH-20uH

Defaults

0.1uH

Example

CE:LS 1uH
CE:LS?

Query Syntax

[SOURce:]CE:LS[:LEVel][:IMMediate]? [MINimum|MAXimum|DEFault]

Return Parameters

NRf

[SOURce:]CE:RS[:LEVel][:IMMediate]<value>| MINimum|MAXimum|DEFault

Set the equivalent series resistance for constant CE mode.

Command Syntax

[SOURce:]CE:RS[:LEVel][:IMMediate]<value>| MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
30mΩ-20Ω

Defaults

0.03Ω

Example

CE:RS 5
CE:RS?

Query Syntax

[SOURce:]CE:RS[:LEVel][:IMMediate]? [MINimum|MAXimum|DEFault]

Return Parameters

NRf

[SOURCe:]TABLE:<CURRent|VOLTage>[:LEVel]<value>{,,value>}}<block>

Set voltage and current points in table mode (max 20 at once, 1024 total).
Overwrite mode.

Command Syntax

[SOURCe:]TABLE:<CURRent|VOLTage>[:LEVel]<value>{,,value>}}<block>

Parameter

NRf, NRf, ..., NRf

Defaults

None

Example

TABLE:VOLT 1,2,3
TABLE:VOLT?
TABLE:CURR 1,2,3
TABLE:VOLT?

Query Syntax

[SOURCe:]TABLE:<CURRent|VOLTage>[:LEVel]?

Return Parameters

NRf, NRf, ..., NRf

[SOURCe:]TABLE:<CURRent|VOLTage>:APPend<value>{,,value>}}<block>

Append voltage and current points in table mode (max 20 at once, 1024 total).

Command Syntax

[SOURCe:]TABLE:<CURRent|VOLTage>:APPend<value>{,,value>}}<block>

Parameter

NRf, NRf, ..., NRf

Defaults

None

Example

TABL:VOLT:APP 3,2,1

Query Syntax

[SOURCe:]TABLE:<CURRent|VOLTage>:APPend?

Return Parameters

NRf,NRf,...,NRf

[SOURce:]TABLE:<CURRent|VOLTage>POINts?

Read number of voltage or current points in table.

Command Syntax

[SOURce:]TABLE:<CURRent|VOLTage>POINts?

Parameter

None

Defaults

None

Example

TABL:CURR:POIN?

TABL:VOLT:POIN?

Return Parameters

NR1

[SOURce:]TABLE:OPEN <LOCa|USB>,<string>

Open file from storage location.

<local_type>: LOCAL or USB, <string>: filename.

Command Syntax

[SOURce:]TABLE:OPEN <LOCa|USB>,<string>

Parameter

<CPD>,<SPD>

LOCAL|USB

Defaults

None

Example

TABL:OPEN LOCAL,"Table1.csv"

Return Parameters

None

[SOURce:]TABLE:SAVE <LOCa|USB>,<string>

Save file to specified location.

<local_type>: LOCAL or USB, <string>: filename.

Command Syntax

[SOURce:]TABLE:SAVE <LOCAL|USB>,<string>

Parameter

<CPD>,<SPD>
LOCAL|USB

Defaults

None

Example

TABL:SAVE USB,"Table1.csv"

Return Parameters

None

[SOURce:]TABLE:VOLTage:GAIN

Set voltage parallel gain.

Command Syntax

[SOURce:]TABLE:VOLTage:GAIN

Parameter

<NRf>
0.01-100

Defaults

None

Example

TABL:VOLT:GAIN 10
TABL:VOLT:GAIN?

Query Syntax

[SOURce:]TABLE:VOLTage:GAIN?

Return Parameters

NRf

[SOURce:]TABLE:CURRent:GAIN

Set current series gain.

Command Syntax

[SOURce:]TABLE:CURRent:GAIN

Parameter

<NRf>
0.01-100

Defaults

None

Example

TABL:CURR:GAIN 10
TABL:CURR:GAIN?

Query Syntax

[SOURce:]TABLE:CURRent:GAIN?

Return Parameters

NRf

[SOURce:]TABLE:FILTer[:TIME]

Set filtering time.

Command Syntax

[SOURce:]TABLE:FILTer[:TIME]

Parameter

<NRf+>
0.002-0.010

Defaults

0.002

Example

TABL:CURR:FILT 0.005
TABL:CURR:FILT?

Query Syntax

[SOURce:]TABLE:FILTer[:TIME]?

Return Parameters

NRf

[SOURce:]TABLE:APPLy

Apply Table data.

Command Syntax

[SOURce:]TABLE:APPLy

Parameter

None

Defaults

None

Example

TABL:APPL

Return Parameters

None

Chapter8 TRIGger Subsystem

TRIGger[:SEQuence]:SOURce <CPD>

Set the normal mode trigger source.

IMMediate: Trigger periodically based on meter speed. If wait control measure is enabled, additional time is added.

BUS: Choose trigger command from remote interface.

MANual: Choose trigger key as the source.

TRIG1-3: Select digital pins configured as trigger sources.

Command Syntax

TRIGger[:SEQuence]:SOURce <CPD>

Parameter

CPD

IMMediate|MANual|BUS|TRIG1|TRIG2|TRIG3

Defaults

IMMediate

Example

TRIG:SOUR BUS

TRIG:SOUR?

Query Syntax

TRIGger[:SEQuence]:SOURce?

Return Parameters

CRD

TRIGger[:SEQuence]:DELay <CPD>

Sets the trigger delay.

Command Syntax

TRIGger[:SEQuence]:DELay <CPD>

Parameter

NRf+

(0 to 1000)|MINimum| MAXimum|DEFault

Defaults

0

Example

TRIG:DEL 1

TRIG:DEL?

Query Syntax

TRIGger[:SEQuence]:DELay?

Return Parameters

NR3

TRIGger[:SEQuence]:SOURce:TOUTput:SIGNal <signal>

Trigger output port select when source trigger.

Command Syntax

TRIGger[:SEQuence]:SOURce:TOUTput:SIGNal <signal>

Parameter

CPD
TRIG1|TRIG2|TRIG3|OFF

Defaults

OFF

Example

TRIG:SOUR:TOUT:SIGN TRIG1
TRIG:SOUR:TOUT:SIGN?

Query Syntax

TRIGger[:SEQuence]:SOURce:TOUTput:SIGNal?

Return Parameters

CRD

TRIGger[:SEQuence]:ACQuire:TOUTput:SIGNal <signal>

Trigger output port select when start measurement.

Command Syntax

TRIGger[:SEQuence]:ACQuire:TOUTput:SIGNal <signal>

Parameter

CPD
TRIG1|TRIG2|TRIG3|OFF

Defaults

OFF

Example

TRIG:ACQ:TOUT:SIGN TRIG2
TRIG:ACQ:TOUT:SIGN?

Query Syntax

TRIGger[:SEQuence]:ACQuire:TOUTput:SIGNal?

Return Parameters

CRD

TRIGger[:SEQuence]:STATe?

Read the trigger status.

Command Syntax

TRIGger[:SEQuence]:STATe?

Parameter

None

Defaults

None

Example

TRIG:STAT?

Return Parameters

IDLE|WTG|RUN

TRIGger:DLOG[:IMMediate]

Generate a trigger event for the dlog system.

Command Syntax

TRIGger:DLOG[:IMMediate]

Parameter

None

Defaults

None

Example

TRIG:DLOG

Return Parameters

None

TRIGger:DLOG:CURRent[:LEVel] <NRf+>

Set the current trigger level for dlog.

Command Syntax

TRIGger:DLOG:CURRent[:LEVel] <NRf+>

Parameter

NRf+
MINimum|MAXimum|DEFault

Defaults

0

Example

TRIG:DLOG:CURR 1
TRIG:DLOG:CURR?

Query Syntax

TRIGger:DLOG:CURRent[:LEVel]?

Return Parameters

NR3

TRIGger:DLOG:CURRent:SLOPe <CPD>

Set the trigger method for the dlog current level.

Command Syntax

TRIGger:DLOG:CURRent:SLOPe <CPD>

Parameter

CPD
POSitive|NEGative

Defaults

POSitive

Example

TRIG:DLOG:CURR:SLOP POS
TRIG:DLOG:CURR:SLOP?

Query Syntax

TRIGger:DLOG:CURRent:SLOPe?

Return Parameters

CRD

TRIGger:DLOG:VOLTage[:LEVel] <NRf+>

Set the voltage trigger level for dlog.

Command Syntax

TRIGger:DLOG:VOLTage[:LEVel] <NRf+>

Parameter

NRf+
MINimum|MAXimum|DEFault

Defaults

0

Example

TRIG:DLOG:VOLT 10
TRIG:DLOG:VOLT?

Query Syntax

TRIGger:DLOG:VOLTage[:LEVel]?

Return Parameters

NR3

TRIGger:DLOG:VOLTage:SLOPe <CPD>

Set the trigger method for the dlog voltage level.

Command Syntax

TRIGger:DLOG:VOLTage:SLOPe <CPD>

Parameter

CPD
POSitive|NEGative

Defaults

POSitive

Example

TRIG:DLOG:VOLT:SLOP NEG
TRIG:DLOG:VOLT:SLOP?

Query Syntax

TRIGger:DLOG:VOLTage:SLOPe?

Return Parameters

CRD

TRIGger:DLOG:SOURce <CPD>

Set the trigger source to start dlog collection.

IMMediate: Trigger immediately.

BUS: Choose trigger command from remote interface.

MANual: Use the trigger key as source.

TRIG1-3: Select all configured trigger pins as sources.

CURRent: Choose output current as trigger source.

VOLTage: Choose output voltage as trigger source.

OOOKey: Select Input On/Off keys.

Command Syntax

TRIGger:DLOG:SOURce <CPD>

Parameter

CPD

IMMediate|BUS|MANual|TRIG<1-3>|CURRent|VOLTage|OOOK

Defaults

IMMediate

Example

TRIG:DLOG:SOUR IMM

TRIG:DLOG:SOUR?

Query Syntax

TRIGger:DLOG:SOURce?

Return Parameters

CRD

TRIGger:ELOG[:IMMediate]

Generate a trigger event for the elog system.

Command Syntax

TRIGger:ELOG[:IMMediate]

Parameter

None

Defaults

None

Example

TRIG:ELOG

Return Parameters

None

TRIGger:ELOG:CURRent[:LEVe] <NRf+>

Set the current trigger level for elog.

Command Syntax

TRIGger:ELOG:CURRent[:LEVe] <NRf+>

ParameterNRf+
MINimum|MAXimum|DEFault**Defaults**

0

ExampleTRIG:ELOG:CURR 1
TRIG:ELOG:CURR?**Query Syntax**

TRIGger:ELOG:CURRent[:LEVe]?

Return Parameters

NR3

TRIGger:ELOG:CURRent:SLOPe <POSitive|NEGative>

Set the trigger method for the elog current level.

Command Syntax

TRIGger:ELOG:CURRent:SLOPe <POSitive|NEGative>

ParameterCPD
POSitive|NEGative**Defaults**

POSitive

ExampleTRIG:ELOG:CURR:SLOP POS
TRIG:ELOG:CURR:SLOP?**Query Syntax**

TRIGger:ELOG:CURRent:SLOPe?

Return Parameters

CRD

TRIGger:ELOG:VOLTage[:LEVel] <NRf+>

Set the voltage trigger level for elog.

Command Syntax

TRIGger:ELOG:VOLTage[:LEVel] <NRf+>

Parameter

NRf+

MINimum|MAXimum|DEFault

Defaults

0

Example

TRIG:ELOG:VOLT 10

TRIG:ELOG:VOLT?

Query Syntax

TRIGger:ELOG:VOLTage[:LEVel]?

Return Parameters

NR3

TRIGger:ELOG:VOLTage:SLOPe <POSitive|NEGative>

Set the trigger method for the elog voltage level.

Command Syntax

TRIGger:ELOG:VOLTage:SLOPe <POSitive|NEGative>

Parameter

CPD

POSitive|NEGative

Defaults

POSitive

Example

TRIG:ELOG:VOLT:SLOP NEG

TRIG:ELOG:VOLT:SLOP?

Query Syntax

TRIGger:ELOG:VOLTage:SLOPe?

Return Parameters

CRD

TRIGger:ELOG:SOURce <CPD>

Set the trigger source to start elog collection.

IMMediate: Trigger immediately.

BUS: Choose trigger command from remote interface.

MANual: Use the trigger key as source.

TRIG1-3: Select all configured trigger pins as sources.

CURRent: Choose output current as trigger source.

VOLTage: Choose output voltage as trigger source.

OOOKey: Select Input On/Off keys.

Command Syntax

TRIGger:ELOG:SOURce <CPD>

Parameter

CPD

IMMediate|MANual|BUS|VOLTage| CURRent|EXTernal|

Defaults

IMMediate

Example

TRIG:ELOG:SOUR IMM

TRIG:ELOG:SOUR?

Query Syntax

TRIGger:ELOG:SOURce?

Return Parameters

CRD

TRIGger:TRANSient:SOURce <CPD>

Set the transient trigger source.

BUS: Choose trigger command from remote interface.

MANual: Use the trigger key as source.

TRIG1-3: Select all configured trigger pins as sources.

Command Syntax

TRIGger:TRANSient:SOURce <CPD>

Parameter

CPD

BUS|MANual| TRIG1|TRIG2|TRIG3

Defaults

MANual

Example

TRIG:TRAN:SOUR MAN
TRIG:TRAN:SOUR?

Query Syntax

TRIGger:TRANsient:SOURce?

Return Parameters

CRD

TRIGger:TRANsient[:IMMediate]

Generate an immediate trigger event.

Command Syntax

TRIGger:TRANsient[:IMMediate]

Parameter

None

Defaults

None

Example

TRIG:TRAN

Return Parameters

None

TRIGger:ARB:SOURce <CPD>

Set the ARB trigger source.

BUS: Choose trigger command from remote interface.

MANual: Use the trigger key as source.

TRIG1-3: Select all configured trigger pins as sources. Used in
STEP|LIST|CDARb|SEQUence modes.**Command Syntax**

TRIGger:ARB:SOURce <CPD>

Parameter

CPD

BUS|MANual|TRIG1|TRIG2|TRIG3

Defaults

MANual

Example

TRIG:ARB:SOUR BUS
TRIG:ARB:SOUR?

Query Syntax

TRIGger:ARB:SOURce?

Return Parameters

None

TRIGger:ARB[:IMMediate]

Generate an immediate trigger event.

Command Syntax

TRIGger:ARB[:IMMediate]

Parameter

None

Defaults

None

Example

TRIG:ARB

Return Parameters

None

TRIGger:ARB:TOUTput:SIGNal <CPD>

Select arbitrary waveform trigger output signal. Only used in list mode.

Command Syntax

TRIGger:ARB:TOUTput:SIGNal <CPD>

Parameter

<CPD>
TRIG1|TRIG2|TRIG3

Defaults

None

Example

TRIG:ARB:TOUT TRIG1

TRIG:ARB:TOUT?

Query Syntax

TRIGger:ARB:TOUTput:SIGNal?

Return Parameters

CRD

TRIGger:SWEep:STARt:SOURce <CPD>

Set or query the scan output start trigger source of the machine.

Command Syntax

TRIGger:SWEep:STARt:SOURce <CPD>

Parameter

CPD

IMMediate|MANUal|BUS|TRIG<1-3>|VOLTage

Defaults

MANual

Example

TRIG:SWE:STAR:SOUR MAN

TRIG:SWE:STAR:SOUR?

Query Syntax

TRIGger:SWEep:STARt:SOURce?

Return Parameters

CRD

TRIGger:SWEep:VOLTage[:LEVel] <NRf+>

Set the voltage value for voltage trigger start.

Command Syntax

TRIGger:SWEep:VOLTage[:LEVel] <NRf+>

Parameter

NRf+

value(0- Rated voltage)|MINimum| MAXimum|DEFault

Defaults

0

Example

TRIG:SWE:VOLT 5

TRIG:SWE:VOLT?

Query Syntax

TRIGger:SWEep:VOLTage[:LEVel]?

Return Parameters

NR3

TRIGger:SWEep:STARt:DELay <NRf+>

Set or query the scan output start trigger delay time.

Command Syntax

TRIGger:SWEep:STARt:DELay <NRf+>

Parameter

NRf+
value(0-10)|MINimum| MAXimum|DEFault

Defaults

0

Example

TRIG:SWE:STAR:DEL 1
TRIG:SWE:STAR:DEL?

Query Syntax

TRIGger:SWEep:STARt:DELay?

Return Parameters

NR3

TRIGger:SWEep:STEP:SOURce <CPD>

Set or query the scan output step trigger source.

Command Syntax

TRIGger:SWEep:STEP:SOURce <CPD>

Parameter

CPD
TIMer|BUS|TRIG1-3

Defaults

TIMer

Example

TRIG:SWE:STEP:SOUR BUS

TRIG:SWE:STEP:SOUR?

Query Syntax

TRIGger:SWEep:STEP:SOURce?

Return Parameters

CRD

TRIGger:SWEep:STEP:TIMer <NRf+>

Set or query the scan output step trigger time interval.

Command Syntax

TRIGger:SWEep:STEP:TIMer <NRf+>

Parameter

NRf+

AUTO|value(0.0001 - 10) |MINimum| MAXimum|DEFault

Defaults

0.1s

Example

TRIG:SWE:STEP:TIM 0.2

TRIG:SWE:STEP:TIM?

Query Syntax

TRIGger:SWEep:STEP:TIMer?

Return Parameters

NR3

TRIGger:SWEep:STEP:INTERval:MINimum <NRf+>

Set or query the scan output step trigger interval time. The time between two step triggers must be greater than or equal to this value. Used when trig step source is |BUS|TRIG1-3.

Command Syntax

TRIGger:SWEep:STEP:INTERval:MINimum <NRf+>

Parameter

NRf+

Value(0.0001 - 10) |MINimum| MAXimum|DEFault

Defaults

0.1s

Example

TRIG:SWE:STEP:INT:MIN 0.5
TRIG:SWE:STEP:INT:MIN?

Query Syntax

TRIGger:SWEep:STEP:INTerval:MINimum?

Return Parameters

NR3

Chapter9 SENSe Subsystem

SENSe:DLOG:FUNCTION:CURRent <Bool>

Enable/disable the dlog system's current recording. Command response time is 1ms, query response time is 2ms.

Command Syntax

SENSe:DLOG:FUNCTION:CURRent <Bool>

Parameter

Bool
0|OFF|1|ON

Defaults

1|ON

Example

SENSe:DLOG:FUNCTION:CURRent 1

Query Syntax

SENSe:DLOG:FUNCTION:CURRent?

Return Parameters

0|1

SENSe:DLOG:FUNCTION:MINMax <Bool>

Enable/disable the dlog system's peak value measurement. Command response time is 1ms, query response time is 2ms.

Command Syntax

SENSe:DLOG:FUNCTION:MINMax <Bool>

Parameter

Bool
0|OFF|1|ON

Defaults

0|OFF

Example

SENSe:DLOG:FUNCTION:MINMax 1

Query Syntax

SENSe:DLOG:FUNCTION:MINMax?

Return Parameters

0|1

SENSe:DLOG:FUNCTION:VOLTage <Bool>

Enable/disable the dlog system's voltage recording. Command response time is 1ms, query response time is 2ms.

Command Syntax

SENSe:DLOG:FUNCTION:VOLTage <Bool>

Parameter

Bool
0|OFF|1|ON

Defaults

1|ON

Example

SENSe:DLOG:FUNCTION:VOLTage 1

Query Syntax

SENSe:DLOG:FUNCTION:VOLTage?

Return Parameters

0|1

SENSe:DLOG:FUNCTION:DVM:VOLTage <Bool>

Enable/disable the dlog system's DVM voltage recording for the IT8100 A model. Command response time is 1ms, query response time is 3ms.

Command Syntax

SENSe:DLOG:FUNCTION:DVM:VOLTage <Bool>

Parameter

Bool
0|OFF|1|ON

Defaults

0|OFF

Example

SENSe:DLOG:FUNCTION:DVM:VOLTage 1

Query Syntax

SENSe:DLOG:FUNCTION:DVM:VOLTage?

Return Parameters

0|1

SENSe:DLOG:PERiod <time>

Edit the dlog system's sampling period in seconds. Command response time is 3ms, query response time is 3ms.

Command Syntax

SENSe:DLOG:PERiod <time>

Parameter

NRf+
0.00002-100s| MINimum|MAXimum

Defaults

0.001s

Example

SENSe:DLOG:PERiod 10

Query Syntax

SENSe:DLOG:PERiod? [MINimum|MAXimum]

Return Parameters

NR3

SENSe:DLOG:NUMBER

Edit the dlog system's single run point count. Command response time is 2ms, query response time is 3ms.

Command Syntax

SENSe:DLOG:NUMBER

Parameter

NRf+
1-1000000| MINimum|MAXimum|DEFault

Defaults

1000000

Example

SENSe:DLOG:NUMBER 500

Query Syntax

SENSe:DLOG:NUMBER?

Return Parameters

NR3

SENSe:DLOG:MODE CYCLe|ONCE

ONCE mode records up to 1000K points, while CYCLe mode can loop infinitely.

Command Syntax

SENSe:DLOG:MODE CYCLe|ONCE

Parameter

CYCLe|ONCE

Defaults

CYCLe

Example

SENSe:DLOG:MODE CYCLe

Query Syntax

SENSe:DLOG:MODE?

Return Parameters

CYCLe|ONCE

SENSe:ELOG:FUNCTION:CURRent <Bool>

Enable/disable the Elog system's current recording. Command response time is 3ms, query response time is 5ms.

Command Syntax

SENSe:ELOG:FUNCTION:CURRent <Bool>

Parameter

Bool
0|OFF|1|ON

Defaults

1|ON

Example

SENSe:ELOG:FUNCTION:CURRent 1

Query Syntax

SENSe:ELOG:FUNCTION:CURRent?

Return Parameters

0|1

SENSe:ELOG:FUNCTION:VOLTage <Bool>

Enable/disable the Elog system's peak value measurement. Command response time is 3ms, query response time is 5ms.

Command Syntax

SENSe:ELOG:FUNCTION:VOLTage <Bool>

Parameter

Bool
0|OFF|1|ON

Defaults

0|OFF

Example

SENSe:ELOG:FUNCTION:VOLTage 1

Query Syntax

SENSe:ELOG:FUNCTION:VOLTage?

Return Parameters

0|1

SENSe:ELOG:FUNCTION:MINMax <Bool>

Enable/disable the Elog system's voltage recording. Command response time is 3ms, query response time is 5ms.

Command Syntax

SENSe:ELOG:FUNCTION:MINMax <Bool>

Parameter

Bool
0|OFF|1|ON

Defaults

1|ON

Example

SENSe:ELOG:FUNCTION:MINMax 1

Query Syntax

SENSe:ELOG:FUNCTION:MINMax?

Return Parameters

0|1

SENSe:ELOG:FUNCTION:DVM:VOLTage <Bool>

Enable/disable the dlog system's DVM voltage recording for the IT8100 A model. Command response time is 3ms, query response time is 5ms.

Command Syntax

SENSe:ELOG:FUNCTION:DVM:VOLTage <Bool>

Parameter

Bool
0|OFF|1|ON

Defaults

1|ON

Example

SENSe:ELOG:FUNCTION:DVM:VOLTage ON

Query Syntax

SENSe:DLOG:FUNCTION:DVM:VOLTage?

Return Parameters

0|1

SENSe:ELOG:PERiod <time>| MINimum|MAXimum

Edit the Elog system's sampling period in seconds. Command response time is 3ms, query response time is 5ms.

Command Syntax

SENSe:ELOG:PERiod <time>| MINimum|MAXimum

Parameter

NRf+
0.00002-100s

Defaults

0.001s

Example

SENSe:ELOG:PERiod 5

Query Syntax

SENSe:ELOG:PERiod? [MINimum|MAXimum]

Return Parameters

NR3

SENSe:NPLCycles

Set the measurement speed in PLC units.

Command Syntax

SENSe:NPLCycles

Parameter

NRf+
<value>|MINimum|MAXimum
0.0005plc-100plc (50Hz)
0.0006plc-120plc(60Hz)

Defaults

When SENS:LINE:FREQ is set to 50Hz, the value is 5; when set to 60Hz, the value is 6.

Example

SENS:NPLC 10
SENS:NPLC?

Query Syntax

SENSe:NPLCycles? [MINimum|MAXimum]

Return Parameters

NR3

SENSe:APERture<value>|MINimum|MAXimum

Set the measurement speed in seconds, default is 0.1s.

Command Syntax

SENSe:APERture<value>|MINimum|MAXimum

Parameter

NRf+
<value>|MINimum|MAXimum
0.000010 - 2s

Defaults

0.1

Example

SENS:APER 0.5
SENS:APER?

Query Syntax

SENSe:APERture? [MINimum|MAXimum]

Return Parameters

NR3

SENSe:LINE:FREQuency 50|60

Set the power line frequency.

Command Syntax

SENSe:LINE:FREQuency 50|60

Parameter

CPD
50|60

Defaults

50

Example

SENS:LINE:FREQ 50HZ
SENS:LINE:FREQ?

Query Syntax

SENSe:LINE:FREQuency?

Return Parameters

CRD

SENSe:WAIT[:STATe] <Bool>

Enable/disable the measurement wait time for the specified channel. Wait time is the period before the channel can start measuring after DC output or pulse rising edge.

Command Syntax

SENSe:WAIT[:STATe] <Bool>

Parameter

BOOL
0|OFF|1|ON

Defaults

0

Example

SENS:WAIT 1
SENS:WAIT?

Query Syntax

SENSe:WAIT[:STATe]?

Return Parameters

0|1

SENSe:WAIT:AUTO <Bool>

Enable/disable the initial wait time for the measurement wait time calculation. This is automatically set by the instrument and cannot be changed. After enabling, the wait time will dynamically adjust based on the slope setting.

Command Syntax

SENSe:WAIT:AUTO <Bool>

Parameter

BOOL
0|OFF|1|ON

Defaults

1

Example

SENS:WAIT:AUTO 1
SENS:WAIT:AUTO?

Query Syntax

SENSe:WAIT:AUTO?

Return Parameters

0|1

SENSe:WAIT:GAIN <NRf+>

Set the gain value used for calculating the measurement wait time of the specified channel.

Command Syntax

SENSe:WAIT:GAIN <NRf+>

Parameter

NRf+
(0 to 100)
MINimum|MAXimum|DEFault

Defaults

1

Example

SENS:WAIT:GAIN 2
SENS:WAIT:GAIN?

Query Syntax

SENSe:WAIT:GAIN?

Return Parameters

NR3

SENSe:WAIT:OFFSet <NRf+>

Set the offset value used for calculating the measurement wait time of the specified channel. Default is 0, unit is seconds.

Command Syntax

SENSe:WAIT:OFFSet <NRf+>

Parameter

NRf+
0 to 1 seconds
|MINimum|MAXimum|DEFault

Defaults

0

Example

SENS:WAIT:OFFS 0.1
SENS:WAIT:OFFS?

Query Syntax

SENSe:WAIT:OFFSet?

Return Parameters

NR3

SENSe:WAIT:DELaY:REAL?

Read the actual measurement wait time.

Command Syntax

SENSe:WAIT:DELaY:REAL?

Parameter

None

Defaults

None

Example

SENS:WAIT:DEL:REAL?

