HDL2500+ Programming Manual

（V 1.0）

Copyright statement

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Statement

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Catalogue

Introduction to SCPI Commands

SCPI Standard Commands for Programmable Instruments (English: Standard Commands for Programmable Instruments, abbreviation: SCPI) defines a standard set of syntax and commands for controlling programmable test and measurement instruments. SCPI commands are ASCII strings that are passed to the instrument through the physical transport layer. The commands consist of a sequence of keywords, some of which need to include parameters. In the protocol, commands are specified in the following form: CONFigure. In use, this means that the full name can be written, or only an abbreviation containing only capital letters. The instrument's feedback for query commands is also usually in ASCII code. When transferring large amounts of data, binary data can also be used.

Order Format

The command consists of a keyword separated by a colon ":" followed by an optional parameter setting. If the command line is followed by "?" , it means query function. The keyword and the first parameter should be separated by a space.
Example:
CHANnel1:BWLimit 20M
CHANnel1:BWLimit？
The first level keyword is CHANnel, and the second level keyword is BWLimit. the keywords at each level are also separated by ":", and 20M is a parameter, separated from the keyword by a space. The hello "?" Indicates a query.

Description of symbols

The following symbols are not sent with the command.
1. curly brackets {}
The contents of the curly brackets are the parameter options. Parameter items are usually separated by a vertical line "|". To use the command, you must select one of the parameters.
2. Vertical line |
Vertical lines are used to separate multiple parameter options, one of which must be selected when using the command.
3. Square brackets []
The brackets are omitted.
4. Triangular brackets <>
Parameters in triangular brackets must be replaced with a valid value.

Command Abbreviations

All commands are case insensitive and you can use all upper or lower case. However, if you want

to abbreviate, you must type all capital letters in the Command format.
For example, CHANnel1:BWLimit?
CHANnel1:BWLimit? can be abbreviated to CHAN:BWL?

Constant Current System (CC)

CC:CURRent

Command format

CC:CURRent <curr>

CC:CURRent?

Functional Description

Setting or querying the operating current in CC mode.

Parameter

curr: working current value, unit A, floating point type

Description

Maximum working current of the load is set value

Return value

The query returns the set value of the load operating current in A.

Example:

CC:CURRent 1.5 /*Set the load operating current to 1.5A*/

CC:CURRent? /*Query returns 1.5*/

CC:CURRent:RANGe

Command format

CC:CURRent:RANGe <range>

CC:CURRent:RANGe?

Functional Description

Sets or queries the current range in CC mode.

Parameter

range: current range in A, floating point.

Explanation

If the parameter falls within the range of small range, then small current range is selected, otherwise, large current range is selected.

Return Value

The query returns the current range in A.

Example

CC:CURRent:RANGe 1.5 /*Set the load current range to 1.5A*/

CC:CURRent:RANGe? /*Query returns 1.5*/

CC:VOLTage:HLIMit

Command format

CC:VOLTage:HLIMit <hlimit>

CC:VOLTage:HLIMit?

Functional Description

Sets or queries the maximum working voltage in CC mode.

Parameter

hlimit: Maximum working voltage value, unit V, floating point type

Explanation

The load operating voltage will not exceed this value.

Return value

The query returns the maximum operating voltage in V.

Example:

CC:VOLTage:HLIMit 120.2 /*Set the maximum load voltage to 120.2V*/

CC:VOLTage:HLIMit? /*Query returns 120.2**/

CC:VOLTage:LLIMit

Command format

CC:VOLTage:LLIMit <llimit>

CC:VOLTage:LLIMit?

Functional Description

Sets or queries the minimum working voltage in CC mode.

Parameter

llimit: Minimum working voltage, unit V, floating-point type

Explanation

The working voltage of the load will not be lower than this value.

Return value

The query returns the minimum operating voltage in V.

Example:

CC:VOLTage:LLIMit 0 /*Set the minimum load operating voltage to 0V*/

CC:VOLTage:LLIMit? /*query returns 0*/

CC:RISE:RATE

Command format

CC:RISE:RATE <rate>

CC:RISE:RATE?

Functional Description

Sets or queries the current rate of rise in CC mode.

Parameter

rate: current rate of rise, unit A/us, floating point

Return Value

The query returns the current ramp rate in A/us.

Example:

CC:RISE:RATE 0.5 /*Set the load current ramp rate to 0.5V*/

CC:RISE:RATE? /*Query returns 0.5*/

CC:FALL:RATE

Command format

CC:FALL:RATE <rate>

CC:FALL:RATE?

Functional Description

Sets or queries the current rate of descent in CC mode.

Parameter

rate: current ramp rate, unit is A/us, floating point.

Explanation

Return Value

Return value of current descent slope in A/us.