Return Parameters

NR3

SENSe:AHOur:RESet

Clear the instrument's Ah hour statistics, can be used independently.

Command Syntax

SENSe:AHOur:RESet

Parameter

None

Defaults

None

Example

SENS:AHO:RES

Return Parameters

None

SENSe:WHOur:RESet

Clear the instrument's Wh hour statistics, can be used independently.

Command Syntax

SENSe:WHOur:RESet

Parameter

None

Defaults

None

Example

SENS:WHO:RES

Return Parameters

None

SENSe:STATistical:DATA:RESet

Clear all instrument statistics, including Ah, Wh, voltage max/min, current max/min, power max/min.

Command Syntax

SENSe:STATistical:DATA:RESet

Parameter

None

Defaults

None

Example

SENS:STAT:DATA:RES

Return Parameters

None

SENSe:STATistical:DATA:RESet:AUTO <Bool>

Automatic clearing of statistics. Cleared automatically after power-off, cleared again at next power-on.

Command Syntax

SENSe:STATistical:DATA:RESet:AUTO <Bool>

Parameter

BOOL
1|0|ON|OFF

Defaults

0

Example

SENS:STAT:DATA:RES:AUTO 1
SENS:STAT:DATA:RES:AUTO?

Query Syntax

SENSe:STATistical:DATA:RESet:AUTO?

Return Parameters

0|1

Chapter10 SENSe Subsystem (IT8100A)

The commands described in this chapter are only applicable to the IT8100A series, the IT8100E series does not support these commands.

SENSe:DVM:RANGE

Set the high-precision voltmeter measurement range.

Command Syntax

SENSe:DVM:RANGE

Parameter

NRf+
<level>|MINimum|MAXimum

Defaults

20

Example

SENS:DVM:RANG 20
SENS:DVM:RANG?

Query Syntax

SENSe:DVM:RANGE? [MINimum|MAXimum]

Return Parameters

NR3

SENSe:IMPedance:SAMPlE:CYCLe <cycle|MINimum|MAXimum|DEFault>

Set/query the minimum number of cycles for impedance sampling.

Command Syntax

SENSe:IMPedance:SAMPlE:CYCLe <cycle|MINimum|MAXimum|DEFault>

Parameter

NRf+
1-100

Defaults

1

Example

SENS:IMP:SAMP:CYCL 10
SENS:IMP:SAMP:CYCL?

Query Syntax

SENSe:IMPedance:SAMPlE:CYCLe? [MINimum|MAXimum|DEFault]

Return Parameters

NRf

SENSe:IMPedance:SAMPlE:TIME <time|MINimum|MAXimum|DEFault>

Set/query the minimum time for impedance sampling.

Command Syntax

SENSe:IMPedance:SAMPlE:TIME <time|MINimum|MAXimum|DEFault>

Parameter

NRf+
0.1-1000

Defaults

1

Example

SENS:IMP:SAMP:TIME 2
SENS:IMP:SAMP:TIME?

Query Syntax

SENSe:IMPedance:SAMPlE:TIME? [MINimum|MAXimum|DEFault]

Return Parameters

NRf

SENSe:IMPedance:SAMPlE:CYCLe:DELay <cycle|MINimum|MAXimum|DEFault>

Set/query the minimum number of cycles to ignore before impedance sampling.

Command Syntax

SENSe:IMPedance:SAMPlE:CYCLe:DELay
<cycle|MINimum|MAXimum|DEFault>

Parameter

NRf+
0-100

Defaults

1

Example

```
SENS:IMP:SAMP:CYCL 10
SENS:IMP:SAMP:CYCL?
```

Query Syntax

```
SENSe:IMPedance:SAMPlE:CYCLe:DELay? [MINimum|MAXimum|DEFault]
```

Return Parameters

NRf

SENSe:IMPedance:SAMPlE:TIME:DELay

<time|MINimum|MAXimum|DEFault>

Set/query the minimum time to ignore before impedance sampling.

Command Syntax

```
SENSe:IMPedance:SAMPlE:TIME:DELay
<time|MINimum|MAXimum|DEFault>
```

Parameter

NRf+
0-1000

Defaults

0.1

Example

```
SENS:IMP:SAMP:TIME:DEL 2
SENS:IMP:SAMP:TIME:DEL?
```

Query Syntax

```
SENSe:IMPedance:SAMPlE:TIME:DELay? [MINimum|MAXimum|DEFault]
```

Return Parameters

NRf

SENSe:IMPedance:FUNction

<CPD|CSD|RPCP|RSCS|RSLS|RX|ZPH>

Set and query the impedance function.

Command Syntax

```
SENSe:IMPedance:FUNction <CPD|CSD|RPCP|RSCS|RSLS|RX|ZPH>
```

Parameter

CPD
<CPD|CSD|RPCP|RSCS|RSLS|RX|ZPH>

Defaults

ZPH

Example

```
SENS:IMP:FUNC CPD
SENS:IMP:FUNC?
```

Query Syntax

SENSe:IMPedance:FUNCTion?

Return Parameters

CRD

SENSe:IMPedance:DUT:TYPE <CPD>

Set and query the impedance wiring method.

Command Syntax

SENSe:IMPedance:DUT:TYPE <CPD>

Parameter

CPD
DUT|DUTS|DUTP

Defaults

DUT

Example

```
SENS:IMP:DUT:TYPE DUT
SENS:IMP:DUT:TYPE?
```

Query Syntax

SENSe:IMPedance:DUT:TYPE?

Return Parameters

CRD

SENSe:IMPedance:CURRent:PROBe:COEFFicient <coef|MINimum|MAXimum|DEFault>

Set the probe coefficient for current.

Command Syntax

SENSe:IMPedance:CURRent:PROBe:COEFFicient
<coef|MINimum|MAXimum|DEFault>

Parameter

NRf+

0.01-100

Defaults

1

Example

```
SENS:IMP:CURR:PROB:COEF 1
SENS:IMP:CURR:PROB:COEF?
```

Query Syntax

```
SENSe:IMPedance:CURRent:PROBe:COEFFicient?
<MINimum|MAXimum|DEFault>
```

Return Parameters

NRf

SENSe:IMPedance:CURRent:PROBe:PRECision <coef|MINimum|MAXimum|DEFault>

Set the probe accuracy for current.

Command Syntax

```
SENSe:IMPedance:CURRent:PROBe:PRECision
<coef|MINimum|MAXimum|DEFault>
```

Parameter

NRf+
0.9-1.1

Defaults

1

Example

```
SENS:IMP:CURR:PROB:PREC 1
SENS:IMP:CURR:PROB:PREC?
```

Query Syntax

```
SENSe:IMPedance:CURRent:PROBe:PRECision?
<MINimum|MAXimum|DEFault>
```

Return Parameters

NRf

SENSe:EIS:BODE:MARK#:FREQuency <frequency>

Set/query the frequency points of Mark1 and Mark2 in the EIS Bode plot.

Command Syntax

```
SENSe:EIS:BODE:MARK#:FREQuency <frequency>
```

Parameter

NRf+
0.01-20000

Defaults

50

Example

SENS:EIS:BODE:MARK1:FREQ 100
SENS:EIS:BODE:MARK1:FREQ?

Query Syntax

SENSe:EIS:BODE:MARK#:FREQuency?

Return Parameters

NRf

SENSe:EIS:FUNction <CPD|CSD|RPCP|RSCS|RSLS|RX|ZPH>

Set and query the impedance sweep function.

Command Syntax

SENSe:EIS:FUNction <CPD|CSD|RPCP|RSCS|RSLS|RX|ZPH>

Parameter

CPD
<CPD|CSD|RPCP|RSCS|RSLS|RX|ZPH>

Defaults

ZPH

Example

SENS:EIS:FUNC CPD
SENS:EIS:FUNC?

Query Syntax

SENSe:EIS:FUNction?

Return Parameters

CRD

Chapter11 Time Measure Subsystem

SENSe:TMEasure:STARt:EVENT

Time measurement start event: ON = Load on OFF = Load off
GTCurrent = Greater than current
LTCurrent = Less than current
GTVoltage = Greater than voltage
LTVoltage = Less than voltage
TRIG1 = External trigger 1

Command Syntax

SENSe:TMEasure:STARt:EVENT

Parameter

CPD
ON|OFF|GTCurrent|LTCurrent|GTVoltage|LTVoltage|TRIG1

Defaults

ON

Example

SENS:TME:STAR:EVEN ON
SENS:TME:STAR:EVEN?

Query Syntax

SENSe:TMEasure:STARt:EVENT?

Return Parameters

CRD

SENSe:TMEasure:STARt:EVENT:CURRent[:LEVel]

Current value for the time measurement start event.

Command Syntax

SENSe:TMEasure:STARt:EVENT:CURRent[:LEVel]

Parameter

NRf+
<level>|MINimum|MAXimum|DEFAULT

Defaults

0.1

Example

```
SENS:TME:STAR:EVEN:CURR 0.1
SENS:TME:STAR:EVEN:CURR?
```

Query Syntax

```
SENSe:TMEasure:STARt:EVENTt:CURRent[:LEVe]l]?
[MINimum|MAXimum|DEFault]
```

Return Parameters

NR3

SENSe:TMEasure:STARt:EVENTt:VOLTage[:LEVe]l

Voltage value for the time measurement start event.

Command Syntax

```
SENSe:TMEasure:STARt:EVENTt:VOLTage[:LEVe]l
```

Parameter

```
NRf+
<level>|MINimum|MAXimum|DEFault
```

Defaults

0.1

Example

```
SENS:TME:STAR:EVEN:VOLT 1
SENS:TME:STAR:EVEN:VOLT?
```

Query Syntax

```
SENSe:TMEasure:STARt:EVENTt:VOLTage[:LEVe]l]?
[MINimum|MAXimum|DEFault]
```

Return Parameters

NR3

SENSe:TMEasure:END:EVENT

Time measurement end event: ON = Load on OFF = Load off

GTCurrent = Greater than current

LTCURRENT = Less than current

GTVoltage = Greater than voltage

LTVoltage = Less than voltage

TRIG1 = External trigger 1

Command Syntax

```
SENSe:TMEasure:END:EVENT
```

Parameter

CPD
ON|OFF|GTCurrent|LTCurrent|GTVoltage|LTVoltage|TRIG1

Defaults

OFF

Example

SENS:TME:END:EVEN OFF
SENS:TME:END:EVEN?

Query Syntax

SENSe:TMEasure:END:EVENT?

Return Parameters

CRD

SENSe:TMEasure:END:EVENT:CURRent[:LEVel]

Current value for the time measurement end event.

Command Syntax

SENSe:TMEasure:END:EVENT:CURRent[:LEVel]

Parameter

NRf+
<level>|MINimum|MAXimum|DEFault

Defaults

10

Example

SENS:TME:END:EVEN:CURR 10
SENS:TME:END:EVEN:CURR?

Query Syntax

SENSe:TMEasure:END:EVENT:CURRent[:LEVel]?
[MINimum|MAXimum|DEFault]

Return Parameters

NR3

SENSe:TMEasure:END:EVENT:VOLTage[:LEVel]

Voltage value for the time measurement end event.

Command Syntax

SENSe:TMEasure:END:EVENT:VOLTage[:LEVel]

Parameter

NRf+
<level>|MINimum|MAXimum|DEFAULT

Defaults

10

Example

SENS:TME:END:EVEN:VOLT 10
SENS:TME:END:EVEN:VOLT?

Query Syntax

SENSe:TMEasure:END:EVENT:VOLTage[:LEVel]?
[MINimum|MAXimum|DEFAULT]

Return Parameters

NR3

SENSe:TMEasure:TIME:CLEar

Clears the last measured time.

Command Syntax

SENSe:TMEasure:TIME:CLEar

Parameter

None

Defaults

None

Example

SENS:TME:TIM:CLE

Return Parameters

None

SENSe:TMEasure:TIME:CONTRol

Measurement control.

NEXT: Starts the time measurement function and stops after the end event is triggered once. The control state automatically changes to NEVER.

NEVer: Stops and disables the time measurement function.

ALWays: Repeatedly enables the time measurement function.

Command Syntax

SENSe:TMEasure:TIME:CONTRol

Parameter

CPD
NEXT|NEVer|ALWays

Defaults

NEVer

Example

SENS:TME:TIME:CONT NEXT
SENS:TME:TIME:CONT?

Query Syntax

SENSe:TMEasure:TIME:CONTRol?

Return Parameters

CRD

SENSe:TMEasure:TIME:HOLDoff <level> |MINimum|MAXimum|DEFAULT

Minimum interval before starting the next measurement after the previous one ends. Valid only when SENSe:TMEasure:TIME:CONTRol is set to ALWays.

Command Syntax

SENSe:TMEasure:TIME:HOLDoff <level> |MINimum|MAXimum|DEFAULT

Parameter

NRf+
0 to 1000 seconds
|MINimum|MAXimum|DEFAULT

Defaults

10

Example

SENS:TME:TIME:HOLD 1
SENS:TME:TIME:HOLD?

Query Syntax

SENSe:TMEasure:TIME:HOLDoff? [MINimum|MAXimum|DEFAULT]

Return Parameters

NR3

Chapter12 FETCh&MEASure Subsystem

FETCh[:SCALar]:CURRent[:DC]?

Read the machine's current measurement value. This returns previously obtained measurement data, fetch query does not generate new measurements.

Command Syntax

FETCh[:SCALar]:CURRent[:DC]?

Parameter

None

Defaults

None

Example

FETCh:CURRent?

Return Parameters

NRf

FETCh[:SCALar]:VOLTage[:DC]?

Read the machine's voltage measurement value. This returns previously obtained measurement data, fetch query does not generate new measurements.

Command Syntax

FETCh[:SCALar]:VOLTage[:DC]?

Parameter

None

Defaults

None

Example

FETCh:VOLTage?

Return Parameters

NRf

FETCh[:SCALar]:POWer[:DC]?

Read the machine's power measurement value. This returns previously obtained measurement data, fetch query does not generate new

measurements.

Command Syntax

FETCh[:SCALar]:POWEr[:DC]?

Parameter

None

Defaults

None

Example

FETCh:POWEr?

Return Parameters

NRf

FETCh[:SCALar]:CURRent:MAXimum?

Query the maximum current value.

Command Syntax

FETCh[:SCALar]:CURRent:MAXimum?

Parameter

None

Defaults

None

Example

FETCh:CURRent:MAXimum?

Return Parameters

NRf

FETCh[:SCALar]:VOLTage:MAXimum?

Query the maximum voltage value.

Command Syntax

FETCh[:SCALar]:VOLTage:MAXimum?

Parameter

None

Defaults

None

Example

FETCh:VOLTage:MAXimum?

Return Parameters

NRf

FETCh[:SCALar]:POWer:MAXimum?

Query the maximum power value.

Command Syntax

FETCh[:SCALar]:POWer:MAXimum?

Parameter

None

Defaults

None

Example

FETCh:POWer:MAXimum?

Return Parameters

NRf

FETCh[:SCALar]:CURRent:MINimum?

Query the minimum current value.

Command Syntax

FETCh[:SCALar]:CURRent:MINimum?

Parameter

None

Defaults

None

Example

FETCh:CURRent:MINimum?

Return Parameters

NRf

FETCh[:SCALar]:VOLTage:MINimum?

Query the minimum voltage value.

Command Syntax

FETCh[:SCALar]:VOLTage:MINimum?

Parameter

None

Defaults

None

Example

FETCh:VOLTage:MINimum?

Return Parameters

NRf

FETCh[:SCALar]:POWer:MINimum?

Query the minimum power value.

Command Syntax

FETCh[:SCALar]:POWer:MINimum?

Parameter

None

Defaults

None

Example

FETCh:POWer:MINimum?

Return Parameters

NRf

FETCh[:SCALar]:AHOuR?

Read the last measured Ah value.

Command Syntax

FETCh[:SCALar]:AHOuR?

Parameter

None

Defaults

None

Example

FETCh:AHOur?

Return Parameters

NRf

FETCh[:SCALar]:WHOur?

Read the last measured Wh value.

Command Syntax

FETCh[:SCALar]:WHOur?

Parameter

None

Defaults

None

Example

FETCh:WHOur?

Return Parameters

NRf

FETCh[:SCALar]:DLOG:STATe?

Query the dlog system's running status: DILE|WTG|ACT|END.

Command Syntax

FETCh[:SCALar]:DLOG:STATe?

Parameter

None

Defaults

None

Example

FETCh:DLOG:STATe?

Return Parameters

CPD

FETCh[:SCALar]:ELOG:STATe?

Query the elog system's running status: DILE|WTG|ACT|END.

Command Syntax

FETCh[:SCALAr]:ELOG:STATe?

Parameter

None

Defaults

None

Example

FETCh:ELOG:STATe?

Return Parameters

CPD

FETCh[:SCALAr]:ELOG? <maxrecords>

Read the specified length of elog data. The return format depends on the FORM:BORDER and FORM[:DATA] settings. If the data format is set to ASCII, the values returned will be separated by commas. Time, voltage, current, DVM voltage, voltage max/min, current max/min, DVM voltage max/min.

Command Syntax

FETCh[:SCALAr]:ELOG? <maxrecords>

Parameter

None

Defaults

None

Example

FETCh:ELOG?

Return Parameters

NRf

FETCh[:SCALAr]:TIME?

Read the time parameters for statistical data.

Command Syntax

FETCh[:SCALAr]:TIME?

Parameter

None

Defaults

None

Example

FETCh:TIME?

Return Parameters

NRf

FETCh[:SCALAr]:VOLTage:HOLD:<MAXimum|MINimum>?

Read the maximum and minimum voltage values for statistical data over a period of time.

Command Syntax

FETCh[:SCALAr]:VOLTage:HOLD:<MAXimum|MINimum>?

Parameter

None

Defaults

None

Example

FETCh:VOLTage:HOLD:MAXimum?

Return Parameters

NRf

FETCh[:SCALAr]:CURRent:HOLD:<MAXimum|MINimum>?

Read the maximum and minimum current values for statistical data over a period of time.

Command Syntax

FETCh[:SCALAr]:CURRent:HOLD:<MAXimum|MINimum>?

Parameter

None

Defaults

None

Example

FETCh:CURRent:HOLD:MINimum?

Return Parameters

NRf

FETCh[:SCALar]:POWer:HOLD:<MAXimum|MINimum>?

Read the maximum and minimum power values for statistical data over a period of time.

Command Syntax

FETCh[:SCALar]:POWer:HOLD:<MAXimum|MINimum>?

Parameter

None

Defaults

None

Example

FETCh:POWer:HOLD:MINimum?

Return Parameters

NRf

MEASure[:SCALar]:CURRent[:DC]?

Queries the average measured input current.

Command Syntax

MEASure[:SCALar]:CURRent[:DC]?

Parameter

NRf

Defaults

None

Example

MEASure:CURRent?

Return Parameters

NRf

MEASure[:SCALar]:VOLTage[:DC]?

Queries the average measured input voltage.

Command Syntax

MEASure[:SCALar]:VOLTage[:DC]?

Parameter

NRf

Defaults

None

Example

MEASure:VOLTage?

Return Parameters

NRf

MEASure[:SCALar]:POWer[:DC]?

Queries the average measured input power.

Command Syntax

MEASure[:SCALar]:POWer[:DC]?

Parameter

NRf

Defaults

None

Example

MEASure:POWer?

Return Parameters

NRf

MEASure[:SCALar]:CURRent:MAXimum?

Queries the maximum measured input current.

Command Syntax

MEASure[:SCALar]:CURRent:MAXimum?

Parameter

NRf

Defaults

None

Example

MEASure:CURRent:MAXimum?

Return Parameters

NRf

MEASure[:SCALar]:VOLTage:MAXimum?

Queries the maximum measured input voltage.

Command Syntax

MEASure[:SCALar]:VOLTage:MAXimum?

Parameter

NRf

Defaults

None

Example

MEASure:VOLTage:MAXimum?

Return Parameters

NRf

MEASure[:SCALar]:POWer:MAXimum?

Queries the maximum measured input power.

Command Syntax

MEASure[:SCALar]:POWer:MAXimum?

Parameter

NRf

Defaults

None

Example

MEASure:POWer:MAXimum?

Return Parameters

NRf

MEASure[:SCALar]:CURRent:MINimum?

Queries the minimum measured input current.

Command Syntax

MEASure[:SCALar]:CURRent:MINimum?

Parameter

NRf

Defaults

None

Example

MEASure:CURRent:MINimum?

Return Parameters

NRf

MEASure[:SCALar]:VOLTage:MINimum?

Queries the minimum measured input voltage.

Command Syntax

MEASure[:SCALar]:VOLTage:MINimum?

Parameter

NRf

Defaults

None

Example

MEASure:VOLTage:MINimum?

Return Parameters

NRf

MEASure[:SCALar]:POWer:MINimum?

Queries the minimum measured input power.

Command Syntax

MEASure[:SCALar]:POWer:MINimum?

Parameter

NRf

Defaults

None

Example

MEASure:POWer:MINimum?

Return Parameters

NRf

Chapter13 FETCh&MEASure (IT8100A)

The commands described in this chapter are only applicable to the IT8100A series, the IT8100E series does not support these commands.

FETCh[:SCALar]:DVM[:DC]?

Read the high-precision voltmeter voltage value.

Command Syntax

FETCh[:SCALar]:DVM[:DC]?

Parameter

None

Defaults

None

Example

FETCh:DVM?

Return Parameters

NRf

FETCh[:SCALar]:IMPedance:ALL?

Returns all impedance measurement values. Valid only in CCSine mode.

Command Syntax

FETCh[:SCALar]:IMPedance:ALL?

Parameter

NRf

Defaults

None

Example

FETCh:IMPedance:ALL?

Return Parameters

NRf:
freq, // frequency Hz
voltage_amp, // voltage amplitude V
voltage_phase, // voltage phase DEG
current_amp, // current amplitude A
current_phase, // current phase DEG

```

resistance_amp, // resistance      ohm
resistance_pahse,// phase        DEG
Rs,             // equivalent series resistance  ohm
Xs,             // equivalent series reactance    ohm
Rp,             // equivalent parallel resistance ohm
Xp,             // equivalent parallel reactance  ohm
Cp,             // equivalent parallel capacitance uF
Cs,             // equivalent series capacitance   uF
Lp,             // equivalent parallel inductance  mH
Ls,             // equivalent series inductance    mH
Q,              // quality factor
D               // dissipation factor

```

FETCh[:SCALar]:IMPedance? <CPD>

Returns the impedance value according to the impedance function setting.
Valid only in CCSine mode.

Command Syntax

```
FETCh[:SCALar]:IMPedance? <CPD>
```

Parameter

```

CPD
<CPD|CSD|RPCP|RSCS|RSLS|RX|ZPH>

```

Defaults

None

Example

```
FETCh:IMPedance? CPD
```

Return Parameters

```

NRf:
CPD:Cp,D
CSD:Cs,D
RPCP:Rp,Cp
RSCS:Rs,Cs
RSLS:Rs,Ls
RX:Rs,X
ZPH:Z,θ

```

FETCh:TEMPerature?

This command is used to obtain the instrument temperature. Up to 6 return values are available, corresponding to the displayed temperatures of modules a1, a2, a3, b1, b2, and b3.

Command Syntax

```
FETCh:TEMPerature?
```

Parameter

NRf

Defaults

None

Example

FETCh:TEMPerature?

Return Parameters

NRf

FETCh[:SCALar]:TMEasure:TIME?

Returns the measurement time result, for the Time Measure module.

Command Syntax

FETCh[:SCALar]:TMEasure:TIME?

Parameter

NRf

Defaults

None

Example

FETCh:TMEasure:TIME?

Return Parameters

NRf

FETCh[:SCALar]:TMEasure:RUN:TIME?

Returns the running time, for the Time Measure module.

Command Syntax

FETCh[:SCALar]:TMEasure:RUN:TIME?

Parameter

NRf

Defaults

None

Example

FETCh:TMEasure:RUN:TIME?

Return Parameters

NRf

FETCh:EIS:STATus? <CURRent_POINT>

Returns the impedance spectrum status of the current point: 0 means unavailable, 1 means available.

(Valid only in CCSine mode. The maximum parameter value varies with the actual number of running points and does not exceed 1000.)

Command Syntax

FETCh:EIS:STATus? <CURRent_POINT>

Parameter

NR3

1-Run_Point

[MINimum|MAXimum]

Defaults

None

Example

FETCh:EIS:STATus? MINimum

Return Parameters

CPD

FETCh:EIS? <CURRent_POINT>

Returns the resistance and reactance in series mode for all frequency impedances at the current point.

(Valid only in CCSine mode. The maximum parameter value varies with the actual number of running points and does not exceed 1000.)

Command Syntax

FETCh:EIS? <CURRent_POINT>

Parameter

NR3

1-Run_Point

[MINimum|MAXimum]

Defaults

None

Example

FETCh:EIS? MINimum

Return Parameters

NRf:

Rs, // equivalent series resistance ohm

Xs // equivalent series reactance ohm

FETCh:EIS:IMPedance?

<CURRent_POINT>,<freq_point>

Returns the analyzed value of the impedance spectrum at the frequency corresponding to the current point. The displayed parameters vary depending on the impedance function.

(1. Valid only in CCSine mode.

2. The maximum parameter value varies with the actual number of running points and will not exceed 1000.

3. The impedance function can be obtained with the SENSE:IMPedance:FUNCTION? command.)

Command Syntax

FETCh:EIS:IMPedance? <CURRent_POINT>,<freq_point>

Parameter

NR3

<1-Run_Point

[MINimum|MAXimum]>,

<1-Run_Freq_Point

[MINimum|MAXimum]>

Defaults

None

Example

FETCh:EIS:IMPedance? MINimum,MINimum

Return Parameters

NRf:

CPD:Cp,D

CSD:Cs,D

RPCP:Rp,Cp

RSCS:Rs,Cs

RSLS:Rs,Ls

RX:Rs,X

ZPH:Z, θ

FETCh:EIS:REIM? <CURRent_POINT>

Returns the impedance spectrum analysis values at all frequencies for the current point. The displayed parameters vary depending on the impedance function. A maximum of 1000 groups of parameters can be displayed.

(1. Valid only in CCSine mode.

2. The maximum parameter value varies with the actual number of running points and will not exceed 1000.
3. The impedance function can be obtained with the SENSE:IMPedance:FUNCTION? command.)

Command Syntax

FETCh:EIS:REIM? <CURRent_POINTt>

Parameter

NR3
1-Run_Point
[MINimum|MAXimum]

Defaults

None

Example

FETCh:EIS:REIM? MINimum

Return Parameters

NRf:
CPD:Cp,D
CSD:Cs,D
RPCP:Rp,Cp
RSCS:Rs,Cs
RSLS:Rs,Ls
RX:Rs,X
ZPH:Z, θ

FETCh:EIS:IMPedance:REIM? <CURRent_POINTt>,<freq_point>

Returns the resistance and reactance in series mode at the frequency corresponding to the current point.

(Valid only in CCSine mode. The maximum parameter value varies with the actual number of running points and will not exceed 1000.)

Command Syntax

FETCh:EIS:IMPedance:REIM? <CURRent_POINTt>,<freq_point>

Parameter

NR3
<1-Run_Point
[MINimum|MAXimum]>,
<1-Run_Freq_Point
[MINimum|MAXimum]>

Defaults

None

Example

FETCh:EIS:IMPedance:REIM? MINimum,MINimum

Return Parameters

NRf:

Rs, // equivalent series resistance ohm

Xs // equivalent series reactance ohm

FETCh:EIS:IMPedance:ALL? <CURRENT_POINT>,<freq_point>

Returns all parameters in series impedance mode at the frequency corresponding to the current point.

(Valid only in CCSine mode. The maximum parameter value varies with the actual number of running points and will not exceed 1000.)

Command Syntax

FETCh:EIS:IMPedance:ALL? <CURRENT_POINT>,<freq_point>

Parameter

NR3

<1-Run_Point

[MINimum|MAXimum]>,

<1-Run_Freq_Point

[MINimum|MAXimum]>

Defaults

None

Example

FETCh:EIS:IMPedance:ALL? MINimum,MINimum

Return Parameters

NRf:

freq, // frequency Hz

voltage_amp, // voltage amplitude V

voltage_phase, // voltage phase DEG

current_amp, // current amplitude A

current_phase, // current phase DEG

resistance_amp, // resistance ohm

resistance_pahse, // phase DEG

Rs, // equivalent series resistance ohm

Xs, // equivalent series reactance ohm

Rp, // equivalent parallel resistance ohm

Xp, // equivalent parallel reactance ohm

Cp,	// equivalent parallel capacitance uF
Cs,	// equivalent series capacitance uF
Lp,	// equivalent parallel inductance mH
Ls,	// equivalent series inductance mH
Q,	// quality factor
D	// dissipation factor

FETCh:EIS:BODE:MARK1?

Queries the impedance value of MARK1 in the EIS Bode plot.

(Valid only in CCSine mode. The number of displayed parameters is set by the DISPlay:EIS:BODE:ITEM command.)

Command Syntax

FETCh:EIS:BODE:MARK1?

Parameter

NRf

Defaults

None

Example

FETCh:EIS:BODE:MARK1?

Return Parameters

NRF

FETCh:EIS:BODE:MARK2?

Queries the impedance value of MARK1 in the EIS Bode plot.

(Valid only in CCSine mode. The number of displayed parameters is set by the DISPlay:EIS:BODE:ITEM command.)

Command Syntax

FETCh:EIS:BODE:MARK2?

Parameter

NRf

Defaults

None

Example

FETCh:EIS:BODE:MARK2?

Return Parameters

NRF

MEASure[:SCALar]:DVM[:DC]?

Reads the high-precision voltmeter voltage value. Mainly used in DC mode.

Command Syntax

MEASure[:SCALar]:DVM[:DC]?

Parameter

NRf

Defaults

None

Example

MEASure:DVM?

Return Parameters

NRf

MEASure[:SCALar]:IMPedance:ALL?

Returns all impedance measurement values. Valid only in CCSine mode.

Command Syntax

MEASure[:SCALar]:IMPedance:ALL?

Parameter

NRf

Defaults

None

Example

MEASure:IMPedance:ALL?

Return Parameters

NRf:
freq, // Frequency Hz
voltage_amp, // Voltage amplitude V
voltage_phase, // Voltage phase DEG
current_amp, // Current amplitude A
current_phase, // Current phase DEG
resistance_amp, // Resistance ohm
resistance_phase, // Phase DEG
Rs, // Equivalent series resistance ohm
Xs, // Equivalent series reactance ohm
Rp, // Equivalent parallel resistance ohm
Xp, // Equivalent parallel reactance ohm

Cp, // Equivalent parallel capacitance uF
Cs, // Equivalent series capacitance uF
Lp, // Equivalent parallel inductance mH
Ls, // Equivalent series inductance mH
Q, // Quality factor
D // Dissipation factor

MEASure[:SCALar]:IMPedance? <CPD>

Returns the impedance value according to the impedance function setting.
Valid only in CCSine mode.

Command Syntax

MEASure[:SCALar]:IMPedance? <CPD>

Parameter

CPD
<CPD|CSD|RPCP|RSCS|RSLS|RX|ZPH>

Defaults

None

Example

MEASure:IMPedance? CPD

Return Parameters

NRf:
CPD: Cp, D
CSD: Cs, D
RPCP: Rp, Cp
RSCS: Rs, Cs
RSLS: Rs, Ls
RX: Rs, X
ZPH: Z, θ

Chapter14 ABORt Subsystem

ABORt:DLOG

This command is used to stop the data logger.

Command Syntax

ABORt:DLOG

Parameter

None

Defaults

None

Example

ABOR:DLOG

ABORt:ELOG

This command is used to stop the external logger.

Command Syntax

ABORt:ELOG

Parameter

None

Defaults

None

Example

ABOR:ELOG

ABORt:TRANsient

Abort transient trigger system, return to idle.

Command Syntax

ABORt:TRANsient

Parameter

None

Defaults

None

Example

ABOR:TRAN

ABORt:ARB

Abort ARB trigger system, return to idle.

Command Syntax

ABORt:ARB

Parameter

None

Defaults

None

Example

ABOR:ARB

ABORt:SWEep

Abort sweep trigger system, return to idle.

Command Syntax

ABORt:SWEep

Parameter

None

Defaults

None

Example

ABOR:SWE

ABORt:EIS

Abort EIS function operation.

Command Syntax

ABORt:EIS

Parameter

None

Defaults

None

Example

ABOR:EIS

ABORt:IMPedance

Abort impedance measurement function.

Command Syntax

ABORt:IMPedance

Parameter

None

Defaults

None

Example

ABOR:IMP

Chapter15 TRANsient Subsystem

[SOURce:]TRANsient:MODE

Set the transient mode.

Command Syntax

[SOURce:]TRANsient:MODE

Parameter

CPD
CONTInuous|PULSe|TOGGle

Defaults

CONTInuous

Example

TRAN:MODE CONT
TRAN:MODE:CONT?

Query Syntax

[SOURce:]TRANsient:MODE?

Return Parameters

CRD

[SOURce:]TRANsient:COUNt

Set the number of transient runs for Continuous mode.

Command Syntax

[SOURce:]TRANsient:COUNt

Parameter

NR1
1-65535| MINimum|MAXimum|INFinity

Defaults

INFinity

Example

TRAN:COUN 10
TRAN:COUN?

Query Syntax

[SOURce:]TRANsient:COUNt?

Return Parameters

NR1

[SOURce:]<CURRent|VOLTage|POWer|RESistance>:TRANsient:ALEVel

Set the A value for Transient mode.

Command Syntax

[SOURce:]<CURRent|VOLTage|POWer|RESistance>:TRANsient:ALEVel

Parameter

NRf+
MINimum|MAXimum|DEFault

Defaults

0

Example

CURR:TRAN:ALEV 10
CURR:TRAN:ALEV?
VOLT:TRAN:ALEV 10
VOLT:TRAN:ALEV?
POW:TRAN:ALEV 10
POW:TRAN:ALEV?
RES:TRAN:ALEV 10
RES:TRAN:ALEV?

Query Syntax

[SOURce:]<CURRent|VOLTage|POWer|RESistance>:TRANsient:ALEVel?

Return Parameters

NR1

[SOURce:]<CURRent|VOLTage|POWer|RESistance>:TRANsient:BLEVel

Set the B value for Transient mode.

Command Syntax

[SOURce:]<CURRent|VOLTage|POWer|RESistance>:TRANsient:BLEVel

Parameter

NRf+
MINimum|MAXimum|DEFault
20us - 100s

Defaults

0

Example

```
CURR:TRAN:BLEV 10
CURR:TRAN:BLEV?
VOLT:TRAN:BLEV 10
VOLT:TRAN:BLEV?
POW:TRAN:BLEV 10
POW:TRAN:BLEV?
RES:TRAN:BLEV 10
RES:TRAN:BLEV?
```

Query Syntax

[SOURce:]<CURRent|VOLTage|POWER|RESistance>:TRANsient:BLEV?

Return Parameters

NR1

[SOURce:]<CURRent|VOLTage|POWER|RESistance>:TRANsient:AWIDTH

Set the duration of the A value, applicable for Continuous and Pulse modes.

Command Syntax

[SOURce:]<CURRent|VOLTage|POWER|RESistance>:TRANsient:AWIDTH

Parameter

NRf+
MINimum|MAXimum|DEFault
10us - 999.999s

Defaults

10ms

Example

```
CURR:TRAN:AWID 100ms
CURR:TRAN:AWID?
VOLT:TRAN:AWID 100ms
VOLT:TRAN:AWID?
POW:TRAN:AWID 100ms
POW:TRAN:AWID?
RES:TRAN:AWID 100ms
RES:TRAN:AWID?
```

Query Syntax

[SOURce:]<CURRent|VOLTage|POWER|RESistance>:TRANsient:AWIDTH?

Return Parameters

NR1

[SOURce:]<CURRent|VOLTage|POWer|RESistance>:TRANsient:BWIDth

Set the duration of the B value, applicable for Continuous and Pulse modes.

Command Syntax

[SOURce:]<CURRent|VOLTage|POWer|RESistance>:TRANsient:BWIDth

Parameter

NRf+
MINimum|MAXimum|DEFault
10us - 999.999s

Defaults

10ms

Example

CURR:TRAN:BWID 100ms
CURR:TRAN:BWID?
VOLT:TRAN:BWID 100ms
VOLT:TRAN:BWID?
POW:TRAN:BWID 100ms
POW:TRAN:BWID?
RES:TRAN:BWID 100ms
RES:TRAN:BWID?

Query Syntax

[SOURce:]<CURRent|VOLTage|POWer|RESistance>:TRANsient:BWIDth?

Return Parameters

NR1

[SOURce:]<CURRent|VOLTage|POWer|RESistance>:TRANsient:DCYCLE

Set the duty cycle in Continuous mode.

Command Syntax

[SOURce:]<CURRent|VOLTage|POWer|RESistance>:TRANsient:DCYCLE

Parameter

NRf+
MINimum|MAXimum|DEFault
0.01 - 99.99

Defaults

50

Example

```
CURR:TRAN:DCYC 50
CURR:TRAN:DCYC?
VOLT:TRAN:DCYC 50
VOLT:TRAN:DCYC?
POW:TRAN:DCYC 50
POW:TRAN:DCYC?
RES:TRAN:DCYC 50
RES:TRAN:DCYC?
```

Query Syntax

[SOURce:]<CURRent|VOLTage|POWER|RESistance>:TRANsient:DCYCLE?

Return Parameters

NR1

[SOURce:]<CURRent|VOLTage|POWER|RESistance>:TRANsient:FREQuency

Set the frequency in Continuous mode.

Command Syntax

[SOURce:]<CURRent|VOLTage|POWER|RESistance>:TRANsient:FREQuency

Parameter

NRf+
MINimum|MAXimum|DEFault
0.001 - 50000Hz

Defaults

50

Example

```
CURR:TRAN:FREQ 50
CURR:TRAN:FREQ?
VOLT:TRAN:FREQ 50
VOLT:TRAN:FREQ?
POW:TRAN:FREQ 50
POW:TRAN:FREQ?
RES:TRAN:FREQ 50
RES:TRAN:FREQ?
```

Query Syntax

[SOURce:]<CURRent|VOLTage|POWER|RESistance>:TRANsient:FREQuency

?

Return Parameters

NR1

**[SOURce:]CURRENT:TRANSient:SLEW:TIME[:POSitive]
[:IMMediate]**

This command is used to set the transient rise slew time. Before using it, first send the command: CURRENT:SLEW:TYPE TIME

Command Syntax

[SOURce:]CURRENT:TRANSient:SLEW:TIME[:POSitive][:IMMediate]

Parameter

NRf+
MINimum|MAXimum|DEFault

Defaults

None

Example

CURR:TRAN:SLEW:TIME 0.2
CURR:TRAN:SLEW?

Query Syntax

[SOURce:]CURRENT:TRANSient:SLEW:TIME[:POSitive][:IMMediate]?

Return Parameters

NR1

[SOURce:]CURRENT:TRANSient:SLEW:TIME:NEGative[:IMMediate]

This command is used to set the transient fall slew time. Before using it, first send the command: CURRENT:SLEW:TYPE TIME

Command Syntax

[SOURce:]CURRENT:TRANSient:SLEW:TIME:NEGative[:IMMediate]

Parameter

NRf+
MINimum|MAXimum|DEFault

Defaults

None

Example

CURR:TRAN:SLEW:TIME:NEG 0.2
CURR:TRAN:SLEW:TIME:NEG?

Query Syntax

[SOURce:]CURRent:TRANsient:SLEW:TIME:NEGative[:IMMediate]?

Return Parameters

NR1

Chapter16 BATTery Subsystem

[SOURce:]BATTery:DISCharge:CUTOff:VOLTage:STATe

Set the state of the cutoff voltage switch.

Command Syntax

[SOURce:]BATTery:DISCharge:CUTOff:VOLTage:STATe

Parameter

Bool
ON|OFF|1|0

Defaults

0

Example

BATTery:DISCharge:CUTOff:VOLTage:STATe 1

Query Syntax

[SOURce:]BATTery:DISCharge:CUTOff:VOLTage:STATe?

Return Parameters

0|1

[SOURce:]BATTery:DISCharge:CUTOff:VOLTage[:IMM ediate] <voltage>

Set the cutoff voltage value.

Command Syntax

[SOURce:]BATTery:DISCharge:CUTOff:VOLTage[:IMM ediate] <voltage>

Parameter

NRf+
value()|MINimum| MAXimum|DEFault

Defaults

0

Example

BATTery:DISCharge:CUTOff:VOLTage 5

Query Syntax

[SOURce:]BATTery:DISCharge:CUTOff:VOLTage[:IMM ediate]?

Return Parameters

NR1

[SOURce:]BATTery:DISCharge:CUTOff:CURRent:STATe

Set the state of the cutoff current switch.

Command Syntax

[SOURce:]BATTery:DISCharge:CUTOff:CURRent:STATe

Parameter

Bool
ON|OFF|1|0

Defaults

1

Example

BATTery:DISCharge:CUTOff:CURRent:STATe 1

Query Syntax

[SOURce:]BATTery:DISCharge:CUTOff:CURRent:STATe?

Return Parameters

Bool

[SOURce:]BATTery:DISCharge:CUTOff:CURRent[:IMMEDIATE] <voltage>

Set the cutoff current value.

Command Syntax

[SOURce:]BATTery:DISCharge:CUTOff:CURRent[:IMMEDIATE] <voltage>

Parameter

NRf+
value()|MINimum| MAXimum|DEFault

Defaults

0

Example

BATTery:DISCharge:CUTOff:CURRent 6

Query Syntax

[SOURce:]BATTery:DISCharge:CUTOff:CURRent[:IMMEDIATE] ?

Return Parameters

NR1

[SOURce:]BATTeRy:DISCharge:CUTOff:CAPacity:STATe

Set the state of the consumed capacity cutoff switch.

Command Syntax

[SOURce:]BATTeRy:DISCharge:CUTOff:CAPacity:STATe

Parameter

Bool
ON|OFF|1|0

Defaults

0

Example

BATTeRy:DISCharge:CUTOff:CAPacity:STATe 1

Query Syntax

[SOURce:]BATTeRy:DISCharge:CUTOff:CAPacity:STATe?

Return Parameters

0|1

[SOURce:]BATTeRy:DISCharge:CUTOff:CAPacity[:IMMEDIATE]

Set the cutoff consumed capacity value.

Command Syntax

[SOURce:]BATTeRy:DISCharge:CUTOff:CAPacity[:IMMEDIATE]

Parameter

NRf+
value()|MINimum| MAXimum|DEFault

Defaults

1

Example

BATTeRy:DISCharge:CUTOff:CAPacity 20

Query Syntax

[SOURce:]BATTeRy:DISCharge:CUTOff:CAPacity[:IMMEDIATE] ?

Return Parameters

NR1

[SOURce:]BATTeRy:DISCharge:CUTOff:ENERgy:STATe

Set the state of the consumed energy cutoff switch.

Command Syntax

[SOURce:]BATTeRy:DISCharge:CUTOff:ENERgy:STATe

Parameter

Bool
ON|OFF|1|0

Defaults

0

Example

BATTeRy:DISCharge:CUTOff:ENERgy:STATe 1

Query Syntax

[SOURce:]BATTeRy:DISCharge:CUTOff:ENERgy:STATe?

Return Parameters

0|1

[SOURce:]BATTeRy:DISCharge:CUTOff:ENERgy[:IMMe diate]

Set the cutoff consumed energy value.

Command Syntax

[SOURce:]BATTeRy:DISCharge:CUTOff:ENERgy[:IMMediate]

Parameter

NRf+
value()|MINimum| MAXimum|DEFault

Defaults

1

Example

BATTeRy:DISCharge:CUTOff:ENERgy 50

Query Syntax

[SOURce:]BATTeRy:DISCharge:CUTOff:ENERgy[:IMMediate] ?

Return Parameters

NR1

[SOURce:]BATTeRy:DISChArge:CUTOff:TIMer:STATe

Set the state of the cutoff timer switch.

Command Syntax

[SOURce:]BATTeRy:DISChArge:CUTOff:TIMer:STATe

ParameterBool
ON|OFF|1|0**Defaults**

0

Example

BATTeRy:DISChArge:CUTOff:TIMer:STATe 1

Query Syntax

[SOURce:]BATTeRy:DISChArge:CUTOff:TIMer:STATe?

Return Parameters

0|1

**[SOURce:]BATTeRy:DISChArge:CUTOff:TIMer[:IMMedia
te]**

Set the cutoff timer duration value.

Command Syntax

[SOURce:]BATTeRy:DISChArge:CUTOff:TIMer[:IMMediate]

ParameterNR3
0-86400|MINimum| MAXimum|DEFault**Defaults**

0

Example

BATTeRy:DISChArge:CUTOff:TIMer 100

Query Syntax

[SOURce:]BATTeRy:DISChArge:CUTOff:TIMer[:IMMediate] ?

Return Parameters

NR3

[SOURce:]BATTeRy:DISCharge:MEASure:CAPacity?

Query the depleted battery capacity. The returned value is in Ah.

Command Syntax

[SOURce:]BATTeRy:DISCharge:MEASure:CAPacity?

Parameter

NRf+

Defaults

None

Example

BATTeRy:DISCharge:MEASure:CAPacity?

Return Parameters

NR1

[SOURce:]BATTeRy:DISCharge:MEASure:ENERgy?

Query the depleted battery energy. The returned value is in Wh.

Command Syntax

[SOURce:]BATTeRy:DISCharge:MEASure:ENERgy?

Parameter

NRf+

Defaults

None

Example

BATTeRy:DISCharge:MEASure:ENERgy?

Return Parameters

NR1

[SOURce:]BATTeRy:DISCharge:MEASure:TIME?

Query the battery test run time value.

Command Syntax

[SOURce:]BATTeRy:DISCharge:MEASure:TIME?

Parameter

NRf+

Defaults

None

Example

BATTeRy:DISChArge:MEASure:TIME?

Return Parameters

NR1

**[SOURce:]BATTeRy:DISChArge:SAVE
<path><"filename">**

Save configuration file.

Command Syntax

[SOURce:]BATTeRy:DISChArge:SAVE <path><"filename">

ParameterCPD,SPD
LOCAL|UDISK**Defaults**

None

Example

BATTeRy:DISChArge:SAVE LOCAL,"battery1.csv"

Return Parameters

CRD,SPD

**[SOURce:]BATTeRy:DISChArge:OPEN
<path><"filename">**

Open configuration file.

Command Syntax

[SOURce:]BATTeRy:DISChArge:OPEN <path><"filename">

ParameterCPD,SPD
LOCAL|UDISK**Defaults**

None

Example

BATTeRy:DISChArge:OPEN LOCAL,"battery1.csv"

Return Parameters

CRD,SPD

**[SOURce:]BATTeRy:DISChArge:DELeTe
<path><"filename">**

Delete configuration file.

Command Syntax

[SOURce:]BATTeRy:DISChArge:DELeTe <path><"filename">

Parameter

CPD,SPD
LOCAL|UDISK

Defaults

None

Example

BATTeRy:DISChArge:DELeTe LOCAL,"battery1.csv"

Return Parameters

CRD,SPD

[SOURce:]BATTeRy:DISChArge:RSTate?

Query current working state of the discharge process.

Command Syntax

[SOURce:]BATTeRy:DISChArge:RSTate?

Parameter

SPD
Idle,Discharging,Voltage Up,Current Up,CAPacity Up,Energy Up,Time up,Abort

Defaults

None

Example

BATTeRy:DISChArge:RSTate?

Return Parameters

SPD

[SOURce:]BATTeRy:DISChArge[:ENABle]

Set/query the status of battery discharge start/stop.

Command Syntax

[SOURce:]BATTeRy:DISChArge[:ENABle]

Parameter

Bool
ON|OFF|1|0

Defaults

0

Example

SOURce:BATTeRy:DISChArge:ENABle ON
SOURce:BATTeRy:DISChArge:ENABle?

Query Syntax

[SOURce:]BATTeRy:DISChArge[:ENABle]?

Return Parameters

1|0

[SOURce:]BATTeRy:DISChArge:STARt:CONDtion

Set/query the trigger conditions for battery start.

Command Syntax

[SOURce:]BATTeRy:DISChArge:STARt:CONDtion

Parameter

IMMEDIATE|BUS|MANual

Defaults

IMM

Example

SOURce:BATTeRy:DISChArge:STARt:CONDtion IMM
SOURce:BATTeRy:DISChArge:STARt:CONDtion?

Query Syntax

[SOURce:]BATTeRy:DISChArge:STARt:CONDtion?

Return Parameters

IMMEDIATE|BUS|MANual

Chapter17 LIST Subsystem

[SOURce:]LIST:FUNCTION:TYPE

Set and query list operation mode.

Command Syntax

[SOURce:]LIST:FUNCTION:TYPE

Parameter

CPD
CURRent|VOLTage|RESistance|POWER

Defaults

CURRent

Example

LIST:FUNCTION:TYPE CURRent

Query Syntax

[SOURce:]LIST:FUNCTION:TYPE?

Return Parameters

CPD

[SOURce:]LIST:COUNT

Set the repeat count for list.

Command Syntax

[SOURce:]LIST:COUNT

Parameter

NR3
<1-9999999>|MINimum|MAXimum|INFINITY

Defaults

1

Example

LIST:COUNT 10

Query Syntax

[SOURce:]LIST:COUNT? [MINimum|MAXimum|INFINITY]

Return Parameters

NR3

[SOURce:]LIST:<CURRENT|VOLTage|POWER|RESistance>[:LEVel]<value>,{<value>}

Set each step value of current/voltage/power/resistance list (up to 20 steps at a time).

Command Syntax

[SOURce:]LIST:<CURRENT|VOLTage|POWER|RESistance>[:LEVel]<value>,{<value>}

Parameter

NRf+
MINimum|MAXimum|DEFault

Defaults

None

Example

LIST:CURRENT 2,4,6

Query Syntax

[SOURce:]LIST:<CURRENT|VOLTage|POWER|RESistance>[:LEVel]?

Return Parameters

NRf+

[SOURce:]LIST:<CURRENT|VOLTage|POWER|RESistance>:APPend<value>,{<value>}

Append each step value of current/voltage/power/resistance list (up to 20 steps).

Command Syntax

[SOURce:]LIST:<CURRENT|VOLTage|POWER|RESistance>:APPend<value>,{<value>}

Parameter

NRf+
MINimum|MAXimum|DEFault

Defaults

None

Example

LIST:CURRENT:APPend 8,10,12

Query Syntax

[SOURce:]LIST:<CURRent|VOLTage|POWer|RESistance>:APPend?

Return Parameters

NR3

[SOURce:]LIST:<CURRent|VOLTage|POWer|RESistance>:POINTs?

Query total number of list points.

Command Syntax

[SOURce:]LIST:<CURRent|VOLTage|POWer|RESistance>:POINTs?

Parameter

None

Defaults

0

Example

LIST:CURRent:POINTs?

Return Parameters

NRf+

0-9999|MINimum|MAXimum

[SOURce:]LIST:<CURRent|POWer|RESistance>:SLEW<value>,{<value>}

Set slope for current/power/conductance list (up to 20 steps).

Command Syntax

[SOURce:]LIST:<CURRent|POWer|RESistance>:SLEW<value>,{<value>}

Parameter

NRf+

Same slope range as in source config.

Defaults

None

Example

LIST:CURRent:SLEW 1,1,1

Query Syntax

[SOURce:]LIST:<CURRent|POWer|RESistance>:SLEW?

Return Parameters

NRf+

[SOURce:]LIST:<CURRENT|VOLTage|POWer|RESistance>:SLEW:APPend<value>,{<value>}

Append slope for voltage/current/power/conductance list (up to 20 steps).

Command Syntax

[SOURce:]LIST:<CURRENT|VOLTage|POWer|RESistance>:SLEW:APPend<value>,{<value>}

Parameter

NRf+

MINimum|MAXimum|DEFault

Defaults

None

Example

LIST:CURRENT:SLEW:APPend 1,1,1

Query Syntax

[SOURce:]LIST:<CURRENT|VOLTage|POWer|RESistance>:SLEW:APPend?

Return Parameters

NR3

[SOURce:]LIST:DWELI<value>,{<value>}

Set dwell time for each list step (up to 20).

Note: shared by voltage, current, power, resistance lists.

Command Syntax

[SOURce:]LIST:DWELI<value>,{<value>}

Parameter

NRf+

10us-5000s

Defaults

0.1s

Example

LIST:DWELI 5,5,5

Query Syntax

[SOURce:]LIST:DWELI?

Return Parameters

NRf+

[SOURce:]LIST:DWELL:APPend<value>,{<value>}

Append dwell time for each list step (up to 20).

Note: shared by voltage, current, power, resistance lists.

Command Syntax

[SOURce:]LIST:DWELL:APPend<value>,{<value>}

Parameter

NRf+

10us-5000s

Defaults

None

Example

LIST:DWELL:APPend 5,5,5

Query Syntax

[SOURce:]LIST:DWELL:APPend?

Return Parameters

NR3

[SOURce:]LIST:DWELL:POINTs?

Query total dwell list points.

Command Syntax

[SOURce:]LIST:DWELL:POINTs?

Parameter

None

Defaults

0

Example

LIST:DWELL:POINTs?

Return Parameters

NR3

0-9999| MINimum|MAXimum (unitless)

[SOURce:]LIST:TOUTput:SIGNal[:DATA]

Set output signal for each step (up to 20 steps).

Command Syntax

[SOURce:]LIST:TOUTput:SIGNal[:DATA]

Parameter

CPD
OFF|BOSTep|EOSTep

Defaults

OFF

Example

LIST:TOUTput:SIGNal OFF,OFF,OFF

Query Syntax

[SOURce:]LIST:TOUTput:SIGNal[:DATA]?

Return Parameters

CPD

[SOURce:]LIST:TOUTput:SIGNal:APPEnd[:DATA]

Append output signal for each step (up to 20 steps).

Command Syntax

[SOURce:]LIST:TOUTput:SIGNal:APPEnd[:DATA]

Parameter

CPD
OFF|BOSTep|EOSTep

Defaults

OFF

Example

LIST:TOUTput:SIGNal:APPEnd OFF,OFF,OFF

Query Syntax

[SOURce:]LIST:TOUTput:SIGNal:APPEnd[:DATA]?

Return Parameters

CPD

[SOURce:]LIST:TOUTput:SIGNal:POINTs?

Get total number of output signals.

Command Syntax

[SOURce:]LIST:TOUTput:SIGNal:POINTs?

Parameter

None

Defaults

0

Example

LIST:TOUTput:SIGNal:POINTs?