Example:

CC:FALL:RATE 0.5 /*Set the load current ramp rate to 0.5V*/

CC:FALL:RATE? /*Query returns 0.5*/

Constant Voltage Systems (CV)

CV:VOLTage

Command format

CV:VOLTage <volt>

CV:VOLTage?

Functional Description

Sets or queries the operating voltage in CV mode.

Parameter

curr: value of working voltage, unit A, floating point type

Explanation

The maximum working voltage of the load is the set value

Return value

The query returns the fixed value of the operating voltage of the load in V.

Example:

CV:VOLTage 55 /*Set the load working current to 55V*/

CV:VOLTage? /*Query returns 55*/

CV:VOLTage:RANGe

Command format

CV:VOLTage:RANGe <range>

CV:VOLTage:RANGe?

Functional Description

Sets or queries the voltage range in CC mode.

Parameter

range: Voltage range in V, floating point type

Explanation

When the set parameter falls within the range of small range, then select the voltage small range, otherwise select the voltage large range.

Return Value

The query returns the voltage range in V

Example:

CV:VOLTage:RANGe 80 /*Set load voltage range to 80V*/

CV:VOLTage:RANGe? /*query returns 80*/

CV:CURRent:HLIMit

Command format

CV:CURRent:HLIMit <hlimit>

CV:CURRent:HLIMit?

Functional Description

Sets or queries the voltage range in CC mode.

Parameter

hlimit: Maximum working current value, unit A, floating point.

Explanation

The load operating current will not exceed this value.

Return value

The query returns the maximum operating current in A.

Example:

CV:CURRent:HLIMit 20 /*Set the maximum load current to 20A*/

CV:CURRent:HLIMit? /*Query returns 20*/

CV:CURRent:LLIMit

Command format

CV:CURRent:LLIMit <llimit>

CV:CURRent:LLIMit?

Functional Description

Sets or queries the minimum operating current in CV mode.

Parameter

llimit: Minimum working current, unit A, floating point.

Explanation

The working current of the load will not be lower than this value.

Return value

The query returns the minimum operating current in A.

Example:

CV:CURRent:LLIMit 0 /*Set the minimum load current to 0A*/

CV:CURRent:LLIMit? /*Query returns 0*/

Constant Resistance System (CR)

CR:RESIstance

Command format

CR:RESIstance <res>

CR:RESIstance?

Functional Description

Set or query the resistance setting value in CR mode.

Parameter

res: working resistance value, unit Ω, floating point type

Explanation

Return Value

Queries the set value of load resistance.

Example:

CR:RESIstance 55 /*Set the load working resistance to 55Ω*/

CR:RESIstance? /*Query returns 55*/

CR:RESIstance:RANGe

Command format

CR:RESIstance:RANGe <range>

CR:RESIstance:RANGe?

Functional Description

Sets or queries the range of resistance in CR mode.

Parameter

range: Resistance range, unit Ω, floating point.

Return Value

Return to Resistance Ranges

Example:

CR:RESIstance:RANGe 80 /*Set the load resistance range to 80Ω*/

CR:RESIstance:RANGe? /*Query returns 80*/

CR:VOLTage:HLIMit

Command format

CR:VOLTage:HLIMit <hlimit>

CR:VOLTage:HLIMit?

Functional Description

Sets or queries the maximum working voltage in CR mode.

Parameter

hlimit: Maximum working voltage value, unit V, floating-point type

Explanation

The load operating voltage will not exceed this value.

Return value

The query returns the maximum operating voltage in V.

Example:

CR:VOLTage:HLIMit 120.2 /*Set the maximum load voltage to 120.2V*/

CR:VOLTage:HLIMit? /*Query returns 120.2 */

CR:VOLTage:LLIMit

Command format

CR:VOLTage:LLIMit <llimit>

CR:VOLTage:LLIMit?

Functional Description

Sets or queries the minimum working voltage in CR mode.

Parameter

llimit: Minimum working voltage, unit V, floating-point type

Explanation

The working voltage of the load will not be lower than this value.

Return value

The query returns the minimum operating voltage in V.

Example:

CR:VOLTage:LLIMit 0 /*Set the minimum working voltage of load to 0V*/

CR:VOLTage:LLIMit? /*Query returns 0 */

Constant Power System (CP)

CP:POWEr

Command format

CP:POWEr <pow>

CP:POWEr?

Functional Description

Set or query the power setting value in CP mode.

Parameter

pow: working power value, unit W, floating point type.

Explanation

Return Value

Queries the set value of load power.

Example:

CP:POWEr 55 /*Set the working power to 55W*/

CP:POWEr? /*Query returns 55*/

CP:POWEr:RANGe

Command format

CP:POWEr:RANGe <range>

CP:POWEr:RANGe?

Functional Description

Sets or queries the power range in CW mode.

Parameter

range: power range in W, floating point.