Return Parameters

NR3

0-9999|MINimum|MAXimum

[SOURce:]LIST:STEP AUTO|ONCE

Set list trigger function association.

AUTO: Run list step by dwell time.

ONCE: Run list step by trigger signal.

Command Syntax

[SOURce:]LIST:STEP AUTO|ONCE

Parameter

CPD

AUTO|ONCE

Defaults

AUTO

Example

LIST:STEP AUTO

Query Syntax

[SOURce:]LIST:STEP?

Return Parameters

CPD

[SOURce:]LIST:TERMinate:MODE <LAST|NORMal>

Output setting after list ends.

Command Syntax

[SOURce:]LIST:TERMinate:MODE <LAST|NORMal>

Parameter

CPD
LAST|NORMal

Defaults

NORMal

Example

LIST:TERMinate:MODE LAST

Query Syntax

[SOURce:]LIST:TERMinate:MODE?

Return Parameters

CPD

[SOURce:]LIST:COUNT:RUN?

Query current list repeat count.

Command Syntax

[SOURce:]LIST:COUNT:RUN?

Parameter

None

Defaults

None

Example

LIST:COUNT:RUN?

Return Parameters

NR1
0-999999

[SOURce:]LIST:STEP:RUN?

Query current list step count.

Command Syntax

[SOURce:]LIST:STEP:RUN?

Parameter

None

Defaults

None

Example

LIST:STEP:RUN?

Return Parameters

NR1
0-9999

[SOURce:]LIST:FILE:OPEN <local_type>, <string>

Open file from specified storage path.

<local_type>: LOCal|UDISk

<string>: file name

Command Syntax

[SOURce:]LIST:FILE:OPEN <local_type>, <string>

Parameter

CPD,SPD
LOCal|UDISk

Defaults

0

Example

LIST:FILE:OPEN LOCal,"list1.csv"

[SOURce:]LIST:FILE:SAVE <local_type>,<string>

Save file from specified storage path.

<local_type>: LOCal|UDISk

<string>: file name

Command Syntax

[SOURce:]LIST:FILE:SAVE <local_type>,<string>

Parameter

CPD,SPD
LOCal|UDISk

Defaults

0

Example

LIST:FILE:SAVE LOCal,"list1.csv"

[SOURce:]LIST:FILE:DELeTe <local_type>,<string>

Delete file from specified storage path.

<local_type>: LOCal|UDISk

<string>: file name

Command Syntax

[SOURce:]LIST:FILE:DELeTe <local_type>,<string>

Parameter

CPD,SPD
LOCa|UDISk

Defaults

0

Example

LIST:FILE:DELeTe LOCa,"list1.csv"

[SOURce:]LIST:SLOP:TYPE

Set slope type for list. Only available in CC mode. Not supported in other modes.

Command Syntax

[SOURce:]LIST:SLOP:TYPE

Parameter

CPD
RATE|TIME

Defaults

RATE

Example

LIST:SLOP:TYPE TIME

Query Syntax

[SOURce:]LIST:SLOP:TYPE?

Return Parameters

CPD

[SOURce:]LIST:CURREnt:SLEW:RATE

Set and query the high-rate or low-rate type of the slew.

Command Syntax

[SOURce:]LIST:CURREnt:SLEW:RATE

Parameter

CPD
HIGH|LOW

Defaults

HIGH

Example

LIST:CURRent:SLEW:RATE LOW

Query Syntax

[SOURce:]LIST:CURRent:SLEW:RATE?

Return Parameters

HIGH|LOW

[SOURce:]LIST:CURRent:RANGe

Set and query the current range.

Command Syntax

[SOURce:]LIST:CURRent:RANGe

Parameter

CPD

Obtain range values based on actual model.

Defaults

MAX

Example

LIST:CURRent:RANGe 60

Query Syntax

[SOURce:]LIST:CURRent:RANGe?

Return Parameters

NRf+

[SOURce:]LIST:VOLTage:RANGe

Set and query the voltage range.

Command Syntax

[SOURce:]LIST:VOLTage:RANGe

Parameter

CPD

Obtain range values based on actual model.

Defaults

MAX

Example

LIST:VOLTage:RANGe 30

Query Syntax

[SOURce:]LIST:VOLTage:RANGe?

Return Parameters

NRf+

[SOURce:]LIST:RESistance:RANGe

Set and query the resistance range.

Command Syntax

[SOURce:]LIST:RESistance:RANGe

Parameter

CPD

Obtain range values based on actual model.

Defaults

MAX

Example

LIST:RESistance:RANGe 9.9999

Query Syntax

[SOURce:]LIST:RESistance:RANGe?

Return Parameters

NRf+

Chapter18 OCP&OPP Subsystem

[SOURce:]OCP:RSTate?

Read OCP operation status.

Command Syntax

[SOURce:]OCP:RSTate?

Parameter

CPD
<IDLE|WAIT|ACTive>

Defaults

None

Example

OCP:RSTate?

Return Parameters

CPD

[SOURce:]OCP:STATe <Bool>

Enable or disable OCP test mode.

Command Syntax

[SOURce:]OCP:STATe <Bool>

Parameter

Bool
0|1|OFF|ON

Defaults

0

Example

OCP:STATe 1
OCP:STATe?

Query Syntax

[SOURce:]OCP:STATe?

Return Parameters

Bool

[SOURce:]OCP:VON<value>

Set/query OCP test Von voltage value (automatic run voltage point).

Command Syntax

[SOURce:]OCP:VON<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

1

Example

OCP:VON 0.1
OCP:VON?

Query Syntax

[SOURce:]OCP:VON?

Return Parameters

NRf+

[SOURce:]OCP:DELaY<value>

Set/query OCP test Von delay value.

Command Syntax

[SOURce:]OCP:DELaY<value>

Parameter

NRf+
0-100s

Defaults

0.1

Example

OCP:DELaY 3
OCP:DELaY?

Query Syntax

[SOURce:]OCP:DELaY?

Return Parameters

NRf+

[SOURce:]OCP[:CURRent]:RANGe<value>

Set/query current range for OCP test.

Command Syntax

[SOURce:]OCP[:CURRent]:RANGe<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

BEST

Example

OCP:RANGe 600
OCP:RANGe?

Query Syntax

[SOURce:]OCP[:CURRent]:RANGe?

Return Parameters

NRf+

[SOURce:]OCP[:CURRent]:STARt<value>

Set/query start current for OCP test.

Command Syntax

[SOURce:]OCP[:CURRent]:STARt<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

0

Example

OCP:STARt 0
OCP:STARt?

Query Syntax

[SOURce:]OCP[:CURRent]:STARt?

Return Parameters

NRf+

[SOURce:]OCP[:CURRent]:END<value>

Set/query end current for OCP test.

Command Syntax

[SOURce:]OCP[:CURRent]:END<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

10

Example

OCP:END 10
OCP:END?

Query Syntax

[SOURce:]OCP[:CURRent]:END?

Return Parameters

NRf+

[SOURce:]OCP[:CURRent]:INCrement<value>

Set/query step current for OCP test.

Command Syntax

[SOURce:]OCP[:CURRent]:INCrement<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

1

Example

OCP:INCrement 1
OCP:INCrement?

Query Syntax

[SOURce:]OCP[:CURRent]:INCrement?

Return Parameters

NRf+

[SOURce:]OCP[:CURRent]:WIDTh<value>

Set/query step time for OCP test.

Command Syntax

[SOURce:]OCP[:CURRent]:WIDTh<value>

Parameter

NRf+
100us - 100s

Defaults

0.1s

Example

OCP:WIDTh 0.1
OCP:WIDTh?

Query Syntax

[SOURce:]OCP[:CURRent]:WIDTh?

Return Parameters

NRf+

[SOURce:]OCP[:CURRent]:COUNt<value>

Set/query number of steps in OCP test.

Command Syntax

[SOURce:]OCP[:CURRent]:COUNt<value>

Parameter

NR3
1~10000

Defaults

11

Example

OCP:COUNt 11
OCP:COUNt?

Query Syntax

[SOURce:]OCP[:CURRent]:COUNt?

Return Parameters

NR3

[SOURce:]OCP:VOLTage:TRIP<value>

Set/query stop voltage for OCP test.

Command Syntax

[SOURce:]OCP:VOLTage:TRIP<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

10

Example

OCP:VOLTage:TRIP 10
OCP:VOLTage:TRIP?

Query Syntax

[SOURce:]OCP:VOLTage:TRIP?

Return Parameters

NRf+

[SOURce:]OCP[:CURRent]:LIMit[:HIGH]<value>

Set/query high current comparison threshold in OCP test.

Command Syntax

[SOURce:]OCP[:CURRent]:LIMit[:HIGH]<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

9.9

Example

OCP:LIMit 9.9
OCP:LIMit?

Query Syntax

[SOURce:]OCP[:CURRent]:LIMit[:HIGH]?

Return Parameters

NRf+

[SOURce:]OCP[:CURRent]:LIMit:LOW<value>

Set/query low current comparison threshold in OCP test.

Command Syntax

[SOURce:]OCP[:CURRent]:LIMit:LOW<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

10

Example

OCP:LIMit:LOW 10
OCP:LIMit:LOW?

Query Syntax

[SOURce:]OCP[:CURRent]:LIMit:LOW?

Return Parameters

NRf+

[SOURce:]OCP:FILE:SAVE "filename"

Save and load OCP test files.

Command Syntax

[SOURce:]OCP:FILE:SAVE "filename"

Parameter

SPD

Defaults

None

Example

OCP:FILE:SAVE "eg_ocp.ini"
OCP:FILE:OPEN "eg_ocp.ini"

Query Syntax

[SOURce:]OCP:FILE:OPEN "filename"

Return Parameters

None

[SOURce:]OCP:RESult?

Query OCP test result.

Command Syntax

[SOURce:]OCP:RESult?

Parameter

SPD
Pass|Fail

Defaults

None

Example

OCP:RESult?

Return Parameters

None

[SOURce:]OCP:RESult:CURRent?

Query current value in OCP test.

Command Syntax

[SOURce:]OCP:RESult:CURRent?

Parameter

NRf+

Defaults

None

Example

OCP:RESult:CURRent?

Return Parameters

NRf+

[SOURce:]OPP:RSTate?

Read OPP operation status.

Command Syntax

[SOURce:]OPP:RSTate?

Parameter

CPD
<IDLE|WAIT|ACTive>

Defaults

None

Example

OPP:RState?

Return Parameters

CPD

[SOURce:]OPP:STATe <Bool>

Enable or disable OPP test mode.

Command Syntax

[SOURce:]OPP:STATe <Bool>

ParameterBool
0 |1|OFF|ON**Defaults**

None

ExampleOPP:STATe1
OPP:STATe?**Query Syntax**

[SOURce:]OPP:STATe?

Return Parameters

Bool

[SOURce:]OPP:VON<value>

Set/query OPP test Von voltage value (automatic run voltage point).

Command Syntax

[SOURce:]OPP:VON<value>

ParameterNRf+
MIN~MAX|MINimum|MAXimum|DEFault**Defaults**

None

Example

OPP:VON 0.1
OPP:VON?

Query Syntax

[SOURce:]OPP:VON?

Return Parameters

NRf+

[SOURce:]OPP:DELaY<value>

Set/query OPP test Von delay value.

Command Syntax

[SOURce:]OPP:DELaY<value>

Parameter

NRf+
0-100s

Defaults

None

Example

OPP:DELaY 3
OPP:DELaY?

Query Syntax

[SOURce:]OPP:DELaY?

Return Parameters

NRf+

[SOURce:]OPP[:POWEr]:RANGe<value>

Set/query power range for OPP test.

Command Syntax

[SOURce:]OPP[:POWEr]:RANGe<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

MANUal

Example

OPP:RANGe 600
OPP:RANGe?

Query Syntax

[SOURce:]OPP[:POWER]:RANGe?

Return Parameters

NRf+

[SOURce:]OPP[:POWER]:STARt<value>

Set/query start power for OPP test.

Command Syntax

[SOURce:]OPP[:POWER]:STARt<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

0

Example

OPP:STARt 0
OPP:STARt?

Query Syntax

[SOURce:]OPP[:POWER]:STARt?

Return Parameters

NRf+

[SOURce:]OPP[:POWER]:END<value>

Set/query end power for OPP test.

Command Syntax

[SOURce:]OPP[:POWER]:END<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

20

Example

OPP:END 20
OPP:END?

Query Syntax

[SOURce:]OPP[:POWER]:END?

Return Parameters

NRf+

[SOURce:]OPP[:POWER]:INCrement<value>

Set/query step power for OPP test.

Command Syntax

[SOURce:]OPP[:POWER]:INCrement<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

2

Example

OPP:INCrement 2
OPP:INCrement?

Query Syntax

[SOURce:]OPP[:POWER]:INCrement?

Return Parameters

NRf+

[SOURce:]OPP[:POWER]:WIDTh<value>

Set/query step power output duration for OPP test.

Command Syntax

[SOURce:]OPP[:POWER]:WIDTh<value>

Parameter

NRf+
100us - 100s

Defaults

0.1s

Example

OPP:WIDTh 0.1
OPP:WIDTh?

Query Syntax

[SOURce:]OPP[:POWer]:WIDTh?

Return Parameters

NRf+

[SOURce:]OPP[:POWer]:COUNT<value>

Set/query number of steps in OPP test.

Command Syntax

[SOURce:]OPP[:POWer]:COUNT<value>

Parameter

NR3
1~10000

Defaults

11

Example

OPP:COUNT 11
OPP:COUNT?

Query Syntax

[SOURce:]OPP[:POWer]:COUNT?

Return Parameters

NR3

[SOURce:]OPP:VOLTage:TRIP<value>

Set/query stop voltage for OPP test.

Command Syntax

[SOURce:]OPP:VOLTage:TRIP<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

10

Example

OPP:VOLTage:TRIP 10
OPP:VOLTage:TRIP?

Query Syntax

[SOURce:]OPP:VOLTage:TRIP?

Return Parameters

NRf+

[SOURce:]OPP[:POWer]:LIMit[:HIGH]<value>

Set/query high power comparison threshold in OPP test.

Command Syntax

[SOURce:]OPP[:POWer]:LIMit[:HIGH]<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

19.9

Example

OPP:LIMit 19.9
OPP:LIMit?

Query Syntax

[SOURce:]OPP[:POWer]:LIMit[:HIGH]?

Return Parameters

NRf+

[SOURce:]OPP[:POWer]:LIMit:LOW<value>

Set/query low power comparison threshold in OPP test.

Command Syntax

[SOURce:]OPP[:POWer]:LIMit:LOW<value>

Parameter

NRf+
MIN~MAX|MINimum|MAXimum|DEFault

Defaults

20

Example

OPP:LIMit:LOW 20
OPP:LIMit:LOW?

Query Syntax

[SOURce:]OPP[:POWer]:LIMit:LOW?

Return Parameters

NRf+

[SOURce:]OPP:FILE:SAVE "filename"

Save and load OPP test files.

Command Syntax

[SOURce:]OPP:FILE:SAVE "filename"

Parameter

SPD

Defaults

None

Example

OPP:FILE:SAVE "eg_opp.ini"
OPP:FILE:OPEN "eg_opp.ini"

Query Syntax

[SOURce:]OPP:FILE:OPEN "filename"

Return Parameters

None

[SOURce:]OPP:RESult?

Query OPP test result.

Command Syntax

[SOURce:]OPP:RESult?

Parameter

SPD
Pass|Fail

Defaults

None

Example

OPP:RESult?

Return Parameters

None

[SOURce:]OPP:RESult:POWer?

Query power value in OPP test.

Command Syntax

[SOURce:]OPP:RESult:POWer?

Parameter

NRf+

Defaults

None

Example

OPP:RESult:POWer?

Return Parameters

NRf+

Chapter19 CDArb Subsystem

[SOURce:]ARB:CDWell:COUNT

Set and query the repetition count of arbitrary waveform.

Command Syntax

[SOURce:]ARB:CDWell:COUNT

Parameter

NRf+
<1-65535>|MIN|MAX|INFinity

Defaults

None

Example

ARB:CDW:COUN 10
ARB:CDW:COUNT?

Query Syntax

[SOURce:]ARB:CDWell:COUNT? [MIN|MAX]

Return Parameters

NR1

[SOURce:]ARB:CDWell:COUNT:RUN?

Query the current number of ARB executions.

Command Syntax

[SOURce:]ARB:CDWell:COUNT:RUN?

Parameter

None

Defaults

1

Example

ARB:CDW:COUN:RUN?

Return Parameters

NR1

[SOURce:]ARB:CDWell:FUNCtion:TYPE

Set and query the operating mode of CDARB.

Command Syntax

[SOURce:]ARB:CDWell:FUNCtion:TYPE

Parameter

CPD
CURRent|VOLTage|POWer|RESistance

Defaults

CURRent

Example

ARB:CDW:FUNC:TYPE CURR
ARB:CDW:FUNC:TYPE?

Query Syntax

[SOURce:]ARB:CDWell:FUNCtion:TYPE

Return Parameters

CRD

[SOURce:]ARB:CDWell:TERMinate:MODE

Set and query the termination mode of CDARB.

Command Syntax

[SOURce:]ARB:CDWell:TERMinate:MODE

Parameter

CPD
LAST|NORMal

Defaults

NORMal

Example

ARB:CDW:TERM:MODE NORM
ARB:CDW:TERM:MODE?

Query Syntax

[SOURce:]ARB:CDWell:TERMinate:MODE?

Return Parameters

CRD

[SOURce:]ARB:<CURRENT|VOLTage|POWer|RESistance>:CDWell[:LEVel]<value>{,,value}>|<block>

Set and query the voltage, current, power, and resistance of multi-step dwell waveforms, up to 20 points per configuration.

Command Syntax

[SOURce:]ARB:<CURRENT|VOLTage|POWer|RESistance>:CDWell[:LEVel]<value>{,,value}>|<block>

Parameter

NR3,NR3,...

Minimum|Maximum values depending on mode and model.

Defaults

None

Example

ARB:CURRE:CDW 1,2,3

ARB:CURRE:CDW?

ARB:VOLT:CDW 1,2,3

ARB:VOLT:CDW?

ARB:POW:CDW 1,2,3

ARB:POW:CDW?

ARB:RES:CDW 1,2,3

ARB:RES:CDW?

Query Syntax

[SOURce:]ARB:<CURRENT|VOLTage|POWer|RESistance>:CDWell[:LEVel]?

Return Parameters

NR3,NR3,NR3,...

[SOURce:]ARB:<CURRENT|VOLTage|POWer|RESistance>:CDWell:APPend<value>{,,value}>|<block>

Continue to set voltage, current, power, and resistance for multi-step dwell waveforms at the end of the ARB list, up to 20 points.

Command Syntax

[SOURce:]ARB:<CURRENT|VOLTage|POWer|RESistance>:CDWell:APPend<value>{,,value}>|<block>

Parameter

NR3,NR3,...

Minimum|Maximum values depending on mode and model.

Defaults

None

Example

ARB:CURR:CDW:APP 1,2,3
ARB:VOLT:CDW:APP 1,2,3
ARB:POW:CDW:APP 1,2,3
ARB:RES:CDW:APP 1,2,3

Return Parameters

NR3,NR3,NR3,...

[SOURce:]ARB:<CURRENT|VOLTage|POWER|RESistance>:CDWell:DWELI<value>

Set and query the dwell time for constant dwell arbitrary waveforms.

Command Syntax

[SOURce:]ARB:<CURRENT|VOLTage|POWER|RESistance>:CDWell:DWELI<value>

Parameter

NRf+
0.00001-100s |MINimum|MAXimum

Defaults

100ms

Example

ARB:CURR:CDW:DWEL 1
ARB:VOLT:CDW:DWEL 1
ARB:POW:CDW:DWEL 1
ARB:RES:CDW:DWEL 1

Query Syntax

[SOURce:]ARB:<CURRENT|VOLTage|POWER|RESistance>:CDWell:DWELI?

Return Parameters

NR3

[SOURce:]ARB:<CURRENT|VOLTage|POWER|RESistance>:CDWell:POINTS?

Query the number of points in the constant dwell arbitrary waveform.

Command Syntax

[SOURce:]ARB:<CURRENT|VOLTage|POWER|RESistance>:CDWell:POINTS?

Parameter

None

Defaults

None

Example

ARB:CURR:CDW:POIN?
ARB:VOLT:CDW:POIN?
ARB:POW:CDW:POIN?
ARB:RES:CDW:POIN?

Return Parameters

NR3

[SOURce:]ARB:CDWell:STEP:RUN?

Get the current running step of CDARB.

Command Syntax

[SOURce:]ARB:CDWell:STEP:RUN?

Parameter

0-65535

Defaults

0

Example

ARB:CDW:STEP:RUN? queries the current running step number

Return Parameters

NR3

[SOURce:]ARB:CDWell:RState?

Get the run status of CDARB.

Command Syntax

[SOURce:]ARB:CDWell:RState?

Parameter

IDLE|WTG|RUN|END

Defaults

IDLE

Example

ARB:CDW:RST?

Return Parameters

CRD

**[SOURce:]ARB:CDWell:INTerpolation[:STATe]
<BOOL>**

Set and query the interpolation mode of CDARB.

Command Syntax

[SOURce:]ARB:CDWell:INTerpolation[:STATe] <BOOL>

Parameter

BOOL
0|OFF|1|ON

Defaults

1

Example

ARB:CDW:INT 1
ARB:CDW:INT ?

Query Syntax

[SOURce:]ARB:CDWell:INTerpolation[:STATe]?

Return Parameters

0|1

[SOURce:]ARB:CDWell:CURRent:RANGe

Set and query the current range for CDARB.

Command Syntax

[SOURce:]ARB:CDWell:CURRent:RANGe

Parameter

NRf+
All current ranges

Defaults

Maximum current range

Example

ARB:CDW:CURR:RANG 60
ARB:CDW:CURR:RANG?

Query Syntax

[SOURce:]ARB:CDWell:CURRent:RANGe?

Return Parameters

NRf

[SOURce:]ARB:CDWell:VOLTage:RANGe

Set and query the voltage range for CDARB.

Command Syntax

[SOURce:]ARB:CDWell:VOLTage:RANGe

Parameter

NRf+

All voltage ranges

Defaults

Maximum voltage range

Example

ARB:CDW:VOLT:RANG 30

ARB:CDW:VOLT:RANG?

Query Syntax

[SOURce:]ARB:CDWell:VOLTage:RANGe?

Return Parameters

NRf

[SOURce:]ARB:CDWell:RESistance:RANGe

Set and query the resistance range for CDARB.

Command Syntax

[SOURce:]ARB:CDWell:RESistance:RANGe

Parameter

NRf+

All resistance ranges

Defaults

Maximum resistance range

Example

ARB:CDW:RES:RANG 9.9999

ARB:CDW:RES:RANG?

Query Syntax

[SOURce:]ARB:CDWell:RESistance:RANGe?

Return Parameters

NRf

Chapter20 SWEep Subsystem

[SOURce:]SWEep:FUNCTION:TYPE <CURRent|VOLTage|POWer|RESistance|CCPulse>

Set/query the Sweep operating mode. Setting command execution time: 2 ms;
query command: 1 ms.

Command Syntax

[SOURce:]SWEep:FUNCTION:TYPE
<CURRent|VOLTage|POWer|RESistance|CCPulse>

Parameter

CPD
CURRent|VOLTage|POWer|RESistance|CCPulse

Defaults

CURRent

Example

SWEep:FUNCTION:TYPE CURRent
SWEep:FUNCTION:TYPE?

Query Syntax

[SOURce:]SWEep:FUNCTION:TYPE?

Return Parameters

CPD

[SOURce:]SWEep:CURRent:SLEW:TYPE <RATE|TIME>

Set/query the slew mode, including slew rate (A/us) and time-based slew (s).

Command Syntax

[SOURce:]SWEep:CURRent:SLEW:TYPE <RATE|TIME>

Parameter

CPD
RATE|TIME

Defaults

RATE

Example

SWEep:CURRent:SLEW:TYPE TIME

SWEep:CURRent:SLEW:TYPE?

Query Syntax

[SOURce:]SWEep:CURRent:SLEW:TYPE?

Return Parameters

CPD

[SOURce:]SWEep:CURRent:SLEW:RATE <HIGH|LOW>

Set/query the slew rate speed, including high speed and low speed.

Command Syntax

[SOURce:]SWEep:CURRent:SLEW:RATE <HIGH|LOW>

Parameter

CPD

HIGH|LOW

Defaults

HIGH

Example

SWEep:CURRent:SLEW:RATE HIGH

SWEep:CURRent:SLEW:RATE?

Query Syntax

[SOURce:]SWEep:CURRent:SLEW:RATE?

Return Parameters

CPD

[SOURce:]SWEep:CURRent:SLEW:POSitive[:IMMediate] <value>

Set/query the positive slew rate. During sweep operation, the current rises at this slew rate.

Command Syntax

[SOURce:]SWEep:CURRent:SLEW:POSitive[:IMMediate] <value>

Parameter

NRf+

value|MINimum| MAXimum|DEFault

Defaults

Maximum positive slew rate

Example

SWEep:CURRent:SLEW:POSitive 10
SWEep:CURRent:SLEW:POSitive?

Query Syntax

[SOURce:]SWEep:CURRent:SLEW:POSitive[:IMMediate]?

Return Parameters

NRf+

[SOURce:]SWEep:CURRent:SLEW:NEGative[:IMMediate] <value>

Set/query the negative slew rate. During sweep operation, the current falls at this slew rate.

Command Syntax

[SOURce:]SWEep:CURRent:SLEW:NEGative[:IMMediate] <value>

Parameter

NRf+
value|MINimum| MAXimum|DEFault

Defaults

Maximum negative slew rate

Example

SWEep:CURRent:SLEW:NEGative 10
SWEep:CURRent:SLEW:NEGative?

Query Syntax

[SOURce:]SWEep:CURRent:SLEW:NEGative[:IMMediate]?

Return Parameters

NRf+

[SOURce:]SWEep:CURRent:SLEW:TIME:POSitive[:IMMediate] <value>

Set/query the positive time-based slew rate. During sweep operation, the current rises according to this time-based slew.

Command Syntax

[SOURce:]SWEep:CURRent:SLEW:TIME:POSitive[:IMMediate] <value>

Parameter

NRf+
value|MINimum| MAXimum|DEFault

Defaults

Maximum positive time-based slew rate

Example

SWEep:CURRent:SLEW:TIME:POSitive 10
SWEep:CURRent:SLEW:TIME:POSitive?

Query Syntax

[SOURce:]SWEep:CURRent:SLEW:TIME:POSitive[:IMMediate]?

Return Parameters

NRf+

[SOURce:]SWEep:CURRent:SLEW:TIME:NEGative[:IMMediate] <value>

Set/query the negative time-based slew rate. During sweep operation, the current falls according to this time-based slew.

Command Syntax

[SOURce:]SWEep:CURRent:SLEW:TIME:NEGative[:IMMediate] <value>

Parameter

NRf+
value|MINimum| MAXimum|DEFault

Defaults

Maximum negative time-based slew rate

Example

SWEep:CURRent:SLEW:TIME:NEGative 10
SWEep:CURRent:SLEW:TIME:NEGative?

Query Syntax

[SOURce:]SWEep:CURRent:SLEW:TIME:NEGative[:IMMediate]?

Return Parameters

NRf+

[SOURce:]SWEep:CURRent:PULSe:BASE <value>

Set/query the pulse base value. In sweep pulse mode, this value is used as the base value for the sweep.

Command Syntax

[SOURce:]SWEep:CURRent:PULSe:BASE <value>

Parameter

NRf+
value|MINimum| MAXimum|DEFault

Defaults

0.00

Example

SWEep:CURRent:PULSe:BASE 1
SWEep:CURRent:PULSe:BASE?

Query Syntax

[SOURce:]SWEep:CURRent:PULSe:BASE?

Return Parameters

NRf+

[SOURce:]SWEep:CURRent:PULSe:DELay

Set/query the pulse delay value, which is the pulse delay time in sweep pulse mode.

Command Syntax

[SOURce:]SWEep:CURRent:PULSe:DELay

Parameter

NRf+
value(0.000002-100)|MINimum| MAXimum|DEFault

Defaults

0.01

Example

SWEep:CURRent:PULSe:DELay 0.1
SWEep:CURRent:PULSe:DELay?

Query Syntax

[SOURce:]SWEep:CURRent:PULSe:DELay?

Return Parameters

NRf+

[SOURce:]SWEep:CURRent:PULSe:WIDTh <value>

Set/query the pulse width value, which is the pulse width in sweep pulse mode.

Command Syntax

[SOURce:]SWEep:CURRent:PULSe:WIDTh <value>

Parameter

NRf+
value(0.00001-100)|MINimum| MAXimum|DEFault

Defaults

0.01

Example

SWEep:CURRent:PULSe:WIDTh 1
SWEep:CURRent:PULSe:WIDTh?

Query Syntax

[SOURce:]SWEep:CURRent:PULSe:WIDTh?

Return Parameters

NRf+

[SOURce:]SWEep:FUNCTION:RESume:WAIT

Stops Sweep operation and returns to the initial Sweep wait state, and changes trig:start:source to BUS. Execution time: 1 ms.

Command Syntax

[SOURce:]SWEep:FUNCTION:RESume:WAIT

Parameter

None

Defaults

None

Example

SWEep:FUNCTION:RESume:WAIT

Return Parameters

None

[SOURce:]SWEep:SPACing <LINear|LOGarithmic|LIST>

Select the sweep output mode of the instrument. Setting response time: 2 ms; query response time: 4 ms.

Command Syntax

[SOURce:]SWEep:SPACing <LINear|LOGarithmic|LIST>

Parameter

CPD

LINEar|LOGarithmic|LIST

Defaults

LINEar

Example

SWEEP:SPACing LINEar
SWEEP:SPACing?

Query Syntax

[SOURce:]SWEEP:SPACing?

Return Parameters

CPD

[SOURce:]SWEEP:RANGing <LOW|MEDIum|HIGH|BEST>

Selects the output ranging mode of the sweep output for the specified channel.

BEST = automatically sets the smallest range for the sweep source channel that covers the entire sweep output.

Fixed = Use the present source range for the entire sweep.

Setting command response time is about 2 ms; query response time is 5 ms.

Command Syntax

[SOURce:]SWEEP:RANGing <LOW|MEDIum|HIGH|BEST>

Parameter

CPD
LOW|MEDIum|HIGH|BEST

Defaults

BEST

Example

SWEEP:RANGing BEST
SWEEP:RANGing?

Query Syntax

[SOURce:]SWEEP:RANGing?

Return Parameters

CPD

[SOURce:]SWEEP:CYCLE:COUNT <value>

Sets the number of cycles from step1 to stepn. 0 indicates infinite cycling.

Setting command response time is about 2 ms; query response time is 4 ms.

Command Syntax

[SOURce:]SWEep:CYCLe:COUNT <value>

Parameter

NRf+

value(0-10000)|MINimum| MAXimum|DEFault

Defaults

1

Example

SWEep:CYCLe:COUNT 1

SWEep:CYCLe:COUNT?

Query Syntax

[SOURce:]SWEep:CYCLe:COUNT?

Return Parameters

NRf+

[SOURce:]SWEep:POINTS <value>

Set the number of sweep points of the instrument. This command is valid for both current sweep and voltage sweep. Setting command response time: 2 ms to 4 ms. Query response time: 3 ms.

Command Syntax

[SOURce:]SWEep:POINTS <value>

Parameter

NRf+

value(2-99999)|MINimum| MAXimum|DEFault

Defaults

20

Example

SWEep:POINTS 50

SWEep:POINTS?

Query Syntax

[SOURce:]SWEep:POINTS? MINimum| MAXimum|DEFault

Return Parameters

NRf+

[SOURce:]SWEep:STEP <value>

Set the sweep step value. The value must be less than or equal to |stop-start|.

Execution time: 1 ms to 2 ms; query response time: 4 ms.

Command Syntax

[SOURce:]SWEep:STEP <value>

Parameter

NRf+

Defaults

None

Example

SWEep:STEP 2

Query Syntax

[SOURce:]SWEep:STEP?

Return Parameters

NRf+

[SOURce:]SWEep:STEP:CYCLE:COUNT <value>

Set the number of sweep points of the instrument. This command is valid for both current sweep and voltage sweep. Setting command execution time: 2 ms; query command: 5 ms.

Command Syntax

[SOURce:]SWEep:STEP:CYCLE:COUNT <value>

Parameter

NRf+

value(1-1000)|MINimum| MAXimum|DEFault

Defaults

1

Example

SWEep:STEP:CYCLE:COUNT 5

Query Syntax

[SOURce:]SWEep:STEP:CYCLE:COUNT? MINimum| MAXimum|DEFault

Return Parameters

NRf+

[SOURce:]SWEep:STARt <value>

Set the sweep start value. The value range is the current sweep range. Setting command execution time: 2 ms; query command execution time: 2 ms.

Command Syntax

[SOURce:]SWEep:START <value>

Parameter

NRf+
value|MINimum| MAXimum
min = 0;
max = rated value of the selected range.

Defaults

0.1

Example

SWEep:START 1

Query Syntax

[SOURce:]SWEep:START? MINimum| MAXimum

Return Parameters

NRf+

[SOURce:]SWEep:STOP <value>

Set the sweep stop value. The value range is the current range. Setting command execution time: 2 ms; query command execution time: 2 ms.

Command Syntax

[SOURce:]SWEep:STOP <value>

Parameter

NRf+
value|MINimum| MAXimum
min = 0;
max = rated value of the selected range.

Defaults

2

Example

SWEep:STOP 5

Query Syntax

[SOURce:]SWEep:STOP? MINimum| MAXimum

Return Parameters

NRf+

[SOURce:]SWEep:TERMinate:MODE <NORMa|LAST>

Sweep termination state setting command. Setting command execution time: 2 ms; query command execution time: 2 ms.

Command Syntax

[SOURce:]SWEep:TERMinate:MODE <NORMa|LAST>

Parameter

None
NORMa|LAST

Defaults

LAST

Example

SWEep:TERMinate:MODE NORMa

Query Syntax

[SOURce:]SWEep:TERMinate:MODE?

Return Parameters

None

[SOURce:]SWEep:STAt?

Query the sweep status. Query command execution time: 2 ms.

Command Syntax

[SOURce:]SWEep:STAt?

Parameter

CPD
IDLE|WTG|ACTive

Defaults

IDLE

Example

SWEep:STAt?

Return Parameters

CPD

[SOURce:]SWEep:RSTate?

Query the sweep running status. ABNormal_stop indicates that the sweep operation did not finish normally and was stopped by sending the STOP command or by turning the instrument output OFF. Query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:RSTate?

Parameter

BOOLean
RUN|STOP|ABNormal_stop

Defaults

STOP

Example

SWEep:RSTate?

Return Parameters

BOOLean

[SOURce:]SWEep:FILE:OPEN <filename>,<local_type>

Query the currently opened/configured UDEFined file name.

Open a file from the specified storage path.

<string>: string file name

<local_type>: 0: local file, 1: USB disk file

Setting command execution time: 2 ms.

Command Syntax

[SOURce:]SWEep:FILE:OPEN <filename>,<local_type>

Parameter

SPD
0: local file, 1: USB disk file

Defaults

None

Example

SWEep:FILE:OPEN "List_01.csv",1

Return Parameters

SPD

[SOURce:]SWEep:NAME?

Query the currently opened/configured UDEFined file name.

Query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:NAME?

Parameter

SRD

Defaults

None

Example

SWEep:NAME?

Return Parameters

SRD

[SOURce:]SWEep:NAME:ALL? <local_type>

Query all UDEFined files.

<local_type>: 0: local file, 1: USB disk file

Query command execution time: 2 ms.

Command Syntax

[SOURce:]SWEep:NAME:ALL? <local_type>

Parameter

SRD

0: local file, 1: USB disk file

Defaults

None

Example

SWEep:NAME:ALL? 1

Return Parameters

SRD

[SOURce:]SWEep:FILE:SAVE <filename>,<local_type>

Save a UDEFined file.

<string>: string file name

<local_type>: 0: local file, 1: USB disk file

Setting command execution time: 2 ms.

Command Syntax

[SOURce:]SWEep:FILE:SAVE <filename>,<local_type>

Parameter

SPD

0: local file, 1: USB disk file

Defaults

None

Example

SWEep:FILE:SAVE "List_02.csv",1

Return Parameters

SPD

**[SOURce:]SWEep:FILE:DELeTe
<filename>,<local_type>**

Delete the specified UDEFined file.

<string>: string file name

<local_type>: 0: local file, 1: USB disk file

Setting command execution time: 35 ms.

Command Syntax

[SOURce:]SWEep:FILE:DELeTe <filename>,<local_type>

Parameter

None

0: local file, 1: USB disk file

Defaults

None

Example

SWEep:FILE:DELeTe "List_02.csv",1

Return Parameters

None

[SOURce:]SWEep:FILE:DELeTe:ALL <local_type>

Delete all UDEFined files.

<local_type>: 0: local file, 1: USB disk file

Setting command execution time: 35 ms.

Command Syntax

[SOURce:]SWEep:FILE:DELeTe:ALL <local_type>

Parameter

0: local file, 1: USB disk file

Defaults

None

Example

SWEEp:FILE:DELeTe:ALL 1

Return Parameters

None

[SOURce:]SWEEp:<CURRENT|VOLTage|POWER|RESistance>[:LEVel] <value>,{<value>}

Set the UDEFined sweep output data (current or voltage) of the instrument. Up to 20 values can be set at one time.

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEEp:<CURRENT|VOLTage|POWER|RESistance>[:LEVel]
<value>,{<value>}

Parameter

NRf
(0 - 150)

Defaults

None

Example

SWEEp:CURRENT 0.1, 0.2, 0.3

Query Syntax

[SOURce:]SWEEp:<CURRENT|VOLTage|POWER|RESistance>[:LEVel]?

Return Parameters

NRf

[SOURce:]SWEEp:<CURRENT|VOLTage|POWER|RESistance>:APPend <value>,{<value>}

Append UDEFined sweep output data (current or voltage) to the end of the list. Up to 20 values can be added at one time.

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEEp:<CURRENT|VOLTage|POWER|RESistance>:APPend
<value>,{<value>}

Parameter

(0 - 150)

Defaults

None

Example

SWEep:CURRent:APPend 0.5, 0.6, 0.7

Return Parameters

None

[SOURce:]SWEep:<CURRent|VOLTage|POWer|RESistance>:CLEar

Clear the UDEfined sweep output data (current or voltage) of the instrument.
Setting command execution time: 5 ms.

Command Syntax

[SOURce:]SWEep:<CURRent|VOLTage|POWer|RESistance>:CLEar

Parameter

None

Defaults

None

Example

SWEep:CURRent:CLEar

Return Parameters

None

[SOURce:]SWEep:<CURRent|VOLTage|POWer|RESistance>:POINTs?

Query the number of UDEfined sweep output data points (current or voltage) in the instrument. The maximum number of points is 99999.
Query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:<CURRent|VOLTage|POWer|RESistance>:POINTs?

Parameter

NR1

Defaults

None

Example

SWEep:CURRent:POINTs?

Return Parameters

NR1

[SOURce:]SWEep:<CURRent|VOLTage|POWER|RESistance>:STEP?

Query the UDEFined sweep output data value at the specified step of the instrument.

Query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:<CURRent|VOLTage|POWER|RESistance>:STEP?

Parameter

NR1

Defaults

None

Example

SWEep:CURRent:STEP? 1

Return Parameters

NR1

[SOURce:]SWEep:GRAPH:AUTO

Set Sweep graph mode to AUTO.

Setting command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:GRAPH:AUTO

Parameter

None

Defaults

None

Example

SWEep:GRAPH:AUTO

Return Parameters

None

[SOURce:]SWEep:GRAPH:CLEar

Clear the Sweep graph.

Setting command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:GRAPh:CLEar

Parameter

None

Defaults

None

Example

SWEep:GRAPh:CLEar

Return Parameters

None

**[SOURce:]SWEep:GRAPh:VOLTage:SOURce
<DVM|LOCaI>**

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:GRAPh:VOLTage:SOURce <DVM|LOCaI>

Parameter

DVM|LOCaI

Defaults

LOCaI

Example

SWEep:GRAPh:VOLTage:SOURce

Query Syntax

[SOURce:]SWEep:GRAPh:VOLTage:SOURce?

Return Parameters

None

[SOURce:]SWEep:GRAPh:VIEW <I-U|U-I|LIST>

Set the Sweep display mode.

I-U: I-U curve

U-I: U-I curve

LIST: data list

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:GRAPh:VIEW <I-U|U-I|LIST>

Parameter

CPD
I-U|U-I|LIST

Defaults

I-U

Example

SWEep:GRAPH:VIEW I-U

Query Syntax

[SOURce:]SWEep:GRAPH:VIEW?

Return Parameters

CPD

[SOURce:]SWEep:GRAPH:VOLTage:COORDinate:STARt <value>

Graph: start value of the voltage axis. Start < stop.

150V: (-300 to 300) 1200V: (-2400 to 2400) 600V: (-1200 to 1200)

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:GRAPH:VOLTage:COORDinate:STARt <value>

Parameter

NRf+
150V: (-300 - 300)|MINimum|MAXimum|DEFault
1200V: (-2400 - 2400)|MINimum|MAXimum|DEFault
600V: (-1200 - 1200)|MINimum|MAXimum|DEFault

Defaults

0

Example

SWEep:GRAPH:VOLTage:COORDinate:STARt 10
SWEep:GRAPH:VOLTage:COORDinate:STARt?

Query Syntax

[SOURce:]SWEep:GRAPH:VOLTage:COORDinate:STARt?

Return Parameters

NRf+

[SOURce:]SWEep:GRAPH:VOLTage:COORDinate:STOP <value>

Graph: stop value of the voltage axis. Stop > start.

150V: (-300 to 300) 1200V: (-2400 to 2400) 600V: (-1200 to 1200)

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:GRAPH:VOLTage:COORDinate:STOP <value>

Parameter

NRf+

150V: (-300 - 300)|MINimum|MAXimum|DEFault

1200V: (-2400 - 2400)|MINimum|MAXimum|DEFault

600V: (-1200 - 1200)|MINimum|MAXimum|DEFault

Defaults

Default maximum value

Example

SWEep:GRAPH:VOLTage:COORDinate:STOP 100

SWEep:GRAPH:VOLTage:COORDinate:STOP?

Query Syntax

[SOURce:]SWEep:GRAPH:VOLTage:COORDinate:STOP?

Return Parameters

NRf+

[SOURce:]SWEep:GRAPH:CURRENT:COORDinate:START <value>

Graph: start value of the current axis. Start < stop.

Current: -2*MAX to 2*MAX. For example, for 150V, if the maximum current of 3 modules is 600A, the range is -1200A to 1200A.

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:GRAPH:CURRENT:COORDinate:START <value>

Parameter

NRf+

(-2*MAX - 2*MAX)|MINimum|MAXimum|DEFault

Defaults

0

Example

SWEep:GRAPh:CURRent:COORdinate:STARt 20
SWEep:GRAPh:CURRent:COORdinate:STARt?

Query Syntax

[SOURce:]SWEep:GRAPh:CURRent:COORdinate:STARt?

Return Parameters

NRf+

[SOURce:]SWEep:GRAPh:CURRent:COORdinate:STOP <value>

Graph: stop value of the current axis. Stop > start.

Current: -2*MAX to 2*MAX. For example, for 150V, if the maximum current of 3 modules is 600A, the range is -1200A to 1200A.

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:GRAPh:CURRent:COORdinate:STOP <value>

Parameter

NRf+

(-2*MAX - 2*MAX)|MINimum|MAXimum|DEFault

Defaults

Default maximum value

Example

SWEep:GRAPh:CURRent:COORdinate:STOP 30
SWEep:GRAPh:CURRent:COORdinate:STOP?

Query Syntax

[SOURce:]SWEep:GRAPh:CURRent:COORdinate:STOP?

Return Parameters

NRf+

[SOURce:]SWEep:GRAPh:CONFig:CURVe:NUMBer <value>

Configure the maximum number of curves displayed in the graph.

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:GRAPh:CONFig:CURVe:NUMBer <value>

Parameter

NRf+
(1 - 20)|MINimum|MAXimum|DEFault

Defaults

1

Example

SWEep:GRAPh:CONFig:CURVe:NUMBer 2
SWEep:GRAPh:CONFig:CURVe:NUMBer?

Query Syntax

[SOURce:]SWEep:GRAPh:CONFig:CURVe:NUMBer?

Return Parameters

NRf+

**[SOURce:]SWEep:GRAPh:VOLTage:SCALE
<LINear|LOGarithmic>**

Graph: set/query the voltage axis scale mode.

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:GRAPh:VOLTage:SCALE <LINear|LOGarithmic>

Parameter

CPD
LINear|LOGarithmic

Defaults

LINear

Example

SWEep:GRAPh:VOLTage:SCALE LINear
SWEep:GRAPh:VOLTage:SCALE?

Query Syntax

[SOURce:]SWEep:GRAPh:VOLTage:SCALE?

Return Parameters

CPD

**[SOURce:]SWEep:GRAPh:CURREnt:SCALE
<LINear|LOGarithmic>**

Graph: set/query the current axis scale mode.

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:GRAPh:CURRent:SCALe <LINear|LOGarithmic>

Parameter

CPD
LINear|LOGarithmic

Defaults

LINear

Example

SWEep:GRAPh:CURRent:SCALe LINear
SWEep:GRAPh:CURRent:SCALe?

Query Syntax

[SOURce:]SWEep:GRAPh:CURRent:SCALe?

Return Parameters

CPD

[SOURce:]SWEep:GRAPh:VOLTage:INVert <OFF|ON>

Graph: set/query reverse display of voltage values.

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:GRAPh:VOLTage:INVert <OFF|ON>

Parameter

CPD
OFF|ON

Defaults

OFF

Example

SWEep:GRAPh:VOLTage:INVert ON
SWEep:GRAPh:VOLTage:INVert?

Query Syntax

[SOURce:]SWEep:GRAPh:VOLTage:INVert?

Return Parameters

CPD

[SOURce:]SWEep:GRAPh:CURRent:INVert <OFF|ON>

Graph: set/query reverse display of current values.

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:GRAPh:CURRent:INVert <OFF|ON>

Parameter

CPD
OFF|ON

Defaults

OFF

Example

SWEep:GRAPh:CURRent:INVert ON
SWEep:GRAPh:CURRent:INVert?

Query Syntax

[SOURce:]SWEep:GRAPh:CURRent:INVert?

Return Parameters

CPD

[SOURce:]SWEep:GRAPh:VIEW:CURVe:NUMBER?

In the graph, query the number of curves that have already been plotted.
Query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:GRAPh:VIEW:CURVe:NUMBER?

Parameter

None

Defaults

None

Example

SWEep:GRAPh:VIEW:CURVe:NUMBER?

Return Parameters

NR1

[SOURce:]SWEep:GRAPh:VIEW:CURVe:DATA? <value>

In the graph, query the coordinate point data of the specified curve. Up to 596 voltage values and 596 current values can be returned.
Return values: first value: number of coordinate points.

Second value: Volt1, third value: Curr1, ...

Query command execution time: 2 ms.

Command Syntax

[SOURce:]SWEep:GRAPH:VIEW:CURVe:DATA? <value>

Parameter

NR1
(1-20)

Defaults

1

Example

SWEep:GRAPH:VIEW:CURVe:DATA? 2

Return Parameters

NR1

[SOURce:]SWEep:DATA:EXPort [filename]

Export Sweep data to a USB disk. A USB disk must be inserted and the USB mode must be switched to HOST.

The exported Sweep data includes the original Sweep data and the corresponding coordinate data in the Sweep graph.

Default export file name: IT81XX_sweep_data00001-LX.csv

If the command parameter filename is specified:

IT81XX_sweep_data_filename-LX.csv

Setting command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:DATA:EXPort [filename]

Parameter

None

Defaults

None

Example

SWEep:DATA:EXPort "SWEep_01.csv"

Return Parameters

None

[SOURce:]SWEep:TOUTput:BOSTep <OFF|TRIG1|TRIG2|TRIG3>

Set/query the pre-step trigger signal for instrument sweep output.

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:TOUTput:BOSTep <OFF|TRIG1|TRIG2|TRIG3>

Parameter

CPD
OFF|TRIG1-3

Defaults

OFF

Example

SWEep:TOUTput:BOSTep OFF
SWEep:TOUTput:BOSTep?

Query Syntax

[SOURce:]SWEep:TOUTput:BOSTep?

Return Parameters

CPD

[SOURce:]SWEep:TOUTput:EOSTep <OFF|TRIG1|TRIG2|TRIG3>

Set/query the post-step trigger signal for instrument sweep output.
Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:TOUTput:EOSTep <OFF|TRIG1|TRIG2|TRIG3>

Parameter

CPD
OFF|TRIG1-3

Defaults

OFF

Example

SWEep:TOUTput:EOSTep OFF
SWEep:TOUTput:EOSTep?

Query Syntax

[SOURce:]SWEep:TOUTput:EOSTep?

Return Parameters

CPD

[SOURce:]SWEep:TOUTput:STARt <OFF|TRIG1|TRIG2|TRIG3>

Set/query the start trigger signal for instrument sweep output.

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:TOUTput:STARt <OFF|TRIG1|TRIG2|TRIG3>

Parameter

CPD

OFF|TRIG1-3

Defaults

OFF

Example

SWEep:TOUTput:STARt TRIG1

SWEep:TOUTput:STARt?

Query Syntax

[SOURce:]SWEep:TOUTput:STARt?

Return Parameters

CPD

[SOURce:]SWEep:TOUTput:END <OFF|TRIG1|TRIG2|TRIG3>

Set/query the end trigger signal for instrument sweep output.

Setting command execution time: 3 ms; query command execution time: 3 ms.

Command Syntax

[SOURce:]SWEep:TOUTput:END <OFF|TRIG1|TRIG2|TRIG3>

Parameter

CPD

OFF|TRIG1-3

Defaults

OFF

Example

SWEep:TOUTput:END TRIG2

SWEep:TOUTput:END?

Query Syntax

[SOURce:]SWEep:TOUTput:END?

Return Parameters

CPD

Chapter21 SEQuence Subsystem

**[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:EXPonential:START[:LEVel]
<step>,<value>**

Set/query the initial value (voltage/current/power/resistance) of the exponential waveform for the specified step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:EXPonential:START[:LEVel] <step>,<value>

Parameter

NRF+
Step 0 - 99
<Value>|MINimum|MAXimum

Defaults

0

Example

ARB:SEQuence:STEP:VOLTage:EXPonential:START 0,1
ARB:SEQuence:STEP:CURRent:EXPonential:START 0,1
ARB:SEQuence:STEP:POWER:EXPonential:START 0,1
ARB:SEQuence:STEP:RESistance:EXPonential:START 0,1
ARB:SEQuence:STEP:VOLTage:EXPonential:START? 0,1
ARB:SEQuence:STEP:CURRent:EXPonential:START? 0,1
ARB:SEQuence:STEP:POWER:EXPonential:START? 0,1
ARB:SEQuence:STEP:RESistance:EXPonential:START? 0,1

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:EXPonential:START[:LEVel]? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

**[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:EXPonential:END[:LEVel]
<step>,<value>**

Set/query the final value (voltage/current/power/resistance) of the exponential waveform for the specified step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:EXPonential:END[:LEVel] <step>,<value>

Parameter

NRF+
Step 0 - 99
<Value>|MINimum|MAXimum

Defaults

0

Example

ARB:SEQuence:STEP:VOLTage:EXPonential:END 1,1

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:EXPonential:END[:LEVel]? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:EXPonential:START:TIME<step>,<value>

Set/query the delay before the exponential waveform starts for the specified step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:EXPonential:START:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s|MINimum|MAXimum

Defaults

MINimum

Example

ARB:SEQuence:STEP:VOLTage:EXPonential:START:TIME 1,0.1

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:EXPonential:START:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:EXPonential:TIME <step>,<value>

Set/query the duration after the exponential waveform starts for the specified step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:EXPonential:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
1ms-5000s|MINimum|MAXimum

Defaults

MINimum

Example

ARB:SEQuence:STEP:VOLTage:EXPonential:TIME 1,0.1

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:EXPonential:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:EXPonential:TCONstant <step>,<value>

Set/query the time constant of the exponential waveform for the specified step (limits depend on duration; MAX = duration).

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:EXPonential:TCONstant <step>,<value>

Parameter

NRF+
Step 0 - 99
1ms-time |MINimum|MAXimum

Defaults

MINimum

Example

ARB:SEQuence:STEP:VOLTage:EXPonential:TCOnstant 1,3

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:EXPonential:TCOnstant ? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:PULSe:STARt:TIME <step>,<value>

Set/query the delay before the start pulse for a step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:PULSe:STARt:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s|MINimum|MAXimum

Defaults

MINimum

Example

ARB:SEQuence:STEP:VOLTage:PULSe:STARt:TIME 1,2

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:PULSe:STARt:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:PULSe:TOP:TIME <step>,<value>

Set/query the pulse width/time in an arbitrary-wave sequence step.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:P

ULSe:TOP:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

MINimum

Example

ARB:SEQuence:STEP:VOLTage:PULSe:TOP:TIME 1,1.5

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:P
ULSe:TOP:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent| POWer|RESistance>:PULSe:END:TIME <step>,<value>

Set/query the time for output hold to end after the pulse finishes in a sequence step.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:P
ULSe:END:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

MINimum

Example

ARB:SEQuence:STEP:VOLTage:PULSe:END:TIME 1,2.5

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:P
ULSe:END:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:PULSe:FREQuency <step>,<value>

Set/query the frequency of the pulse waveform for a step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:PULSe:FREQuency <step>,<value>

Parameter

NRF+
Step 0 - 99
0.01-100|MINimum|MAXimum

Defaults

MINimum

Example

ARB:SEQuence:STEP:VOLTage:PULSe:FREQuency 1,50

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:PULSe:FREQuency? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:PULSe:START[:LEVel] <step>,<value>

Set/query the start value of the pulse waveform for a step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:PULSe:START[:LEVel] <step>,<value>

Parameter

NRF+
Step 0 - 99
<Value>|MINimum|MAXimum

Defaults

MINimum

Example

ARB:SEQuence:STEP:VOLTage:PULSe:START 1,5

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:PULSe:START[:LEVel]? <step>[|MINimum|MAXimum,]

Return Parameters

NRF+

**[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:PULSe:TOP[:LEVel]
<step>,<value>**

Set/query the pulse amplitude in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:PULSe:TOP[:LEVel] <step>,<value>

Parameter

NRF+
Step 0 - 99
<Value>|MINimum|MAXimum

Defaults

MINimum

Example

ARB:SEQuence:STEP:VOLTage:PULSe:TOP 1,3

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:PULSe:TOP[:LEVel]? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

**[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:RAMP:START[:LEVel]
<step>,<value>**

Set/query the start value before the ramp waveform in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:RAMP:START[:LEVel] <step>,<value>

Parameter

NRF+
Step 0 - 99

<Value>|MINimum|MAXimum

Defaults

Same as the slope under Source Config

Example

ARB:SEQuence:STEP:VOLTage:RAMP:START 1,0.1

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:RAMP:START[:LEVel]? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

**[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:RAMP:END[:LEVel]
<step>,<value>**

Set/query the stop value after the ramp waveform in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:RAMP:END[:LEVel] <step>,<value>

Parameter

NRF+
Step 0 - 99
<Value>|MINimum|MAXimum

Defaults

Same as the slope under Source Config.