Explanation

Return Value

Return value of the query power range

Example:

CP:POWEr:RANGe 80 /*Set the load power range to 80W*/

CP:POWEr:RANGe? /*Query returns 80*/

CP:VOLTage:HLIMit

Command format

CP:VOLTage:HLIMit <hlimit>

CP:VOLTage:HLIMit?

Functional Description

Sets or queries the maximum working voltage in CP mode.

Parameter

hlimit: Maximum working voltage value, unit V, floating-point type

Explanation

The load operating voltage will not exceed this value.

Return value

The query returns the maximum operating voltage.

Example:

CP:VOLTage:HLIMit 120.2 /*Set the maximum load voltage to 120.2V*/

CP:VOLTage:HLIMit? /*Query returns 120.2 */

CP:VOLTage:LLIMit

Command format

CP:VOLTage:LLIMit <llimit>

CP:VOLTage:LLIMit?

Functional Description

Sets or queries the minimum working voltage in CP mode.

Parameter

llimit: Minimum working voltage, unit V, floating-point type

Explanation

The working voltage of the load will not be lower than this value.

Return value

The query returns the minimum operating voltage.

Example:

CP:VOLTage:LLIMit 0 /*Set the minimum working voltage of load to 0V*/

CP:VOLTage:LLIMit? /*query returns 0 */

Overcurrent Protection Test System (OCP)

OCP:VON:LEVEl

Command format

OCP:VON:LEVEl <volt>

OCP:VON:LEVEl?

Functional Description

Sets or queries the VON value in OCP mode.

Parameter

volt: VON value, unit V, floating point type

Explanation

When the input voltage reaches the Von value, delay for a period of time and the current starts to work.

Return Value

The query returns the VON value.

Example:

OCP:VON:LEVEl 1 /*Set load VON to 1V*/

OCP:VON:LEVEl? /*Query returns 1*/

OCP:VON:DELAy

Command format

OCP:VON:DELAy <time>

OCP:VON:DELAy?

Function Description

Set or query the delay working time in OCP mode.

Parameter

time: Delay time, unit s floating point type

Explanation

When the input voltage reaches the Von value, the delay time is set and the current starts to work.

Return Value

Query return delay time.

Example:

OCP:VON:DELAy 1 /* Set the load delay time to 1 second*/

OCP:VON:DELAy? /* Query returns 1*/

OCP:CURRent:RANGe

Command format

OCP:CURRent:RANGe <range>

OCP:CURRent:RANGe?

Function Description

Set or query the current range in OCP mode.

Parameter

range: Current range, unit A, floating point type

Return Value

Query and return the current range.

Example:

OCP:CURRent:RANGe 1 /* Set the load current range to 1A*/

OCP:CURRent:RANGe? /* Query returns 1*/

OCP:ISTart

Command format

OCP:ISTart <curr>

OCP:ISTart?

Function Description

Set or query the initial current value of OCP mode.

Parameter

curr: Initial current value, unit A, floating point type

Return Value

Query and return the set initial current value.

Example:

OCP:ISTart 1 /* Set the initial current of OCP to 1A*/

OCP:ISTart? /* Query returns 1*/

OCP:STEP

Command format

OCP:STEP <curr>

OCP:STEP?

Function Description

Set or query the step current value of OCP mode.

Parameter

curr: Step current value, unit A, floating point type

Return Value

Query and return the set step current value.

Example:

OCP:STEP 1 /* Set OCP step current to 1A*/

OCP:STEP? /* Query returns 1*/

OCP:STEP:DELAy

Command format

OCP:STEP:DELAy <time>

OCP:STEP:DELAy?

Function Description

Set or query the step delay time for OCP mode.

Parameter

time: Step delay time, unit s, floating point type

Return Value

Query and return the set step delay time.

Example:

OCP:STEP:DELAy 1 /*Set the OCP step delay time to 1 second*/

OCP:STEP:DELAy? /*Query returns 1*/

OCP:IEND

Command format

OCP:IEND <volt>

OCP:IEND?

Function Description

Set or query the cut-off current of OCP mode.

Parameter

volt: Cut off current, unit A, floating point type

Return Value

Query and return the set cutoff current.

Example:

OCP:IEND 1 /* Set OCP cut-off current to 1A/

OCP:IEND? /* Query returns 1*/

OCP:VOLTage

Command format

OCP:VOLTage <volt>

OCP:VOLTage?

Function description

Set or query the OCP voltage.

Parameter

volt: Voltage, unit V, floating point type

Return Value

Query Returns a set voltage value.

Example:

OCP:VOLTage 1 /* Sets the OCP voltage to 1V/

OCP:VOLTage? /* The query returns 1*/

OCP:MAX:TRIP

Command format

OCP:MAX:TRIP <curr>

OCP:MAX:TRIP?