Example

ARB:SEQuence:STEP:VOLTage:RAMP:END 1,3

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:RAMP:END[:LEVel]? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

**[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:RAMP:START:TIME
<step>,<value>**

Set/query the delay before the start of the ramp in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:RAMP:START:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

MINimum

Example

ARB:SEQuence:STEP:VOLTage:RAMP:START:TIME 1,0.1

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:RAMP:START:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:RAMP:RTIME <step>,<value>

Set/query the ramp-up time of a step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:RAMP:RTIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

MINimum

Example

ARB:SEQuence:STEP:VOLTage:RAMP:RTIME 1,0.2

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:RAMP:RTIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:RAMP:END:TIME <step>,<value>

Set/query the hold time after the ramp waveform ends in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:RAMP:END:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

MINimum

Example

ARB:SEQuence:STEP:VOLTage:RAMP:END:TIME 1,0.2

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:RAMP:END:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:CURRent:SINusoid:AMPLitude <step>,<value>

Set/query the amplitude of the sine waveform for the specified step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:CURRent:SINusoid:AMPLitude <step>,<value>

Parameter

NRF+
Step 0 - 99
<Value>|MINimum|MAXimum

Defaults

MINimum

Example

ARB:SEQuence:STEP:CURRent:SINusoid:AMPLitude 1,5

Query Syntax

[SOURce:]ARB:SEQuence:STEP:CURRent:SINusoid:AMPLitude?
<step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:CURRent:SINusoid:OFFSet <step>,<value>

Set/query the offset of the sine waveform relative to 0 for the specified step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:CURRent:SINusoid:OFFSet <step>,<value>

Parameter

NRF+
Step 0 - 99
<Value>|MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:CURRent:SINusoid:OFFSet 1,2

Query Syntax

[SOURce:]ARB:SEQuence:STEP:CURRent:SINusoid:OFFSet?
<step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:CURRent:SINusoid:FREQuency <step>,<value>

Set/query the frequency of the sine waveform for the specified step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:CURRent:SINusoid:FREQuency
<step>,<value>

Parameter

NRF+
Step 0 - 99
0.01-500 |MINimum|MAXimum (unit: Hz)

Defaults

None

Example

ARB:SEQuence:STEP:CURRent:SINusoid:FREQuency 1,55

Query Syntax

[SOURce:]ARB:SEQuence:STEP:CURRent:SINusoid:FREQuency?
<step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:STAircase:STARt[:LEVel] <step>,<value>

Set/query the start value of the continuous staircase for the specified step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:S
TAircase:STARt[:LEVel] <step>,<value>

Parameter

NRF+
Step 0 - 99
<Value>|MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:STAircase:STARt 1,2

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:S
TAircase:STARt[:LEVel]? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:STAircase:END[:LEVel] <step>,<value>

Set/query the end value of the continuous staircase for the specified step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:STAircase:END[:LEVel] <step>,<value>

Parameter

NRF+
Step 0 - 99
<Value>|MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:STAircase:END 1, 5

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:STAircase:END[:LEVel]? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:STAircase:NSTeps <step>,<value>

Set/query the total number of steps for the continuous staircase for the specified step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:STAircase:NSTeps <step>,<value>

Parameter

NR3
Step 0 - 99
0-500 |MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:STAircase:NSTeps 1,5

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:STAircase:NSTeps? <step>[,MINimum|MAXimum]

Return Parameters

NR3

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:STAircase:STARt:TIME <step>,<value>

Set/query the time before the continuous staircase starts for the specified step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:STAircase:STARt:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:STAircase:STARt:TIME 1,0.2

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:STAircase:STARt:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:STAircase:TIME <step>,<value>

Set/query the time required for the continuous staircase for the specified step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:STAircase:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

None

Example

ARB:SEquence:STEP:VOLTage:STAircase:TIME 1,1

Query Syntax

[SOURce:]ARB:SEquence:STEP:<VOLTage|CURRent|POWER|RESistance>:STAircase:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

**[SOURce:]ARB:SEquence:STEP:<VOLTage|CURRent|POWER|RESistance>:STAircase:END:TIME
<step>,<value>**

Set/query the hold time after the continuous staircase ends.

Command Syntax

[SOURce:]ARB:SEquence:STEP:<VOLTage|CURRent|POWER|RESistance>:STAircase:END:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

None

Example

ARB:SEquence:STEP:VOLTage:STAircase:END:TIME 1,0.5

Query Syntax

[SOURce:]ARB:SEquence:STEP:<VOLTage|CURRent|POWER|RESistance>:STAircase:END:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

**[SOURce:]ARB:SEquence:STEP:<VOLTage|CURRent|POWER|RESistance>:STEP:START[:LEVel]
<step>,<value>**

Set/query the start value of the single-step waveform for the specified step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:STEP:STARt[:LEVel] <step>,<value>

Parameter

NRF+
Step 0 - 99
<Value>|MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:STEP:STARt[:LEVel] <step>,<value>

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:STEP:STARt[:LEVel]? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:STEP:END[:LEVel] <step>,<value>

Set/query the end value of the single-step waveform for the specified step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:STEP:END[:LEVel] <step>,<value>

Parameter

NRF+
Step 0 - 99
<Value>|MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:STEP:END 1,5

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:STEP:END[:LEVel]? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:STEP:START:TIME <step>,<value>

Set/query the dwell time of the start value for the specified step's single-step waveform.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:STEP:START:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:STEP:START:TIME 1,0.5

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:STEP:START:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:STEP:END:TIME <step>,<value>

Set/query the dwell time of the end value for the specified step's single-step waveform.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:STEP:END:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:STEP:END:TIME 1,0.2

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:STEP:END:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPEzoid:START[:LEVel] <step>,<value>

Set/query the start value of the trapezoidal waveform in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPEzoid:START[:LEVel] <step>,<value>

Parameter

NRF+
Step 0 - 99
<Value>|MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:TRAPEzoid:START 1,5

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPEzoid:START[:LEVel]? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPEzoid:TOP[:LEVel] <step>,<value>

Set/query the peak value of the trapezoidal waveform in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:TRAPEzoid:TOP[:LEVel] <step>,<value>

Parameter

NRF+
Step 0 - 99
<Value>|MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:TRAPEzoid:TOP 1,10

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:TRAPEzoid:TOP[:LEVel]? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:TRAPEzoid:START:TIME<step>,<value>

Set/query the delay time before the trapezoidal waveform rise in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:TRAPEzoid:START:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:TRAPEzoid:START:TIME 1,4

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:TRAPEzoid:START:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

**[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPezoid:RTIME
<step>,<value>**

Set/query the rise time of the trapezoidal waveform in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPezoid:RTIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:TRAPezoid:RTIME 1,0.1

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPezoid:RTIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

**[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPezoid:TOP:TIME
<step>,<value>**

Set/query the peak (high-level) time of the trapezoidal waveform in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPezoid:TOP:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:TRAPezoid:TOP:TIME 1,0.2

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPEzoid:TOP:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPezoid:FTIME <step>,<value>

Set/query the rise time of the trapezoidal waveform in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPEzoid:FTIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:TRAPezoid:FTIME 1,0.1

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPEzoid:FTIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPezoid:END:TIME <step>,<value>

Set/query the delay time after the trapezoidal waveform fall in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:T

RAPEzoid:END:TIME <step>,<value>

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:TRAPezoid:END:TIME 1,0.1

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:TRAPEzoid:END:TIME? <step>[,MINimum|MAXimum]

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:UDEfined:LEVel<step>,<value>{<,value>}

Set the custom waveform step values in the sequence (up to 19 steps per command).

Read the values of all custom waveform steps.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:UDEfined:LEVel <step>,<value>{<,value>}

Parameter

NRF+
Step 0 - 99
|MINimum|MAXimum (unitless)

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:UDEfined:LEVel 1,5

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:UDEfined:LEVel? <step>

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:UDEFinEd:APPend <step>,<value>{<,value>}

Append custom waveform step values in the sequence (up to 19 steps per command).

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:UDEFinEd:APPend <step>,<value>{<,value>}

Parameter

NRF+
Step 0 - 99
|MINimum|MAXimum (unitless)

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:UDEFinEd:LEVel 1,2

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:UDEFinEd:DWELl <step>,<value>{<,value>}

Set the custom waveform step dwell times in the sequence (up to 19 steps per command).

Read the dwell times of all custom waveform steps.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:UDEFinEd:DWELl <step>,<value>{<,value>}

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum (unitless)

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:UDEfined:DWELI 1,0.5

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:UDEfined:DWELI? <step>

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:UDEfined:DWELI:APPend <step>,<value>{<,value>}

Append custom waveform step dwell times in the sequence (up to 19 steps per command).

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:UDEfined:DWELI:APPend <step>,<value>{<,value>}

Parameter

NRF+
Step 0 - 99
10us-5000s |MINimum|MAXimum (unitless)

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:UDEfined:DWELI:APPend 1,0.2

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:UDEfined:LEVel:POINts? <step>

Return the number of points for custom waveform value settings in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:UDEfined:LEVel:POINts? <step>

Parameter

NR3
Step 0 - 99

Defaults

None

Example

ARB:SEquence:STEP:VOLTage:UDEFined:LEVel:POINts? 1

Return Parameters

NR3

[SOURce:]ARB:SEquence:STEP:<VOLTage|CURRent|POWER|RESistance>:UDEFined:DWELl:POINts? <step>

Return the number of points for custom waveform dwell-time settings in the sequence.

Command Syntax

[SOURce:]ARB:SEquence:STEP:<VOLTage|CURRent|POWER|RESistance>:UDEFined:DWELl:POINts? <step>

Parameter

NR3

Step 0 - 99

Defaults

None

Example

ARB:SEquence:STEP:VOLTage:UDEFined:DWELl:POINts? 1

Return Parameters

NR3

[SOURce:]ARB:SEquence:STEP:<VOLTage|CURRent|POWER|RESistance>:CONVert <step>

Convert the waveform of the specified step into a sequence custom waveform.

Command Syntax

[SOURce:]ARB:SEquence:STEP:<VOLTage|CURRent|POWER|RESistance>:CONVert <step>

Parameter

None

Step 0 - 99

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:CONVert 1

Return Parameters

None

[SOURce:]ARB:SEQuence:COUNT<value>

Set/query the repeat count of the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:COUNT<value>

Parameter

NR3
1-999999 |MINimum|MAXimum|INFINITY

Defaults

1

Example

ARB:SEQuence:COUNT 5

Query Syntax

[SOURce:]ARB:SEQuence:COUNT? [MINimum|MAXimum|INFINITY]

Return Parameters

NR3

[SOURce:]ARB:SEQuence:COUNT:RUN?

Query the number of repeats that have been executed in the current sequence.

Command Syntax

[SOURce:]ARB:SEQuence:COUNT:RUN?

Parameter

None

Defaults

None

Example

ARB:SEQuence:COUNT:RUN?

Return Parameters

NR3

[SOURce:]ARB:SEQuence:STEP:RUN?

Query the number of steps that have been executed in the current sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:RUN?

Parameter

None

Defaults

None

Example

ARB:SEQuence:STEP:RUN?

Return Parameters

NR3

[SOURce:]ARB:SEQuence:LENGth<value>

Set/query the maximum total number of steps in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:LENGth<value>

Parameter

NR3
0-100 |MINimum|MAXimum

Defaults

100

Example

ARB:SEQuence:LENGth 20

Query Syntax

[SOURce:]ARB:SEQuence:LENGth?

Return Parameters

NR3

[SOURce:]ARB:SEQuence:TERMinate:MODE <LAST|NORMal>

Set/query the end mode of the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:TERMinate:MODE <LAST|NORMal>

Parameter

CPD
<LAST|NORMAl>

Defaults

None

Example

ARB:SEQuence:TERMinate:MODE LAST

Query Syntax

[SOURce:]ARB:SEQuence:TERMinate:MODE?

Return Parameters

CPD

[SOURce:]ARB:SEQuence:STEP:FUNcTion:SHAPE <step>,<function>

Set/query the waveform type for each step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:FUNcTion:SHAPE <step>,<function>

Parameter

CPD
Step 0 - 99
STEP|PULSe|RAMP|TRAPezoid|STAircase|EXPOntential|SINusoid|UDEFinEd|LIST

Defaults

None

Example

ARB:SEQuence:STEP:FUNcTion:SHAPE 1,RAMP

Query Syntax

[SOURce:]ARB:SEQuence:STEP:FUNcTion:SHAPE? <step>

Return Parameters

CPD

[SOURce:]ARB:SEQuence:STEP:PACIng <step>,<pacing>

Set/query the jump mode for each step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:PACing <step>,< pacing>

Parameter

CPD
Step 0 - 99
AUTO|TRIGGered

Defaults

AUTO

Example

ARB:SEQuence:STEP:PACing 1,TRIGGered

Query Syntax

[SOURce:]ARB:SEQuence:STEP:PACing? <step>

Return Parameters

CPD

**[SOURce:]ARB:SEQuence:STEP:COUNT
<step>,<value>**

Set/query the repeat count for each step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:COUNT <step>,<value>

Parameter

NR3
Step 0 - 99
1-999999|MINimum|MAXimum|INFinity

Defaults

1

Example

ARB:SEQuence:STEP:COUNT 1,2

Query Syntax

[SOURce:]ARB:SEQuence:STEP:COUNT?
<step>,[MINimum|MAXimum|INFinity]

Return Parameters

NR3

[SOURce:]ARB:SEQuence:STEP:TOUT <step>,<state>

Set/query the trigger output state for each step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:TOUT <step>,<state>

Parameter

CPD
Step 0 - 99
OFF|BOSTep|EOSTep

Defaults

0

Example

ARB:SEQuence:STEP:TOUT 1,OFF

Query Syntax

[SOURce:]ARB:SEQuence:STEP:TOUT? <step>

Return Parameters

CPD

[SOURce:]ARB:SEQuence:STEP:FUNctIon:TYPE <step>,<type>

Set/query the priority mode of the arbitrary waveform in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:FUNctIon:TYPE <step>,<type>

Parameter

CPD
Step 0 - 99
CURRent|VOLTage|POWer|RESistance

Defaults

CURRent

Example

ARB:SEQuence:STEP:FUNctIon:TYPE 1,CURRent

Query Syntax

[SOURce:]ARB:SEQuence::STEP:FUNctIon:TYPE? <step>

Return Parameters

CPD

[SOURce:]ARB:SEQuence:FILE:OPEN <local_type>,<string>

Open a file from the specified storage path

<string>: filename string

<local_type>: 0|1|LOCAL|UDISK

0: Local file, 1: USB drive file

Command Syntax

[SOURce:]ARB:SEQuence:FILE:OPEN <local_type>,<string>

Parameter

CPD

0|1|LOCAL|UDISK

0: Local file, 1: USB drive file

Defaults

None

Example

ARB:SEQuence:FILE:OPEN LOCAL,"seq_file1.csv"

Return Parameters

CPD

[SOURce:]ARB:SEQuence:FILE:SAVE <local_type>,<string>

Open a file from the specified storage path

<string>: filename string

<local_type>: 0|1|LOCAL|UDISK

0: Local file, 1: USB drive file

Command Syntax

[SOURce:]ARB:SEQuence:FILE:SAVE <local_type>,<string>

Parameter

CPD

0|1|LOCAL|UDISK

0: Local file, 1: USB drive file

Defaults

None

Example

ARB:SEQuence:FILE:SAVE LOCAL,"seq_file1.csv"

Return Parameters

CPD

[SOURce:]ARB:SEQuence:FILE:DELeTe <local_type>,<string>

Open a file from the specified storage path

<string>: filename string

<local_type>: 0|1|LOCa|UDISk

0: Local file, 1: USB drive file

Command Syntax

[SOURce:]ARB:SEQuence:FILE:DELeTe <local_type>,<string>

Parameter

CPD

0|1|LOCa|UDISk

0: Local file, 1: USB drive file

Defaults

None

Example

ARB:SEQuence:FILE:DELeTe LOCa,"seq_file1.csv"

Return Parameters

CPD

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent| POWER|RESistance>:LIST:LEVel <step>,<value>{<,value>}

Set the LIST waveform step values in the sequence (up to 19 steps per command).

Read the values of all LIST waveform steps.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:LIST:LEVel <step>,<value>{<,value>}

Parameter

NRf+

Step 0 - 99

<Value>|MINimum|MAXimum (unitless)

Defaults

0

Example

ARB:SEQuence:STEP:VOLTage:LIST:LEVel 1,5

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:LIST:LEVel? <step>

Return Parameters

NRf+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:LIST:LEVel:APPend <step>,<value>{<,value>}

Append LIST waveform step values in the sequence (up to 19 steps per command).

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:LIST:LEVel:APPend <step>,<value>{<,value>}

Parameter

NRf+
Step 0 - 99
<Value>|MINimum|MAXimum (unitless)

Defaults

0

Example

ARB:SEQuence:STEP:VOLTage:LIST:LEVel:APPend 1,0.2

Return Parameters

NRf+

[SOURce:]ARB:SEQuence:STEP:<CURRent|POWer|RESistance>:LIST:SLEW <step>,<value>{<,value>}

Set the LIST waveform step slopes in the sequence (up to 19 steps per command).

Read the slopes of all LIST waveform steps.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<CURRent|POWer|RESistance>:LIST:SLEW <step>,<value>{<,value>}

Parameter

NRf+

Step 0 - 99

<value> same range as the slope under Source Config

Defaults

None

Example

ARB:SEQuence:STEP:CURRent:LIST:SLEW 1,0.2

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<CURRent|POWER|RESistance>:LIST:SLEW? <step>

Return Parameters

NRf+

[SOURce:]ARB:SEQuence:STEP:<CURRent|POWER|RESistance>:LIST:SLEW:APPend <step>,<value>{<,value>}

Append LIST waveform step slopes in the sequence (up to 19 steps per command).

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<CURRent|POWER|RESistance>:LIST:SLEW:APPend <step>,<value>{<,value>}

Parameter

NRf+

Step 0 - 99

<value> same range as the slope under Source Config

Defaults

None

Example

ARB:SEQuence:STEP:CURRent:LIST:SLEW:APPend 1,0.2

Return Parameters

NRf+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:LIST:DWELL <step>,<value>{<,value>}

Set the LIST waveform step dwell times in the sequence (up to 19 steps per command).

Read the dwell times of all LIST waveform steps.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:LIST:DWELL <step>,<value>{<,value>}

Parameter

NRf+
Step 0 - 99
10us-5000s |MINimum|MAXimum (unitless)

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:LIST:DWELL 1,0.5

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:LIST:DWELL? <step>

Return Parameters

NRf+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:LIST:DWELL:APPend <step>,<value>{<,value>}

Append LIST waveform step dwell times in the sequence (up to 19 steps per command).

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWer|RESistance>:LIST:DWELL:APPend <step>,<value>{<,value>}

Parameter

NRf+
Step 0 - 99
10us-5000s |MINimum|MAXimum (unitless)

Defaults

None

Example

ARB:SEQuence:STEP:VOLTage:LIST:DWELL:APPend 1,0.1

Return Parameters

NRf+

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:LIST:TOUTput <step>,<value>

Set the output signal of LIST waveform steps in the sequence (up to 19 steps per command).

Read the output signal of all LIST waveform steps.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:LIST:TOUTput <step>,<value>

Parameter

CPD
Step 0 - 99
OFF|BOSTep|EOSTep

Defaults

OFF

Example

ARB:SEQuence:STEP:VOLTage:LIST:TOUTput 1,OFF

Query Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:LIST:TOUTput? <step>

Return Parameters

CPD

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:LIST:TOUTput:APPend <step>,<value>{<,value>}

Append the output signal of LIST waveform steps in the sequence (up to 19 steps per command).

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:LIST:TOUTput:APPend <step>,<value>{<,value>}

Parameter

CPD
Step 0 - 99
OFF|BOSTep|EOSTep

Defaults

OFF

Example

ARB:SEQuence:STEP:VOLTage:LIST:TOUTput:APPend 1,OFF

Return Parameters

CPD

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:LIST:LEVel:POINts? <step>

Return the number of points for LIST waveform value settings in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:LIST:LEVel:POINts? <step>

Parameter

NR1
Step 0 - 99
0-9999

Defaults

0

Example

ARB:SEQuence:STEP:VOLTage:LIST:LEVel:POINts? 1

Return Parameters

NR1

[SOURce:]ARB:SEQuence:STEP:<CURRent|POWER|RESistance>:LIST:SLEW:POINts? <step>

Return the number of points for LIST waveform slope settings in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<CURRent|POWER|RESistance>:LIST:SLEW:POINts? <step>

Parameter

NR1
Step 0 - 99
0-9999

Defaults

0

Example

ARB:SEQuence:STEP:CURRent:LIST:SLEW:POINts? 1

Return Parameters

NR1

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:LIST:DWELI:POINts? <step>

Return the number of points for LIST waveform dwell-time settings in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:LIST:DWELI:POINts? <step>

Parameter

NR1
Step 0 - 99
0-9999

Defaults

0

Example

ARB:SEQuence:STEP:VOLTage:LIST:DWELI:POINts? 1

Return Parameters

NR1

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:LIST:TOUTput:POINts? <step>

Return the number of points for LIST waveform slope settings in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:<VOLTage|CURRent|POWER|RESistance>:LIST:TOUTput:POINts? <step>

Parameter

NR1
Step 0 - 99
0-9999

Defaults

0

Example

ARB:SEQuence:STEP:VOLTage:LIST:TOUTput:POINts? 1

Return Parameters

NR1

[SOURce:]ARB:SEQuence:STEP:LIST:SLOPe:TYPE <step>,<type>

Set/query the slope type of the LIST waveform in the sequence. Note: applies only to LIST waveforms and can be set only in CC mode.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:LIST:SLOPe:TYPE <step>,<type>

Parameter

CPD
Step 0 - 99
RATE|TIME

Defaults

RATe

Example

ARB:SEQuence:STEP:LIST:SLOPe:TYPE 1,TIME

Query Syntax

[SOURce:]ARB:SEQuence:STEP:LIST:SLOPe:TYPE? <step>

Return Parameters

CPD

[SOURce:]ARB:SEQuence:STEP:LIST:PACIng <step>,<pacing>

Set/query the jump mode for each step in the sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:LIST:PACIng <step>,<pacing>

Parameter

CPD
Step 0 - 99
AUTO|TRIGGered

Defaults

AUTO

Example

ARB:SEQuence:STEP:LIST:PACIng 1,AUTO

Query Syntax

[SOURce:]ARB:SEQuence:STEP:LIST:PACing? <step>

Return Parameters

CPD

[SOURce:]ARB:SEQuence:STEP:CURRent:RANGe <step>,<value>

Set/read the current range level for each sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:CURRent:RANGe <step>,<value>

Parameter

NR1 ,CPD

Step 0 - 99

<Value>|MINimum|MAXimum

Set the range level according to the actual model.

MINimum|MAXimum|HIGH|MIDium|LOW

Defaults

MAXimum

Example

ARB:SEQuence:STEP:CURRent:RANGe 1,20

Query Syntax

[SOURce:]ARB:SEQuence:STEP:CURRent:RANGe? <step>

Return Parameters

NRF+

[SOURce:]ARB:SEQuence:STEP:VOLTage:RANGe <step>,<value>

Set/read the voltage range level for each sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:VOLTage:RANGe <step>,<value>

Parameter

NR1 ,CPD

Step 0 - 99

|MINimum|MAXimum

Set the range level according to the actual model

MINimum|MAXimum|HIGH|MIDium|LOW

Defaults

MAXimum

Example

ARB:SEQuence:STEP:VOLTage:RANGe 1,60

Query Syntax

[SOURce:]ARB:SEQuence:STEP:VOLTage:RANGe? <step>

Return Parameters

NRF+

**[SOURce:]ARB:SEQuence:STEP:RESistance:RANGe
<step>,<value>**

Set/read the resistance range level for each sequence.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:RESistance:RANGe <step>,<value>

Parameter

NR1 ,CPD

Step 0 - 99

|MINimum|MAXimum

Set the range level according to the actual model

MINimum|MAXimum|HIGH|MIDium|LOW

Defaults

MAXimum

Example

ARB:SEQuence:STEP:RESistance:RANGe 1,20

Query Syntax

[SOURce:]ARB:SEQuence:STEP:RESistance:RANGe? <step>

Return Parameters

NRF+

**[SOURce:]ARB:SEQuence:STEP:LIST:CURRent:SLEW
:RATE <step>,<CPD>**

Set/read the high/low slope speed of the LIST waveform.

Command Syntax

[SOURce:]ARB:SEQuence:STEP:LIST:CURRent:SLEW:RATE <step>,<CPD>

Parameter

NR1 ,CPD
Step 0 - 99
HIGH|LOW

Defaults

HIGH

Example

ARB:SEQuense:STEP:LIST:CURRent:SLEW:RATE 1,LOW

Query Syntax

[SOURce:]ARB:SEQuense:STEP:LIST:CURRent:SLEW:RATE? <step>

Return Parameters

CPD

[SOURce:]ARB:SEQuense:STEP:SINe:TYPE <step>,<CPD>

Set the sine waveform type.

Command Syntax

[SOURce:]ARB:SEQuense:STEP:SINe:TYPE <step>,<CPD>

Parameter

NR1 ,CPD
Step 0 - 99
FULL|POSitive|NEGative

Defaults

FULL

Example

ARB:SEQuense:STEP:SINe:TYPE 1,POSitive

Query Syntax

[SOURce:]ARB:SEQuense:STEP:SINe:TYPE? <step>

Return Parameters

CPD

Chapter22 EIS Subsystem (IT8100A)

The commands described in this chapter are only applicable to the IT8100A series, the IT8100E series does not support these commands.

[SOURce:]EIS:FREQuency:MODE <FIXed|SWEEp>

Set and query the frequency mode for impedance analysis.

Command Syntax

[SOURce:]EIS:FREQuency:MODE <FIXed|SWEEp>

Parameter

CPD
<FIXed|SWEEp>

Defaults

FIXed

Example

EIS:FREQ:MODE SWEEp
EIS:FREQ:MODE?

Query Syntax

[SOURce:]EIS:FREQuency:MODE?

Return Parameters

CRD

[SOURce:]EIS:FREQuency <value|MINimum|MAXimum>

Set and query the frequency value in impedance testing.

Command Syntax

[SOURce:]EIS:FREQuency <value|MINimum|MAXimum>

Parameter

NRf+
0.01-20000

Defaults

50

Example

EIS:FREQ 100
EIS:FREQ?

Query Syntax

[SOURce:]EIS:FREQuency? [MINimum|MAXimum]

Return Parameters

NRf

[SOURce:]EIS:FREQuency:SWEep:STARt <value|MINimum|MAXimum>

Set and query the start value of the impedance test frequency sweep.

Command Syntax

[SOURce:]EIS:FREQuency:SWEep:STARt <value|MINimum|MAXimum>

Parameter

NRf+
0.01-20000

Defaults

50

Example

EIS:FREQ:SWE:STAR 100
EIS:FREQ:SWE:STAR?

Query Syntax

[SOURce:]EIS:FREQuency:SWEep:STARt? [MINimum|MAXimum]

Return Parameters

NRf

[SOURce:]EIS:FREQuency:SWEep:STOP <value|MINimum|MAXimum>

Set and query the stop value of the impedance test frequency sweep.

Command Syntax

[SOURce:]EIS:FREQuency:SWEep:STOP <value|MINimum|MAXimum>

Parameter

NRf+
0.01-20000

Defaults

50

Example

EIS:FREQ:SWE:STOP 10000

EIS:FREQ:SWE:STOP?

Query Syntax

[SOURce:]EIS:FREQuency:SWEep:STOP? [MINimum|MAXimum]

Return Parameters

NRf

[SOURce:]EIS:FREQuency:SWEep:STEP <value|MINimum|MAXimum>

Set and query the step value of the linear impedance frequency sweep.

Command Syntax

[SOURce:]EIS:FREQuency:SWEep:STEP <value|MINimum|MAXimum>

Parameter

NRf+
 $\text{ABS}((\text{Stop}-\text{Start})/1000) - (\text{Stop}-\text{Start})$

Defaults

None

Example

EIS:FREQ:SWE:STEP 10
EIS:FREQ:SWE:STEP?

Query Syntax

[SOURce:]EIS:FREQuency:SWEep:STEP? [MINimum|MAXimum]

Return Parameters

NRf

[SOURce:]EIS:FREQuency:SWEep:PDECade <value|MINimum|MAXimum>

Set and query the number of points per decade for the logarithmic impedance frequency sweep.

Command Syntax

[SOURce:]EIS:FREQuency:SWEep:PDECade <value|MINimum|MAXimum>

Parameter

NRf+
1-100

Defaults

None

Example

EIS:FREQ:SWE:PDEC 10
EIS:FREQ:SWE:PDEC?

Query Syntax

[SOURce:]EIS:FREQuency:SWEep:PDECade? [MINimum|MAXimum]

Return Parameters

NR1

[SOURce:]EIS:FREQuency:SWEep:MODE <LINear|LOGarithm|LIST>

Set and query the mode of the impedance frequency sweep.

Command Syntax

[SOURce:]EIS:FREQuency:SWEep:MODE <LINear|LOGarithm|LIST>

Parameter

CPD
<LINear|LOGarithm|LIST>

Defaults

LINear

Example

EIS:FREQ:SWE:MODE LOG
EIS:FREQ:SWE:MODE?

Query Syntax

[SOURce:]EIS:FREQuency:SWEep:MODE?

Return Parameters

CRD

[SOURce:]EIS:FREQuency:SWEep:POINTS <value|MINimum|MAXimum>

Set and query the number of points of the impedance frequency sweep.

Command Syntax

[SOURce:]EIS:FREQuency:SWEep:POINTS <value|MINimum|MAXimum>

Parameter

NRf+
1-1000

Defaults

None

Example

EIS:FREQ:SWE:POIN 10
EIS:FREQ:SWE:POIN?

Query Syntax

[SOURce:]EIS:FREQuency:SWEep:POINts? [MINimum|MAXimum]

Return Parameters

NR1

[SOURce:]EIS:FREQuency:LIST:STEP <step>,<value|MINimum|MAXimum>

Set and query the frequency value of each step in the impedance frequency sweep list.

Command Syntax

[SOURce:]EIS:FREQuency:LIST:STEP <step>,<value|MINimum|MAXimum>

Parameter

NR1,NRf+
<1-1000>,<0.01-20000>

Defaults

None

Example

EIS:FREQ:LIST:STEP 1,100
EIS:FREQ:LIST:STEP?

Query Syntax

[SOURce:]EIS:FREQuency:LIST:STEP? <step>

Return Parameters

NRf

[SOURce:]EIS:FREQuency:LIST:POINTS <value|MINimum|MAXimum>

Set and query the total number of impedance frequency points.

Command Syntax

[SOURce:]EIS:FREQuency:LIST:POINTS <value|MINimum|MAXimum>

Parameter

NRf+
1-1000

Defaults

None

Example

EIS:FREQ:LIST:POIN 10
EIS:FREQ:LIST:POIN?

Query Syntax

[SOURce:]EIS:FREQ:LIST:POINs? [MINimum|MAXimum]

Return Parameters

NR1

[SOURce:]EIS:CURRent:MODE <FIXed|SWEep>

Set and query the current mode during impedance analysis.

Command Syntax

[SOURce:]EIS:CURRent:MODE <FIXed|SWEep>

Parameter

CPD
<FIXed|SWEep>

Defaults

None

Example

EIS:CURR:MODE FIXed
EIS:CURR:MODE?

Query Syntax

[SOURce:]EIS:CURRent:MODE?

Return Parameters

CRD

**[SOURce:]EIS:CURRent:AMPLitude
<value|MINimum|MAXimum>**

Set and query the current amplitude in EIS fixed-amplitude mode.

Command Syntax

[SOURce:]EIS:CURRent:AMPLitude <value|MINimum|MAXimum>

Parameter

NRf+
0-Range Max

Defaults

None

Example

EIS:CURR:AMP 2
EIS:CURR:AMP?

Query Syntax

[SOURce:]EIS:CURRent:AMPLitude? [MINimum|MAXimum]

Return Parameters

NRf

**[SOURce:]EIS:CURRent:OFFSet
<value|MINimum|MAXimum>**

Set and query the current offset in GEIS fixed mode during impedance testing.

Command Syntax

[SOURce:]EIS:CURRent:OFFSet <value|MINimum|MAXimum>

Parameter

NRf+
0-Range Max

Defaults

None

Example

EIS:CURR:OFFS 10
EIS:CURR:OFFS?

Query Syntax

[SOURce:]EIS:CURRent:OFFSet? [MINimum|MAXimum]

Return Parameters

NRf

**[SOURce:]EIS:CURRent:LIST:POINTs
<value|MINimum|MAXimum>**

Set and query the number of current LIST points in EIS.

Command Syntax

[SOURce:]EIS:CURRent:LIST:POINts <value|MINimum|MAXimum>

Parameter

NRf+
1-100

Defaults

None

Example

EIS:CURR:LIST:POIN 10
EIS:CURR:LIST:POIN?

Query Syntax

[SOURce:]EIS:CURRent:LIST:POINts? [MINimum|MAXimum]

Return Parameters

NR1

[SOURce:]EIS:CURRent:LIST:STEP:AMPLitude <step>,<value|MINimum|MAXimum>

Set and query the peak current of each step in list mode for the source output value.

Command Syntax

[SOURce:]EIS:CURRent:LIST:STEP:AMPLitude
<step>,<value|MINimum|MAXimum>

Parameter

NR1,NRf+
1-100,0-Range Max

Defaults

None

Example

EIS:CURR:LIST:STEP:AMP 2,1
EIS:CURR:LIST:STEP:AMP? 1

Query Syntax

[SOURce:]EIS:CURRent:LIST:STEP:AMPLitude?
<step>,[MINimum|MAXimum]

Return Parameters

NRf

[SOURce:]EIS:CURRent:LIST:STEP:OFFSet <step>,<value|MINimum|MAXimum>

Set and query the current offset of each step in list mode for the source output value.

Command Syntax

[SOURce:]EIS:CURRent:LIST:STEP:OFFSet
<step>,<value|MINimum|MAXimum>

Parameter

NR1,NRf+
1-100,0-Range Max

Defaults

None

Example

EIS:CURR:LIST:STEP:OFFS 3,1
EIS:CURR:LIST:STEP:OFFS, 1

Query Syntax

[SOURce:]EIS:CURRent:LIST:STEP:OFFSet? <step>,[MINimum|MAXimum]

Return Parameters

NRf

[SOURce:]EIS:RSTate?

Return the running status of the impedance sweep.

Command Syntax

[SOURce:]EIS:RSTate?

Parameter

None

Defaults

None

Example

EIS:RST?

Return Parameters

IDLE|WTG|RUN

[SOURce:]EIS:CURRent:RUN?

Query the scanned EIS current values (current DC, current AC).

Command Syntax

[SOURce:]EIS:CURRent:RUN?

Parameter

None

Defaults

None

Example

EIS:CURR:RUN?

Return Parameters

NRf, NRf

[SOURce:]EIS:FREQuency:RUN?

Query the scanned EIS frequency value.

Command Syntax

[SOURce:]EIS:FREQuency:RUN?

Parameter

None

Defaults

None

Example

EIS:FREQ:RUN?

Return Parameters

NRf

[SOURce:]EIS:CURRent:LIST:STEP:RUN?

Query the step of the scanned EIS current list.

Command Syntax

[SOURce:]EIS:CURRent:LIST:STEP:RUN?

Parameter

None

Defaults

None

Example

EIS:CURR:LIST:STEP:RUN

Return Parameters

NR1

[SOURce:]EIS:FREQuency:SWEep:STEP:RUN?

Query the step of the scanned EIS frequency.

Command Syntax

[SOURce:]EIS:FREQuency:SWEep:STEP:RUN?

Parameter

None

Defaults

None

Example

EIS:FREQ:SWE:STEP:RUN

Return Parameters

NR1

MEMory:EIS:EXPort <"file_name">,<LOCa|USB>

Export the measured data from the EIS test.

Command Syntax

MEMory:EIS:EXPort <"file_name">,<LOCa|USB>

Parameter

SPD,CPD
,<LOCa|USB>

Defaults

LOCa

Example

MEM:EIS:EXP "Impedance_zero.csv",LOC

Return Parameters

None

MEMory:EIS:IMPort <"file_name">,<LOCa|USB>

Import the measured data from the EIS test.

Command Syntax

MEMory:EIS:IMPort <"file_name">,<LOCa|USB>

Parameter

SPD,CPD
,<LOCa|USB>

Defaults

LOCa

Example

MEM:EIS:IMP? "Impedance_zero.csv",LOC

Return Parameters

None

[SOURce:]IMPedance:ZERO:ADJust

Start impedance zero adjustment.

Command Syntax

[SOURce:]IMPedance:ZERO:ADJust

Parameter

None

Defaults

None

Example

IMP:ZERO:ADJ

Return Parameters

None

[SOURce:]IMPedance:ZERO:ADJust:ABORT

Abort impedance zero adjustment.

Command Syntax

[SOURce:]IMPedance:ZERO:ADJust:ABORT

Parameter

None

Defaults

None

Example

IMP:ZERO:ADJ:ABOR

Return Parameters

None

[SOURce:]IMPedance:ZERO:ADJust:RSTate?

Query the impedance zero-adjustment status.

Command Syntax

[SOURce:]IMPedance:ZERO:ADJust:RSTate?

Parameter

None

Defaults

None

Example

IMP:ZERO:ADJ:RST?

Return Parameters

NOTZeroed|ZEROing|ZEROed

[SOURce:]IMPedance:ZERO:ADJust:CLEar

Clear the current impedance zero adjustment.

Command Syntax

[SOURce:]IMPedance:ZERO:ADJust:CLEar

Parameter

None

Defaults

None

Example

IMP:ZERO:ADJ:CLE

Return Parameters

None

[SOURce:]IMPedance:ZERO:ADJust:ERTime?

Query the estimated remaining time for impedance zero adjustment (Estimated Time Remaining).

Command Syntax

[SOURce:]IMPedance:ZERO:ADJust:ERTime?

Parameter

None

Defaults

None

Example

IMP:ZERO:ADJ:ERT?

Return Parameters

NRf

[SOURce:]IMPedance:ZERO:ADJust:PERCentage?

Query the percentage of completed impedance zero adjustment.

Command Syntax

[SOURce:]IMPedance:ZERO:ADJust:PERCentage?

Parameter

None

Defaults

None

Example

IMP:ZERO:ADJ:PERC?

Return Parameters

NRf

**[SOURce:]IMPedance:ZERO:ADJust:RANGe
<LOW|MIDium|HIGH>,<0|OFF|1|ON>**

Set the enable state of the zero-adjustment range.

Command Syntax

[SOURce:]IMPedance:ZERO:ADJust:RANGe
<LOW|MIDium|HIGH>,<0|OFF|1|ON>

Parameter

CPP, BOOL

<LOW|MIDium|HIGH>,<0|OFF|1|ON>

Defaults

None

Example

```
IMP:ZERO:ADJ:RANG LOW,1
IMP:ZERO:ADJ:RANG? LOW
```

Query Syntax

```
[SOURce:]IMPedance:ZERO:ADJust:RANGe? <LOW|MIDium|HIGH>
```

Return Parameters

BOOL

**[SOURce:]IMPedance:FREQuency:SWEep:MODE
<LINear|LOGarithm>**

Set and query the mode of the impedance frequency sweep.

Command Syntax

```
[SOURce:]IMPedance:FREQuency:SWEep:MODE <LINear|LOGarithm>
```

Parameter

```
CPD
<LINear|LOGarithm>
```

Defaults

LINear

Example

```
IMP:FREQ:SWE:MODE LOG
IMP:FREQ:SWE:MODE?
```

Query Syntax

```
[SOURce:]IMPedance:FREQuency:SWEep:MODE?
```

Return Parameters

CPD

**[SOURce:]IMPedance:FREQuency:SWEep:START
<value|MINimum|MAXimum>**

Set and query the start value of the impedance test frequency sweep.

Command Syntax

```
[SOURce:]IMPedance:FREQuency:SWEep:START
<value|MINimum|MAXimum>
```

Parameter

NRf+
0.01-20000

Defaults

None

Example

IMP:FREQ:SWE:STAR 100
IMP:FREQ:SWE:STAR?

Query Syntax

[SOURce:]IMPedance:FREQuency:SWEep:STAR? [MINimum|MAXimum]

Return Parameters

NRf

[SOURce:]IMPedance:FREQuency:SWEep:STOP <value|MINimum|MAXimum>

Set and query the stop value of the impedance test frequency sweep.

Command Syntax

[SOURce:]IMPedance:FREQuency:SWEep:STOP
<value|MINimum|MAXimum>

Parameter

NRf+
0.01-20000

Defaults

None

Example

IMP:FREQ:SWE:STOP 10000
IMP:FREQ:SWE:STOP?

Query Syntax

[SOURce:]IMPedance:FREQuency:SWEep:STOP? [MINimum|MAXimum]

Return Parameters

NRf

[SOURce:]IMPedance:FREQuency:SWEep:STEP <value|MINimum|MAXimum>

Set and query the step value of the linear impedance frequency sweep.

Command Syntax

[SOURce:]IMPedance:FREQuency:SWEep:STEP
<value|MINimum|MAXimum>

Parameter

NRf+
ABS((Stop-Start)/1000) - (Stop-Start)

Defaults

None

Example

IMP:FREQ:SWE:STEP 10
IMP:FREQ:SWE:STEP?

Query Syntax

[SOURce:]IMPedance:FREQuency:SWEep:STEP? [MINimum|MAXimum]

Return Parameters

NRf

[SOURce:]IMPedance:FREQuency:SWEep:PDECade <value|MINimum|MAXimum>

Set and query the number of points per decade for the logarithmic impedance frequency sweep.

Command Syntax

[SOURce:]IMPedance:FREQuency:SWEep:PDECade
<value|MINimum|MAXimum>

Parameter

NRf+
1-100

Defaults

None

Example

IMP:FREQ:SWE:PDEC 10
IMP:FREQ:SWE:PDEC?

Query Syntax

[SOURce:]IMPedance:FREQuency:SWEep:PDECade? [MINimum|MAXimum]

Return Parameters

NR1

[SOURce:]IMPedance:FREQuency:SWEep:POINts <value|MINimum|MAXimum>

Set and query the number of points of the impedance frequency sweep.

Command Syntax

[SOURce:]IMPedance:FREQuency:SWEep:POINts
<value|MINimum|MAXimum>

Parameter

NRf+
1-1000

Defaults

None

Example

IMP:FREQ:SWE:POIN 10
IMP:FREQ:SWE:POIN?

Query Syntax

[SOURce:]IMPedance:FREQuency:SWEep:POINts? [MINimum|MAXimum]

Return Parameters

NR1

MEMory:IMPedance:EXPort <"file_name">,<LOCal|USB>

Export the EIS zero-calibration data.

Command Syntax

MEMory:IMPedance:EXPort <"file_name">,<LOCal|USB>

Parameter

SPD,CPD
,<LOCal|USB>

Defaults

LOCaI

Example

MEM:IMP:EXP "Impedance_zero.csv",LOC

Return Parameters

None

MEMory:IMPedance:IMPort <"file_name">,<LOCa|USB>

Import the EIS zero-calibration data.

Command Syntax

MEMory:IMPedance:IMPort <"file_name">,<LOCa|USB>

Parameter

SPD,CPD
,<LOCa|USB>

Defaults

LOCa

Example

MEM:IMP:IMP? "Impedance_zero.csv",LOC

Return Parameters

None

Chapter23 DIGital IO Subsystem

[SOURce:]DIGital:INPut:DATA?

Read the status of the digital port and return the state values of pins 1 to 7. The return value is in binary format, where bit0-bit6 represent the states of pins 1-7 respectively.

Command Syntax

[SOURce:]DIGital:INPut:DATA?

Parameter

None

Defaults

None

Example

DIG:INP:DATA?

Return Parameters

NR1

[SOURce:]DIGital:OUTPut:DATA <value>

Set the status of the digital port (output high/low level). Note: this only affects pins that have already been configured as digital I/O.

Command Syntax

[SOURce:]DIGital:OUTPut:DATA <value>

Parameter

NR1
0-127

Defaults

None

Example

DIG:OUTP:DATA 2
DIG:OUTP:DATA?

Query Syntax

[SOURce:]DIGital:OUTPut:DATA?

Return Parameters

NR1

[SOURce:]DIGital:PIN<1-7>:FUNction DIO|DINPut|TOUTput|TINPut|INHibit|PSClear|PSSTate| OFFState|SHOrt|VOLTfault

Set the function of pins 1 to 7. Note that this setting must be saved after power-off. The functions are as follows:

DIO = General-purpose input/output function; in output mode, the level being output can also be read back.

DINPut = Digital input only.

TINPut = Trigger input pin.

TOUTput = Trigger output pin.

INHibit = Input, used together with the command
<INPut|OUTPut>:INHibit:MODE.

ONOFF = Controls the instrument On/Off function.

PSClear = Pin 2. This I/O has bidirectional capability. When the instrument is in a protection state, it can receive an external pulse signal through this I/O to clear the protection; or, when the instrument is in a protection state, a pulse signal can be output through this I/O to indicate protection clear.

PSSTate = Pin 3. Protection status indication; outputs a level signal.

OFFState = Pin 4. [On/Off] status indication.

SHOrt = Pin 4. SHOrt status indication.

VFAULT = Pin 4. Voltage fault indication signal; outputs a level signal.

Command Syntax

```
[SOURce:]DIGital:PIN<1-7>:FUNction  
DIO|DINPut|TOUTput|TINPut|INHibit|PSClear|PSSTate|OFFState|SHOrt|VOL  
Tfault
```

Parameter

CPD

DIO|DINPut|TOUTput|TINPut|INHibit|PSClear|PSSTate|OFFState|SHOrt|VFA
Ult|ONOFF

Defaults

None

Example

```
DIG:PIN1:FUNC DIO  
DIG:PIN1:FUNC?
```

Query Syntax

```
[SOURce:]DIGital:PIN1:FUNction DIO|DINPut|INHibit|ONOFF
```

Return Parameters

CRD

[SOURce:]DIGital:PIN<1-7>:POLarity POSitive|NEGative

Set the pin polarity. POSitive means the high level of the pin corresponds to logic true, while NEGative means the high level of the pin corresponds to logic false; for trigger input and output, POSitive indicates the rising edge and NEGative indicates the falling edge.

Command Syntax

[SOURce:]DIGital:PIN<1-7>:POLarity POSitive|NEGative

Parameter

CPD
POSitive|NEGative

Defaults

None

Example

DIG:PIN1:POL NEG
DIG:PIN1:POL?

Query Syntax

[SOURce:]DIGital:PIN<1-7>:POLarity?

Return Parameters

CRD

[SOURce:]DIGital:PIN<5-7>:TOUTput:WIDTh width

Set the pulse width for pin trigger output.

Command Syntax

[SOURce:]DIGital:PIN<5-7>:TOUTput:WIDTh width

Parameter

NRf+
3E-5 to 1E-2, in seconds)| MINimum|MAXimum|DEFault

Defaults

0.0001s

Example

DIGital:PIN5:TOUTput:WIDTh 0.1

Query Syntax

[SOURce:]DIGital:PIN<5-7>:TOUTput:WIDTh?

Return Parameters

CRD

Chapter24 PROTection Subsystem

[SOURce:]CURRent:PROTection:STATe <Bool>

Set the OCP (Over Current Protection) switch for electronic load.

Command Syntax

[SOURce:]CURRent:PROTection:STATe <Bool>

Parameter

Bool
0|OFF|1|ON

Defaults

0|OFF

Example

CURR:PROT:STAT ON
CURR:PROT:STAT?

Query Syntax

[SOURce:]CURRent:PROTection:STATe?

Return Parameters

Bool

[SOURce:]CURRent:PROTection[:LEVel] <current>|MINimum|MAXimum|DEFault

Set the OCP protection level for electronic load.

Command Syntax

[SOURce:]CURRent:PROTection[:LEVel] <current>|MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for max current range

Defaults

Default of maximum current range

Example

CURR:PROT 100
CURR:PROT?

Query Syntax

[SOURce:]CURRent:PROTection[:LEVel]? [MINimum|MAXimum|DEFault]

Return Parameters

NRf

[SOURce:]CURRent:PROTection:DELaY[:TIME] <time>| MINimum|MAXimum|DEFault

Set the protection delay time for electronic load, unit: seconds.

Command Syntax

[SOURce:]CURRent:PROTection:DELaY[:TIME] <time>|
MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
0-60s

Defaults

3s

Example

CURR:PROT:DEL 10
CURR:PROT:DEL?

Query Syntax

[SOURce:]CURRent:PROTection:DELaY[:TIME]?
[MINimum|MAXimum|DEFault]

Return Parameters

NRf

[SOURce:]CURRent:PROTection:TRIPped?

Query if OCP has occurred. 1: Yes, 0: No.

Command Syntax

[SOURce:]CURRent:PROTection:TRIPped?

Parameter

None

Defaults

None

Example

CURR:PROT:TRIP?

Return Parameters

Bool

[SOURce:]VOLTage:PROtection:STATe <BOOL>

Set the OVP (Over Voltage Protection) switch for electronic load.

Command Syntax

[SOURce:]VOLTage:PROtection:STATe <BOOL>

Parameter

Bool
0|OFF|1|ON

Defaults

0|OFF

Example

CURR:PROT:STAT ON
CURR:PROT:STAT?

Query Syntax

[SOURce:]VOLTage:PROtection:STATe?

Return Parameters

Bool

**[SOURce:]VOLTage:PROtection[:LEVel] <current>|
MINimum|MAXimum|DEFault**

Set the OVP protection level for electronic load.

Command Syntax

[SOURce:]VOLTage:PROtection[:LEVel] <current>|
MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for max current range

Defaults

Default of maximum current range

Example

CURR:PROT 100
CURR:PROT?

Query Syntax

[SOURce:]VOLTage:PROTection[:LEVel]?

Return Parameters

NRf

[SOURce:]VOLTage:PROTection:DELaY[:TIME] <time>| MINimum|MAXimum|DEFault

Set the protection delay time for electronic load, unit: seconds.

Command Syntax

[SOURce:]VOLTage:PROTection:DELaY[:TIME] <time>|
MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
0-60s

Defaults

3s

Example

CURR:PROT:DEL 10
CURR:PROT:DEL?

Query Syntax

[SOURce:]VOLTage:PROTection:DELaY[:TIME]?
[MINimum|MAXimum|DEFault]

Return Parameters

NRf

[SOURce:]VOLTage:PROTection:TRIPped?

Query if OVP has occurred. 1: Yes, 0: No.

Command Syntax

[SOURce:]VOLTage:PROTection:TRIPped?

Parameter

None

Defaults

None

Example

VOLT:PROT:TRIP?

Return Parameters

Bool

[SOURce:]VOLTage:UNDER:PROTection:STATe<BOOL>

Set the UVP (Under Voltage Protection) switch for electronic load.

Command Syntax

[SOURce:]VOLTage:UNDER:PROTection:STATe <BOOL>

Parameter

Bool
0|OFF|1|ON

Defaults

0

Example

VOLT:UND:PROT:STAT 1
VOLT:UND:PROT:STAT?

Query Syntax

[SOURce:]VOLTage:UNDER:PROTection:STATe?

Return Parameters

Bool

[SOURce:]VOLTage:UNDER:PROTection[:LEVel]<voltage>| MINimum|MAXimum|DEFault

Set the UVP protection level for electronic load.

Command Syntax

[SOURce:]VOLTage:UNDER:PROTection[:LEVel] <voltage>|
MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
Min|Max|Def values for each voltage range

Defaults

0

Example

VOLT:UND:PROT 10
VOLT:UND:PROT?

Query Syntax

[SOURce:]VOLTage:UNDer:PROTection[:LEVel]?
[MINimum|MAXimum|DEFault]

Return Parameters

NRf

**[SOURce:]VOLTage:UNDer:PROTection:DELaY[:TIME]
<time>| MINimum|MAXimum|DEFault**

Set the protection delay time for electronic load, unit: seconds.

Command Syntax

[SOURce:]VOLTage:UNDer:PROTection:DELaY[:TIME] <time>|
MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
0-60s

Defaults

3

Example

VOLT:UND:PROT:DEL 5
VOLT:UND:PROT:DEL?

Query Syntax

[SOURce:]VOLTage:UNDer:PROTection:DELaY[:TIME]?
[MINimum|MAXimum|DEFault]

Return Parameters

NRf

[SOURce:]VOLTage:UNDer:PROTection:TRIPped?

Query if UVP has occurred. 1: Yes, 0: No.

Command Syntax

[SOURce:]VOLTage:UNDer:PROTection:TRIPped?

Parameter

None

Defaults

None

Example

VOLT:UND:PROT:TRIP?

Return Parameters

Bool

[SOURce:]POWer:PROTection:STATe <BOOL>

Set the OPP (Over Power Protection) switch for electronic load.

Command Syntax

[SOURce:]POWer:PROTection:STATe <BOOL>

Parameter

Bool

0|OFF|1|ON

Defaults

None

Example

POW:PROT:STAT 1

POW:PROT:STAT?

Query Syntax

[SOURce:]POWer:PROTection:STATe?

Return Parameters

Bool

[SOURce:]POWer:PROTection[:LEVel]<value> [MINimum|MAXimum|DEFault]

Set the OPP protection level for electronic load.