Function description

Set or query the overcurrent range in OCP mode.

Parameter

curr: overcurrent range (maximum), unit A, floating point type

Return Value

Query returns the set overcurrent range (maximum)

Example:

OCP:MAX:TRIP 1 /* Sets the OCP overcurrent range (Max) to 1A/

OCP:MAX:TRIP? /* The query returns 1*/

OCP:MIN:TRIP

Command format

OCP:MIN:TRIP <curr>

OCP:MIN:TRIP?

Function description

Set or query the OCP mode overcurrent range (minimum).

Parameter

curr: overcurrent range (minimum), unit A, floating point type

Return Value

Query return set overcurrent range (minimum).

Example:

OCP:MIN:TRIP 1 /* Sets the OCP overcurrent range (min) to 1A/

OCP:MIN:TRIP? /* The query returns 1*/

Overpower Protection Test System (OPP)

OPP:VON:LEVEl

Command format

OPP:VON:LEVEl <volt>

OPP:VON:LEVEl?

Function description

Set or query the VON value in OPP mode.

Parameter

volt: VON value, unit V, floating point type

Explanation

When the input voltage reaches the Von value, a delay of some time, the current begins to work.

Return Value

The query returns the VON value.

Example:

OPP:VON:LEVEl 1 /* Sets the load VON to 1V*/

OPP:VON:LEVEl? /* The query returns 1*/

OPP:VON:DELAy

Command format

OPP:VON:DELAy <time>

OPP:VON:DELAy?

Function description

Set or query the delay working time in OPP mode.

Parameter

time: delay time, in s floating-point type

Explanation

When the input voltage reaches the Von value, the delay time is set and the current starts to work.

Returned value

Query the return delay time.

Example:

OPP:VON:DELAy 1 /* Set the load delay to 1s*/

OPP:VON:DELAy? /* The query returns 1*/

OPP:POWEr:RANGe

Command format

OPP:POWEr:RANGe <range>

OPP:POWEr:RANGe?

Function description

Set or query the power range in OPP mode.

Parameter

range: Power range, unit W, floating point type

Returned value

Query return power range.

Example:

OPP:CURRent:RANGe 100 /* Set the load current range to 10A*/

OPP:CURRent:RANGe? /* The query returns 10*/

OPP:PSTart

Command format

OPP:PSTart <pow>

OPP:PSTart?

Function description

Set or query the initial power of the OPP mode argument.

Parameter

pow: Initial power, unit W, floating point type

Returned value

Query Returns the set initial power value.

Example:

OPP:PSTart 1 / * Sets the initial OPP power to 1W*/

OPP:PSTart? /* The query returns 1*/

OPP:STEP

Command format

OPP:STEP <pow>

OPP:STEP?

Function description

Set or query the initial power of the OPP mode.

Parameter

pow: Initial power, unit W, floating point type

Returned value

Query Returns the set step power value.

Example:

OPP:STEP 1 /* Set the OPP step power to 1W*/

OPP:STEP? /* The query returns 1*/

OPP:STEP:DELAy

Command format

OPP:STEP:DELAy <time>

OPP:STEP:DELAy?

Function description

To set or query the step delay of the OPP mode, run the following command.

Parameter

time: step delay time, unit s, floating point type

Returned value

The query returns the set step delay time.

Example:

OPP:STEP:DELAy 1 /* Set the OPP step delay to 1s/

OPP:STEP:DELAy? /* The query returns 1*/

OPP:PEND

Command format

OPP:PEND <pow>

OPP:PEND?

Function Description

Set or query the cut-off power for OPP mode.

Parameter

pow: Cut off power, unit W, floating point type

Return value

Query and return the set cutoff power.

Example:

OPP:PEND 20 / * Set OPP cut-off power to 20W*/

OPP:PEND? / * Query returns 20*/

OPP:VOLTage

Command format

OPP:VOLTage <volt>

OPP:VOLTage?

Function Description

Set or query OPP voltage value.

Parameter

volt: Voltage value, unit V, floating point type.

Return value

Query and return the set voltage value.

Example:

OPP:VOLTage 1 /* Set OPP voltage value to 1V*/

OPP:VOLTage? /* Query returns 1*/

OPP:MAX:TRIP

Command format

OPP:MAX:TRIP <pow>

OPP:MAX:TRIP?

Function Description

Set or query the maximum power range for OCP mode.

Parameter

pow: Overpower range (maximum value), unit W, floating point type

Return value

Query and return the set high-power range (maximum value).

Example:

OPP:MAX:TRIP 1 / * Set the OPP over power range (maximum value) to 1W*/

OPP:MAX:TRIP? /* Query returns 1*/

OPP:MIN:TRIP

Command format

OPP:MIN:TRIP <pow>

OPP:MIN:TRIP?

Function Description

Set or query the minimum power range for OPP mode.

Parameter

pow: Overpower range (minimum value), unit W, floating point type

Return value

Query and return the set low-power range (minimum value).

Example:

OPP:MIN:TRIP 1 /* Set the OPP over power range (minimum value) to 1A*/

OPP:MIN:TRIP? /* Query returns 1*/

CR-LED System

CRLEd:VD

Command format

CRLEd:VD <volt>

CRLEd:VD?

Function Description

Set or query the conduction voltage of the diode.

Parameter

volt: Conducting voltage value, unit V, floating point type

Return value

Query and return the set voltage value.

Example:

CRLEd:VD 1 / * Set the conduction voltage of the diode to 1V*/

CRLEd:VD? /* Query returns 1*/

CRLEd:CR

Command format

CRLEd:CR <res>

CRLEd:CR?

Function Description

Set or query the fixed resistance value.

Parameter

res: Fixed resistance value, unit Ω, floating point type

Return value

Query and return the set constant resistance value.

Example:

CRLEd:CR 1 / * Set the constant resistance value to 1 Ω*/

CRLEd:CR? /* The query returns 1*/

CRLEd:CURR:RANGe

Command format

CRLEd:CURR:RANGe <range>

CRLEd:CURR:RANGe?

Function description

Set or query the current range in CR-LED mode.

Parameter

range: Current range, unit A, floating point type

Return value

Query returns the set current range.

Example:

CRLEd:CURR:RANGe 1 / * Set the CR-LED current range to 1A*/

CRLEd:CURR:RANGe? / * The query returns 1*/

Battery discharge test system

BATTery:CURRent

Command format

BATTery:CURRent <curr>

BATTery:CURRent?

Function description

Set or query the battery discharge current

Parameter

curr: Discharge current, unit A, floating point type

Return value

Query Returns the set discharge current

Example:

BATTery:CURRent 1 / * Set the discharge current to 1A*/

BATTery:CURRent? / * The query returns 1*/

BATTery:CURRent:RANGe

Command format

BATTery:CURRent:RANGe <range>

BATTery:CURRent:RANGe?

Function description

Set or query the current range for a battery discharge test.

Parameter

range: Current range, unit A, floating point type

Return value

Query returns the set current range.

Example:

BATTery:CURRent:RANGe 1 /* Set the discharge current to 1A*/

BATTery:CURRent:RANGe? /* The query returns 1*/

BATTery:STOP:VOLT

Command format

BATTery:STOP:VOLT <volt>

BATTery:STOP:VOLT?

Function description

Set or query the cut-off voltage for a battery discharge test.

Parameter

volt: Cut-off voltage, unit V, floating point type

Return value

Query Returns a set cut-off voltage.

Example:

BATTery:STOP:VOLT 1 /* Set the cut-off voltage to 1V*/

BATTery:STOP:VOLT? /* The query returns 1*/

BATTery:STOP:CAP

Command format

BATTery:STOP:CAP <cap>

BATTery:STOP:CAP?

Function description

Set or query the cutoff capacity for a battery discharge test.

Parameter

cap: Cut-off capacity, expressed in AH, floating point type

Return value

Query Returns a set cutoff capacity value.

Example:

BATTery:STOP:CAP 1 /* Set the cutoff capacity to 1 Ah */

BATTery:STOP:CAP? /* The query returns 1*/

BATTery:STOP:TIME

Command format

BATTery:STOP:TIME <time>

BATTery:STOP:TIME?

Function description

Set or query the battery discharge time during a battery discharge test.

Parameter

time: discharge time, unit s, floating point type

Return value

Query Returns the specified discharge time.

Example:

BATTery:STOP:TIME 1 /* Set the discharge time to 1s*/

BATTery:STOP:TIME? /* The query returns 1*/

Dynamic test system

TRAN:TYPE

Command format

TRAN:TYPE <type>

TRAN:TYPE?

Function description

Set or query the dynamic test type

Parameter

type: CC | CV | CR | CW

Explanation

CC: constant current

CV: constant voltage

CR: constant resistance

CW: constant power

Return value

CC | CV | CR | CW is returned

Example:

TRAN:TYPE CC / * Set the dynamic test type to CC*/

TRAN:TYPE? / * The query returns CC*/

TRAN:MODE

Command format

TRAN:MODE <mode>

TRAN:MODE?

Function description

Set or query the dynamic test mode

Parameter

mode: CONTINUE| PULSE| TOGGLE

Explanation

CONTINUE : indicates the continuous mode

PULSE : indicates the pulse mode

TOGGLE : Flip mode

Return value

The query returns CONTINUE| PULSE| TOGGLE

Example:

TRAN:MODE CONTINUE / * Set the dynamic test mode to CONTINUE */

TRAN:MODE? / * The query returns CONTINUE */

TRAN:CC:LEVEl:A

Command format

TRAN:CC:LEVEl:A <curr>

TRAN:CC:LEVEl:A?