Command Syntax

[SOURce:]POWer:PROTection[:LEVel]<value> [MINimum|MAXimum|DEFault]

Parameter

NRf+

MINimum|MAXimum|DEFault

Min|Max|Def values for max power range

Defaults

Max value of maximum power range

Example

POW:PROT 1000
POW:PROT?

Query Syntax

[SOURce:]POWER:PROTection[:LEVel]? [MINimum|MAXimum|DEFault]

Return Parameters

NRf

[SOURce:]POWER:PROTection:DELaY[:TIME] <time>|MINimum|MAXimum|DEFault

Set the OPP delay time for electronic load, unit: seconds.

Command Syntax

[SOURce:]POWER:PROTection:DELaY[:TIME]
<time>|MINimum|MAXimum|DEFault

Parameter

NRf+
MINimum|MAXimum|DEFault
0-60s

Defaults

3

Example

POW:PROT:DEL 10

Query Syntax

[SOURce:]POWER:PROTection:DELaY[:TIME]? [MINimum|MAXimum|DEFault]

Return Parameters

NRf

[SOURce:]TEMPerature:PROTection:MODE SHUTdown|LIMit

Set the OTP (Over Temperature Protection) mode for electronic load.

Command Syntax

[SOURce:]TEMPerature:PROTection:MODE SHUTdown|LIMit

Parameter

CPD
SHUTdown|LIMit

Defaults

SHUTdown

Example

TEMPerature:PROtection:MODE LIMit

Query Syntax

[SOURce:]TEMPerature:PROtection:MODE?

Return Parameters

CPD

[SOURce:]INPut:TIMer[:STATe] <BOOL>

Enable/disable the countdown timer under load.

Command Syntax

[SOURce:]INPut:TIMer[:STATe] <BOOL>

Parameter

Bool
ON|OFF|1|0

Defaults

0|OFF

Example

INPut:TIMer ON

Query Syntax

[SOURce:]INPut:TIMer?

Return Parameters

Bool

**[SOURce:]INPut:TIMer:DELaY
<time>|MINimum|MAXimum|DEFault**

Set the countdown timer duration under load.

Command Syntax

[SOURce:]INPut:TIMer:DELaY <time>|MINimum|MAXimum|DEFault

Parameter

NRf+
(1 to 60000s)| MINimum|MAXimum|DEFault]

Defaults

10

Example

INPut:TIMer:DELay 5

Query Syntax

[SOURce:]INPut:TIMer:DELay? [MINimum|MAXimum|DEFault]

Return Parameters

NRf

Chapter25 SYSTem Subsystem

SYSTem:BEEPer:IMMediate

This command immediately activates the beeper.

Command Syntax

SYSTem:BEEPer:IMMediate

Parameter

None

Defaults

None

Example

SYST:BEEP

Return Parameters

None

SYSTem:BEEPer:STATe

Enable or disable the beeper.

Command Syntax

SYSTem:BEEPer:STATe

Parameter

BOOL
ON|OFF|1|0

Defaults

ON

Example

SYST:BEEP:STAT 1
SYST:BEEP:STAT?

Query Syntax

SYSTem:BEEPer:STATe?

Return Parameters

0|1

SYSTem:COMMunicate:RLSTate

Set the operation control mode of the electronic load.

LOCal: Enable local control (same as SYSTem:LOCAl).

REMOte: Enable remote control (same as SYSTem:REMOte).

RWLock: Lock local control (same as SYSTem:RWLock).

Command Syntax

SYSTem:COMMunicate:RLSTate

Parameter

CPD

LOCAl|REMOte|RWLock

Defaults

LOCAl

Example

SYST:COMM:RLST REM

SYST:COMM:RLST?

Query Syntax

SYSTem:COMMunicate:RLSTate?

Return Parameters

CRD

SYSTem:COMMunicate:TCPip:CONTrol?

Query the port number bound to the electronic load.

Command Syntax

SYSTem:COMMunicate:TCPip:CONTrol?

Parameter

None

Defaults

None

Example

SYST:COMM:TCP:CONT?

Return Parameters

NR1

SYSTem:COMMunicate:LAN:CONTrol?

This command same is same as SYSTem:COMMunicate:TCPip:CONTrol?

This command is needed for backward compatible with legacy products.

Command Syntax

SYSTem:COMMunicate:LAN:CONTrol?

Parameter

None

Defaults

None

Example

SYST:COMM:LAN:CONT?

Return Parameters

NR1

SYSTem:DATE <yyyy>,<mm>, <dd>

Set the electronic load's calendar year, month, and day.

Command Syntax

SYSTem:DATE <yyyy>,<mm>, <dd>

Parameter

NR1,NR1,NR1
<yyyy>,<mm>, <dd>

Defaults

None

Example

SYST:DATA 2024, 11, 21
SYST:DATA?

Query Syntax

SYSTem:DATE?

Return Parameters

yyyy/mm/dd

SYSTem:TIME <hh>,<mm>, <ss>

Set the electronic load's hour, minute, and second.

Command Syntax

SYSTem:TIME <hh>,<mm>, <ss>

Parameter

NR1,NR1,NR1
<hh>,<mm>, <ss>

Defaults

None

Example

SYST:TIME 14,36,31
SYST:TIME?

Query Syntax

SYSTem:TIME?

Return Parameters

hh/mm/ss

SYSTem:ERRor[:NEXT]?

Query the electronic load's error queue.

1. Supports up to 20 errors.
2. On detection, the beeper sounds and ERR is shown on the panel.

Command Syntax

SYSTem:ERRor[:NEXT]?

Parameter

None

Defaults

None

Example

SYST:ERR?

Return Parameters

SRD

SYSTem:LOCal

Switch to local mode.

Command Syntax

SYSTem:LOCal

Parameter

None

Defaults

None

Example

SYST:LOC

Return Parameters

None

SYSTem:REMOte

Switch to remote (command control) mode.

Command Syntax

SYSTem:REMOte

Parameter

None

Defaults

None

Example

SYST:REM

Return Parameters

None

SYSTem:RWLock <Bool>

Enter/exit remote lock mode.

Command Syntax

SYSTem:RWLock <Bool>

ParameterBOOL
0|1|OFF|ON**Defaults**

None

Example

SYST:RWL 1

Return Parameters

0|1

SYSTem:SECurity:IMMediate

Clear user memory and reboot.

*NOTE: Only applies in SINGLE mode (not parallel).

Command Syntax

SYSTem:SECurity:IMMediate

Parameter

None

Defaults

None

Example

SYST:SEC:IMM

Return Parameters

None

SYSTem:VERSion?

Query SCPI version number. Format is YYYY.V where YYYY is year and V is version.

Command Syntax

SYSTem:VERSion?

Parameter

None

Defaults

None

Example

SYST:VER?

Return Parameters

SRD

SYSTem:COMMunicate:GPIB:ADDRes <addr>

Set GPIB address of electronic load.

Command Syntax

SYSTem:COMMunicate:GPIB:ADDRes <addr>

Parameter

NR1

1 - 30, default 25

Defaults

25

Example

SYST:COMM:GPIB:ADDR 15

SYST:COMM:GPIB:ADDR?

Query Syntax

SYSTem:COMMunicate:GPIB:ADDRess?

Return Parameters

NR1

SYSTem:COMMunicate:SERial:BAUDrate <rate>

Set baud rate of RS232 interface on electronic load.

Command Syntax

SYSTem:COMMunicate:SERial:BAUDrate <rate>

Parameter

CPD

115200|57600|38400

|19200|9600|4800

Defaults

115200

Example

SYST:COMM:SER:BAUD 115200

SYST:COMM:SER:BAUD?

Query Syntax

SYSTem:COMMunicate:SERial:BAUDrate?

Return Parameters

CRD

SYSTem:COMMunicate:LAN:IP[:CONFiguration] <IP>

Set network IP address of electronic load.

Command Syntax

SYSTem:COMMunicate:LAN:IP[:CONFiguration] <IP>

Parameter

SPD
"A.B.C.D"

Defaults

192.168.200.100

Example

SYST:COMM:LAN:IP "192.168.27.106"
SYST:COMM:LAN:IP?

Query Syntax

SYSTem:COMMunicate:LAN:IP[:CONFiguration]?

Return Parameters

SRD

SYSTem:COMMunicate:LAN:IP[:CONFiguration]:MODE <mode>

Set method for obtaining network IP address.

Command Syntax

SYSTem:COMMunicate:LAN:IP[:CONFiguration]:MODE <mode>

Parameter

CPD
AUTO|MANual

Defaults

MANual

Example

SYST:COMM:LAN:IP:MODE AUTO
SYST:COMM:LAN:IP:MODE?

Query Syntax

SYSTem:COMMunicate:LAN:IP[:CONFiguration]:MODE?

Return Parameters

CRD

SYSTem:COMMunicate:LAN:SMASk <smask>

Set subnet mask for electronic load.

Command Syntax

SYSTem:COMMunicate:LAN:SMASk <smask>

Parameter

SPD
"A.B.C.D"

Defaults

255.255.255.0

Example

SYST:COMM:LAN:SMAS "255.255.255.0"
SYST:COMM:LAN:SMAS?

Query Syntax

SYSTem:COMMunicate:LAN:SMASk?

Return Parameters

SRD

SYSTem:COMMunicate:LAN:DGATeway <gateway>

Set network gateway address.

Command Syntax

SYSTem:COMMunicate:LAN:DGATeway <gateway>

Parameter

SPD
"A.B.C.D"

Defaults

192.168.200.1

Example

SYST:COMM:LAN:DGAT "192.168.200.1"
SYST:COMM:LAN:DGAT?

Query Syntax

SYSTem:COMMunicate:LAN:DGATeway?

Return Parameters

SRD

SYSTem:COMMunicate:LAN:RAWSocketport <port>

Set network socket port.
NOTE: Change socket to 5025.

Command Syntax

SYSTem:COMMunicate:LAN:RAWSocketport <port>

Parameter

NR1
port:1000-60000

Defaults

30000

Example

SYST:COMM:LAN:RAWS 5025
SYST:COMM:LAN:RAWS?

Query Syntax

SYSTem:COMMunicate:LAN:RAWSocketport?

Return Parameters

NR1

SYSTem:COMMunicate:LAN:RESet

Restore network settings to factory defaults.

Command Syntax

SYSTem:COMMunicate:LAN:RESet

Parameter

None

Defaults

None

Example

SYST:COMM:LAN:RES

Return Parameters

None

SYSTem:COMMunicate:LAN:UPDate

Apply network settings.

Command Syntax

SYSTem:COMMunicate:LAN:UPDate

Parameter

None

Defaults

None

Example

SYST:COMM:LAN:UPD

Return Parameters

None

SYSTem:REBoot

Reboot the electronic load to power-on state.

Command Syntax

SYSTem:REBoot

Parameter

None

Defaults

None

Example

SYST:REB

Return Parameters

None

SYSTem:COMMunicate:USB:FUNCTion

Set USB communication device type.

Command Syntax

SYSTem:COMMunicate:USB:FUNCTion

ParameterCPD
HOST|TMC|VCP**Defaults**

VCP

ExampleSYST:COMM:USB:FUNC TMC
SYST:COMM:USB:FUNC?**Query Syntax**

SYSTem:COMMunicate:USB:FUNCTion?

Return Parameters

CRD

SYSTem:CLEar

Clear error sequence.

Command Syntax

SYSTem:CLEar

Parameter

None

Defaults

None

Example

SYST:CLE

Return Parameters

None

SYSTem:POSetup

Set power-on state of the instrument.

Reset: Initialize system.

Last: Restore last shutdown state.

Last Off: Restore last state with output off.

Command Syntax

SYSTem:POSetup

Parameter

CPD

RST|LAST|LOFF

Defaults

RST

Example

SYST:POS LAST

SYST:POS?

Query Syntax

SYSTem:POSetup?

Return Parameters

CRD

SYSTem:BRIGhtness:LEVel

Set LCD backlight brightness.

Command Syntax

SYSTem:BRIGhtness:LEVel

ParameterNR1
1--10**Defaults**

3

ExampleSYST:BRIG:LEV 5
SYST:BRIG:LEV?**Query Syntax**

SYSTem:BRIGhtness:LEVel?

Return Parameters

NR1

SYSTem:LANGuage <CPD>

Language selection.

Command Syntax

SYSTem:LANGuage <CPD>

ParameterCPD
ENGLish|CHINese**Defaults**

ENGLish

ExampleSYST:LANG CHIN
SYST:LANG?**Query Syntax**

SYSTem:LANGuage?

Return Parameters

CRD

SYSTem:KNOB:IMMediate:EFFective <Bool>

Enable/disable immediate knob effect.

Command Syntax

SYSTem:KNOB:IMMEDIATE:EFFective <Bool>

Parameter

BOOL
ON|OFF|1|0

Defaults

0

Example

SYST:KNOB:IMM:EFF 1
SYST:KNOB:IMM:EFF?

Query Syntax

SYSTem:KNOB:IMMEDIATE:EFFective?

Return Parameters

0|1

SYSTem:TOUCh[:STATe]

Touch switch setting.

Command Syntax

SYSTem:TOUCh[:STATe]

Parameter

BOOL
ON|OFF|1|0

Defaults

1

Example

SYST:TOUC 1
SYST:TOUC?

Query Syntax

SYSTem:TOUCh[:STATe]?

Return Parameters

0|1

SYSTem:LFRequency <CPD>

Set power line frequency.

Command Syntax

SYSTem:LFRequency <CPD>

Parameter

CPD
50|60|50Hz|60Hz

Defaults

50Hz

Example

SYST:LFR 50
SYST:LFR?

Query Syntax

SYSTem:LFRequency?

Return Parameters

50Hz|60Hz

SYSTem:PROTect:BEEPer:STATe

Enable/disable protection beeper.

Command Syntax

SYSTem:PROTect:BEEPer:STATe

Parameter

BOOL
ON|OFF|1|0

Defaults

ON

Example

SYST:PROT:BEEP:STAT 1
SYST:PROT:BEEP:STAT?

Query Syntax

SYSTem:PROTect:BEEPer:STATe?

Return Parameters

0|1

SYSTem:COMMunicate:CAN:BAUDrate

Set CAN baud rate.

Command Syntax

SYSTem:COMMunicate:CAN:BAUDrate

Parameter

CPD

5K|10K|20K|40K|50K|80K|100K|125K|200K|250K|400K|500K|600K|800K|1000K

Defaults

250K

Example

SYST:COMM:CAN:BAUD 250K

SYST:COMM:CAN:BAUD?

Query Syntax

SYSTem:COMMunicate:CAN:BAUDrate?

Return Parameters

CRD

SYSTem:COMMunicate:CAN:ADDRess

Set CAN address.

Command Syntax

SYSTem:COMMunicate:CAN:ADDRess

Parameter

NR1

1-127

Defaults

1

Example

SYST:COMM:CAN:ADDR 1

SYST:COMM:CAN:ADDR?

Query Syntax

SYSTem:COMMunicate:CAN:ADDRess?

Return Parameters

CRD

Chapter26 TRACe Susystem

TRACe:CLEAr

Clears the trace buffer data.

Command Syntax

TRACe:CLEAr

Parameter

None

Defaults

None

Example

TRAC:CLE

Return Parameters

None

TRACe:FREE?

Returns the available size (available) and the total size (total) of the trace buffer. The total data size is set by the TRACe:POINts command. The maximum is 1000000.

Command Syntax

TRACe:FREE?

Parameter

None

Defaults

None

Example

TRAC:FREE?

Return Parameters

NR1,NR1

TRACe:POINts:ACTual?

Returns the number of data in the trace buffer.

Command Syntax

TRACe:POINts:ACTual?

Parameter

None

Defaults

None

Example

TRAC:POIN:ACT?

Return Parameters

NR1

TRACe:POINts <NRf+>

Sets the size of the trace buffer. Use the TRACe:FEED:CONTRol command to set the trace function mode to NEVer, or send TRACe:CLear; then this command takes effect.

Command Syntax

TRACe:POINts <NRf+>

Parameter

NRf+

Size. value (1 to 1000000)|MINimum|MAXimum|DEFault.

Defaults

default: 1000000

ExampleTRAC:POIN 100
TRAC:POIN?**Query Syntax**

TRACe:POINts?

Return Parameters

NR1

TRACe:DATA:LATest:OFFSet?

Returns the offset of the latest data position; the first value is 0.

Command Syntax

TRACe:DATA:LATest:OFFSet?

Parameter

None

Defaults

None

Example

TRAC:DATA:LAT:OFFS?

Return Parameters

NR3

TRACe:DATA? [offset[, size]]

Returns data in the trace buffer.

offset Indicates the beginning of the data received.

offset=n specifies the n+1th data. n is an integer

offset=CURR specifies the present data position.

offset=STAR specifies the top of trace buffer. Same as offset=0.

size is number of data to be received. 1 to maximum . If this parameter is when size not specified, all data from offset is returned.

when offset and size not specified, all data from current is returned. When the trace buffer has no data, only '\n' is returned.

Only when TRACe:FEED:CONTRol is set to NEXT or ALWAYS and output is on will the trace buffer generate data.

Command Syntax

TRACe:DATA? [offset[, size]]

Parameter

[NRf+][,NR1]

n|CURRent|STARt

Defaults

STARt

Example

TRAC:DATA?

Return Parameters

NR3,NR3,...

TRACe:FEED type

Specifies the elements included in the measurement result data returned by the TRACe:DATA? Command.

Elements and their order: time, voltage, current, power, DVM voltage, voltage max and min, current max and min, power max and min, DVM voltage max and min.

Command Syntax

TRACe:FEED type

Parameter

CPD

VOLTage|CURRent|TWO|DVM|SOURce|TIME

Defaults

VOLTage

Example

TRAC:FEED CURR

TRAC:FEED?

Query Syntax

TRACe:FEED?

Return Parameters

CRD

TRACe:FEED:CONTrol mode

NEXT enables write operation until buffer full. Buffer full changes mode to NEV automatically. No error occurs. NEVer disables write operation to the trace buffer.

ALWays enables write operation and circ buffer. TRACe:CLEAr, TRACe:FEED, and TRACe:POINts commands can be used.

Command Syntax

TRACe:FEED:CONTrol mode

Parameter

CPD

NEXT|NEVer|ALWays

Defaults

NEVer

Example

TRAC:FEED:CONT ALW

TRAC:FEED:CONT?

Query Syntax

TRACe:FEED:CONTrol?

Return Parameters

CRD

Chapter27 IEEE488.2 Commands

Common commands begin with an * and consist of three letters (command) or three letters and a ?(query). They are defined by the IEEE 488.2 standard to perform common interface functions. Common commands and queries are categorized under System, Status, or Trigger functions and are listed at the end of this chapter.

Common Commands

Common commands begin with an * and consist of three letters (command) IEEE 488.2 standard to perform some common interface functions. The electronic loads respond to the required common commands that control status reporting, synchronization, and internal operations. The electronic loads also respond to optional common commands that control triggers, power-on conditions, and stored operating parameters.

Common commands and queries are listed alphabetically. If a command has a corresponding query that simply returns the data or status specified by the command, then both command and query are included under the explanation for the command. If a query does not have a corresponding command or is functionally different from the command, then the query is listed separately. The description for each common command or query specifies any status registers affected. Refer to chapter “Programming the Status Registers”, which explains how to read specific register bits and use the information that they return.

Menmonic	Name	Description
*CLS	Clear status	Clear all event registers and Error Queue
*ESE <NRf>	Event enable command	Edit Standard Event Enable Register.
*ESE?	Event enable query	Read Standard Event Enable Register.
*ESR?	Event status query	Read Standard Event Status Register and clear it
*IDN?	Identification query	Return the manufacture, model number, serial number and the firmware revisions of the instrument.
*OPC	Operation complete command	Set the Operation Complete bit in the Standard Event Status Register after all pending commands have been executed.
*OPC?	Operation complete query	Places an ASCII “1” into the output queue when all pending selected device operations have been completed.
*RCL <NRf>	Recall Command	Returns the Load the setup configuration stored in the specified memory location.
*RST	Reset Command	Returned the Load to the *RST default conditions
*SAV <NRf>	Save Command	Saves the current setup to the specified memory location.
*SRE <NRf>	Service request enable command	Programs the Service Request Enable register.
*SRE?	Service request enable query	Read Service Request Enable register
*STB?	Read status byte query	Read Status Byte Register
*TRG	Trigger Command	Send a trigger to Load.
*TST?	Self-test query	Performs a self-test and returns the result.
*WAI	Wait to continue command	Wait until all previous commands are executed.

*CLS — Clear Status

This command clears the registers:

- _ Standard Event Register
- _ Operation Event Register
- _ Questionable Event Register
- _ Error Queue

Command syntax

*CLS

Parameters

None

*ESE <NRf> — Event Enable

This command programs the Standard Event Status Enable register bits. The programming determines which events of the Standard Event Status Event register (see *ESR?) are allowed to set the ESB (Event Summary Bit) of the Status Byte register. A "1" in the bit position enables the corresponding event. All of the enabled events of the Standard Event Status Event Register are logically ORed to cause the Event Summary Bit (ESB) of the Status Byte Register to be set. See chapter "Programming the Status Registers" for descriptions of the Standard Event Status registers.

The query reads the Standard Event Status Enable register.

Command Syntax	*ESE <NRf>
Parameters	0 to 255
Power-on Value	see *PSC
Examples	*ESE 129
Query Syntax	*ESE?
Returned Parameters	<NR1>
Related Commands	*ESR? *PSC *STB?

*ESR?

This query reads the Standard Event Status Event register. Reading the register clears it. The bit configuration of this register is the same as the Standard Event Status Enable register (see *ESE). See chapter "Programming the Status Registers" for a detailed explanation of this register.

Query Syntax	*ESR?
Parameters	None
Returned Parameters	<NR1> (register value)
Related Commands	*CLS *ESE *ESE? *OPC

*IDN?

This query requests the electronic load to identify itself. It returns the data in four fields separated by commas.

Query Syntax	*IDN?		
Parameters	None		
Examples	ITECH Ltd, IT81XX, XXXXXXXXXXXXXXXXXXXX, 1.21-1.28		
Returned Parameters	<AARD>	Field	Information
	ITECH Ltd		Technologies Manufacturer
	IT81XX		Model
	XXXX.....		Serial Number
	1.21-1.28		Firmware Revision

*OPC

This command causes the interface to set the OPC bit (bit 0) of the Standard Event Status register when the electronic load has completed all pending operations. (See *ESE for the bit configuration of the Standard Event Status registers.) Pending operations are complete when:

- All commands sent before *OPC have been executed. This includes overlapped commands. Most commands are sequential and are completed before the next command is executed. Overlapped commands are executed in parallel with other commands. Commands that affect trigger actions are overlapped with subsequent commands sent to the electronic load. The *OPC command provides notification that all overlapped commands have been completed.
- All triggered actions are completed and the trigger system returns to the Idle state.

*OPC does not prevent processing of subsequent commands but Bit 0 will not be set until all pending operations are completed. The query causes the interface to place an ASCII "1" in the Output Queue when all pending operations are completed.

Command Syntax	*OPC
Parameters	None
Query Syntax	*OPC?
Returned Parameters	<NR1>
Related Commands	*TRIG *WAI

*PSC

This command is used to control whether the electronic load will generate a service request when power on again.

1 OR ON: When the load power on, status byte enable register, operator event enable register, query event enable register and standard event enable register will be cleared.

0 OR OFF: The value of status byte enable register, operator event enable register, query event enable register and standard event enable register will be stored in the non-volatile storage, which will be recalled when power on.

Command Syntax	*PSC <bool>
Parameters	0 1 ON OFF
Query Syntax	*PSC?
Returned Parameters	0 1

*RCL

This command restores the electronic load to a state that was previously stored in memory with a *SAV command to the specified location. All states are recalled with the following exceptions:

CAL:STATE is set to OFF

The trigger system is set to the Idle state by an implied ABORt command (this cancels any uncompleted trigger actions)

NOTE: The device state stored in location 0 is automatically recalled at power turn-on.

Command Syntax	*RCL <NRf>
Parameters	1 to 100
Examples	*RCL 3
Related Commands	*PSC *RST *SAV

*RST

This command reset the electronic load to the factory-defined states.

Command Syntax	*RST
Parameters	None

*SAV

This command stores the present state of the electronic load to a specified location in memory. Up to 100 states can be stored. If a particular state is desired at power-on, it should be stored in location 0. It then will be recalled at power-on if the power-on state is set to RCL0. Use *RCL to retrieve instrument states.

NOTE: *SAV does not save the programmed trigger values ([SOURce:]CURRent:TRIGGer, [SOURce:]RESistance:TRIGGer, [SOURce:]VOLTage:TRIGGer). Programming an *RCL or a *RST command causes the triggered settings to revert to their [IMMediate] settings.

Command Syntax	*SAV <NRf>
Parameters	1 to 100
Examples	*SAV 3
Related Commands	*PSC *RST *RCL

*SRE

This command sets the condition of the Service Request Enable Register. This register determines which bits from the Status Byte Register (see *STB for its bit configuration) are allowed to set the Master Status Summary (MSS) bit and the Request for Service (RQS) summary bit. A 1 in any Service Request Enable Register bit position enables the corresponding Status Byte Register bit and all such enabled bits then are logically ORed to cause Bit 6 of the Status Byte Register to be set.

When the controller conducts a serial poll in response to SRQ, the RQS bit is cleared, but the MSS bit is not. When *SRE is cleared (by programming it with

0), the electronic load cannot generate an SRQ to the controller. The query returns the current state of *SRE.

Command Syntax	*SRE <NRf>
Parameters	0 to 255
Default value	see *PSC
Examples	*SRE 128
Query Syntax	*SRE?
Returned Parameters	<NR1> (register binary value)
Related Commands	*ESE *ESR *PSC

*STB?

This query reads the Status Byte register, which contains the status summary bits and the Output Queue MAV bit. Reading the Status Byte register does not clear it. The input summary bits are cleared when the appropriate event registers are read (see chapter “Programming the Status Registers” for more information). A serial poll also returns the value of the Status Byte register, except that bit 6 returns Request for Service (RQS) instead of Master Status Summary (MSS). A serial poll clears RQS, but not MSS. When MSS is set, it indicates that the electronic load has one or more reasons for requesting service.

Query Syntax	*STB?
Parameters	None
Returned Parameters	<NR1> (register value)
Related Commands	*SRE *ESR *ESE

*TRG

This command generates a trigger to any system that has BUS selected as its source (for example, TRIG:SOUR BUS). The command has the same affect as the Group Execute Trigger (<GET>) command.

Command Syntax	*TRG
Parameters	None
Related Commands	ABOR INIT TRIG:IMM

*TST?

This command causes the electronic load to do a self-test and report any error.

Command Syntax	*TST?
Parameters	None
Returned Parameters	<NR1> 0 indicates the electronic load has passed selftest. Non-zero indicates an error code(see appendix C)

***WAI**

This command instructs the electronic load not to process any further commands until all pending operations are completed. Pending operations are complete when:

All commands sent before *WAI have been executed. This includes overlapped commands. Most commands are sequential and are completed before the next command is executed. Overlapped commands are executed in parallel with other commands. Commands that affect input voltage or state, relays, and trigger actions are overlapped with subsequent commands sent to the electronic load. The *WAI command prevents subsequent commands from being executed before any overlapped commands have been completed.

All triggered actions are completed and the trigger system returns to the Idle state. *WAI can be aborted only by sending the electronic load a GPIB DCL (Device Clear) command.

Command Syntax	*WAI
Parameters	None
Related Commands	*OPC

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