Function description

Set or query the current value of LEVEL_A in CC mode.

Parameter

curr: Current value of LEVEL_A, unit A, floating point type

Explanation

Function on CONTINUE| PULSE| TOGGLE three modes.

Return value

The query returns the current value set for LEVEL_A.

Example:

TRAN:CC:LEVEl:A 1 /* Set the current of LEVEL_A to 1A*/

TRAN:CC:LEVEl:A? / * The query returns 1*/

TRAN:CC:LEVEl:B

Command format

TRAN:CC:LEVEl:B <curr>

TRAN:CC:LEVEl:B?

Function description

Set or query the current value of LEVEL_B in CC mode.

Parameter

curr: LEVEL_B current value, unit A, floating point type

Explanation

Function on CONTINUE| PULSE| TOGGLE three modes.

Return value

Query returns the current value set for LEVEL_B.

Example:

TRAN:CC:LEVEl:B 1 /* Set the current of LEVEL_B to 1A*/

TRAN:CC:LEVEl:B? /* The query returns 1*/

TRAN:CV:LEVEl:A

Command format

TRAN:CV:LEVEl:A <volt>

TRAN:CV:LEVEl:A?

Function description

Set or query the voltage of LEVEL_A in CV.

Parameter

volt: LEVEL_A voltage, unit V, floating point

Explanation

Function on CONTINUE| PULSE| TOGGLE three modes

Return value

Query Returns the voltage value set for LEVEL_A.

Example:

TRAN:CV:LEVEl:A 1 /* Set the voltage of LEVEL_A to 1V*/

TRAN:CV:LEVEl:A? /* The query returns 1*/

TRAN:CV:LEVEl:B

Command format

TRAN:CV:LEVEl:B <volt>

TRAN:CV:LEVEl:B?

Function description

Set or query the voltage of LEVEL_B in CV.

Parameter

volt: Indicates the voltage of LEVEL_B. The unit is V. The value is floating point.

Explanation

Function on CONTINUE| PULSE| TOGGLE three modes

Return value

Query Returns the set voltage of LEVEL_B.

Example:

TRAN:CV:LEVEl:B 1 /* Set the voltage of LEVEL_B to 1V*/

TRAN:CV:LEVEl:B? / * The query returns 1*/

TRAN:CR:LEVEl:A

Command format

TRAN:CR:LEVEl:A <res>

TRAN:CR:LEVEl:A?

Function description

Set or query the resistance of LEVEL_A in CR mode.

Parameter

res: Resistance of LEVEL_A. The unit is Ω. The value is floating point.

Explanation

Function on CONTINUE| PULSE| TOGGLE three modes.

Return value

Query Returns the resistance value of LEVEL_A.

Example:

TRAN:CR:LEVEl:A 1 /* Set the resistance of LEVEL_A to 1Ω*/

TRAN:CR:LEVEl:A? /* The query returns 1*/

TRAN:CR:LEVEl:B

Command format

TRAN:CR:LEVEl:B <res>

TRAN:CR:LEVEl:B?

Function description

Set or query the resistance of LEVEL_B in CR mode.

Parameter

res: LEVEL_B Resistance value, unit Ω, floating point

Explanation

Function on CONTINUE| PULSE| TOGGLE three modes.

Return value

Query the resistance value of LEVEL_B.

Example:

TRAN:CR:LEVEl:B 1 /* Set the resistance of LEVEL_B to 1Ω*/

TRAN:CR:LEVEl:B? /* The query returns 1*/

TRAN:CP:LEVEl:A

Command format

TRAN:CP:LEVEl:A <pow>

TRAN:CP:LEVEl:A?

Function description

Set or query the power of LEVEL_A in CP mode.

Parameter

pow: LEVEL_A power value, expressed in W, floating point

Explanation

Function on CONTINUE| PULSE| TOGGLE three modes.

Return value

Query Returns the set power value of LEVEL_A.

Example:

TRAN:CP:LEVEl:A 1 /* Set the power of LEVEL_A to 1W*/

TRAN:CP:LEVEl:A? /* The query returns 1*/

TRAN:CP:LEVEl:B

Command format

TRAN:CP:LEVEl:B <pow>

TRAN:CP:LEVEl:B?

Function description

Set or query the power of LEVEL_B in CP mode.

Parameter

pow: LEVEL_B Power value, expressed in W, floating point

Explanation

Function on CONTINUE| PULSE| TOGGLE three modes.

Return value

Query Returns the set power value of LEVEL_B.

Example:

TRAN:CP:LEVEl:B 1 /* Set the power of LEVEL_B to 1W*/

TRAN:CP:LEVEl:B? /* The query returns 1*/

TRAN:WIDTh:A

Command format

TRAN:WIDTh:A <width>

TRAN:WIDTh:A?

Function description

Set or query the duration of point A.

Parameter

width: duration of point A, unit s, floating point

Explanation

Acts on CONTINUE mode.

Return value

The query returns A set point A duration.

Example:

TRAN:WIDTh:A 1 /* Set the duration of point A to 1s*/

TRAN:WIDTh:A? /* The query returns 1*/

TRAN:WIDTh:B

Command format

TRAN:WIDTh:B <width>

TRAN:WIDTh:B?

Function description

Set or query the duration of point B.

Parameter

width: duration of point B, unit s, floating point

Explanation

Acts on CONTINUE mode.

Return value

The query returns the set duration of point B.

Example:

TRAN:WIDTh:B 1 /* Set the duration of point B to 1s*/

TRAN:WIDTh:B? /* The query returns 1*/

TRAN:WIDTh

Command format

TRAN:WIDTh <width>

TRAN:WIDTh?

Function description

Sets or queries the pulse duration.

Parameter

width: Pulse duration, unit s, floating point type

Explanation

Applies to PULSE mode

Return value

The query returns a set pulse duration.

Example:

TRAN:WIDTh 1 /* Sets the pulse duration to 1s*/

TRAN:WIDTh? /* The query returns 1*/

Utility system

COMMon:MAX:POWEr

Command format

COMMon:MAX:POWEr <pow>

COMMon:MAX:POWEr?

Function description

Set or query the hardware power protection value.

Parameter

pow: Hardware power protection value, unit W, floating point type

Return value

Query Returns the specified hardware power protection value.

Example:

COMMon:MAX:POWEr 100 /* Sets the hardware power protection value to 100W*/

COMMon:MAX:POWEr? /* The query returns 100*/

COMMon:VOLT:RANGe:TYPE

Command format

COMMon:VOLT:RANGe:TYPE <type>

COMMon:VOLT:RANGe:TYPE?

Function description

Set or query the voltage range type.

Parameter

type: FIX| AUTO

Explanation

FIX: Fixed range

AUTO: Automatically switches the range

Return value

FIX| AUTO is returned

Example:

```
COMMon:VOLT:RANGe:TYPE FIX        /* Sets the voltage range to a fixed range */
COMMon:VOLT:RANGe:TYPE?           /* The query returns FIX*/
```

COMMon:CURRent:LIMIt:SWITch

Command format

COMMon:CURRent:LIMIt:SWITch <swi>

COMMon:CURRent:LIMIt:SWITch?

Function description

Set or query the status of the software current protection switch.

Parameter

swi: ON | OFF | 1 | 0

Explanation

ON: Enables software overcurrent protection

OFF: disables software overcurrent protection

Return value

The query is returned ON| OFF.

Example:

```
COMMon:CURRent:LIMIt:SWITch ON       /* Turn on software overcurrent protection */
COMMon:CURRent:LIMIt:SWITch?         /* Query returns ON*/
```

COMMon:CURRent:LIMIt

Command format

COMMon:CURRent:LIMIt <curr>

COMMon:CURRent:LIMIt?

Function description

Set or query the current value of the software current protection.

Parameter

curr: Current value of current protection, unit A, floating point type

Return value

Query Returns the current value of the set current protection.

Example:

COMMon:CURRent:LIMIt 1 /* Set the current protection value to 1A*/

COMMon:CURRent:LIMIt? /* The query returns 1*/

COMMon:CURRent:LIMIt:DELAy

Command format

COMMon:CURRent:LIMIt:DELAy <time>

COMMon:CURRent:LIMIt:DELAy?

Function description

Set or query the software current protection delay.

Parameter

time: delay time of software current protection, unit s, floating point type

Return value

Query returns the set latency of software current protection.

Example:

COMMon:CURRent:LIMIt:DELAy 1

/ * set software CURRent protection DELAy time to 1 s * /

COMMon:CURRent:LIMIt:DELAy?

/* The query returns 1*/

COMMon:POWEr:LIMIt:SWITch

Command format

COMMon:POWEr:LIMIt:SWITch <swi>

COMMon:POWEr:LIMIt:SWITch?

Function description

Set or query the status of the software power protection switch.

Parameter

swi: ON | OFF | 1 | 0

Explanation

ON: Enables software power protection

OFF: disables software power protection

Return value

The query is returned ON| OFF.

Example:

COMMon:POWEr:LIMIt:SWITch ON /* Turn on software power protection */

COMMon:POWEr:LIMIt:SWITch? /* The query returns ON*/

COMMon:POWEr:LIMIt

Command format

COMMon:POWEr:LIMIt <pow>

COMMon:POWEr:LIMIt?

Function description

Set or query the current value of the software current protection.

Parameter

pow: Power protection power value, unit W, floating point type

Return value

Query Returns the power value of the specified power protection.

Example:

COMMon:POWEr:LIMIt 1 /* Sets the power of the power protection to 1W*/

COMMon:POWEr:LIMIt? /* The query returns 1*/

COMMon:POWEr:LIMIt:DELAy

Command format

COMMon:POWEr:LIMIt:DELAy <time>

COMMon:POWEr:LIMIt:DELAy?

Function description

Set or query the latency of software power protection.

Parameter

time: indicates the delay time of software power protection. The unit is s.

Return value

Query Returns the set latency of software power protection.

Example:

COMMon:POWEr:LIMIt:DELAy 1 /* Set the software power protection delay to 1s*/

COMMon:POWEr:LIMIt:DELAy? /* The query returns 1*/

COMMon:LOAD:TIMEr:SWITch

Command format

COMMon:LOAD:TIMEr:SWITch <swi>

COMMon:LOAD:TIMEr:SWITch?

Function description

Set or query the on-load timer switch.

Parameter

swi: ON | OFF | 1 | 0

Explanation

ON: Turns on the loaded timer

OFF: disables the load timer

Return value

The query is returned ON| OFF.

Example:

```
COMMon:LOAD:TIMEr:SWITch ON        /* On the load timer */
COMMon:LOAD:TIMEr:SWITch?          /* The query returns ON*/
```

COMMon:LOAD:TIMEr

Command format

COMMon:LOAD:TIMEr <time>

COMMon:LOAD:TIMEr?

Function description

Set or query the load time.

Parameter

time: Load time, unit s, floating point type

Return value

The query returns the set load time.

Example:

```
COMMon:LOAD:TIMEr 1      /* Set the load time to 1s*/
COMMon:LOAD:TIMEr?       /* The query returns 1*/
```

COMMon:FILTer:TYPE

Command format

COMMon:FILTer:TYPE <type>

COMMon:FILTer:TYPE?

Function description

Set or query filtering parameters.

Parameter

type: SLOW| MIDDLE| FAST

Explanation

SLOW: indicates the slow speed

MIDDLE: indicates the medium speed

FAST: indicates the fast speed

Return value

SLOW| MIDDLE| FAST is returned

Example:

```
COMMon:FILTer:TYPE SLOW        /* Set the filter type to slow */
COMMon:FILTer:TYPE?            /* SLOW is returned in the query */
```

COMMon:SENSe

Command format

COMMon:SENSe <swi>

COMMon:SENSe?

Function description

Set or query the remote compensation switch.

Parameter

swi: ON | OFF | 1 | 0

Explanation

ON: Enables remote compensation

OFF: disables remote compensation

Return value

The query is returned ON| OFF.

Example:

COMMon:SENSe ON /* Enables remote compensation */

COMMon:SENSe? /* The query returns ON*/

COMMon:TRIGger:SOURce

Command format

COMMon:TRIGger:SOURce <type>

COMMon:TRIGger:SOURce?

Function description

Set or query filtering parameters.

Parameter

type: EXTERNAL| MANUAL| BUS

Return value

The query returns EXTERNAL| MANUAL| BUS.

Example:

COMMon:TRIGger:SOURce EXTERNAL /* Sets the trigger type to external */

COMMon:TRIGger:SOURce? /* The query returns EXTERNAL */

COMMon:VON:SWITch

Command format

COMMon:VON:SWITch <swi>

COMMon:VON:SWITch?

Function description

Set or query the on-load voltage switch.

Parameter

swi: ON | OFF | 1 | 0

Explanation

ON: Turn on the on-load voltage

OFF: Turns off the on-load voltage

Return value

The query is returned ON| OFF.

Example:

```
COMMon:VON:SWITch ON          /* On-load voltage */
COMMon:VON:SWITch?            /* The query returns ON*/
```

COMMon:VON:TYPE

Command format

COMMon:VON:TYPE <type>

COMMon:VON:TYPE?

Function description

Set or query the VON working status.

Parameter

type: LIVING| LATCH

Return value

The query returns to LIVING| LATCH.

Example:

```
COMMon:VON:TYPE LATCH       /* Set to a locked state */
COMMon:VON:TYPE?            /* The query returns LATCH */
```

COMMon:VON:VOLTage

Command format

COMMon:VON:VOLTage <volt>

COMMon:VON:VOLTage?

Function description

Set or query the on-load voltage.

Parameter

volt: Load voltage, unit V, floating point type.

Explanation

The user can set the VON value, when the supply voltage is higher than this value, the electronic load will start to pull.

Return value

Query Returns the set on-load voltage.

Example:

COMMon:VON:VOLTage 1 /* Sets the on-load voltage to 1V*/
COMMon:VON:VOLTage? /* The query returns 1*/

Measuring system

MEASure:RISE:FALL:SWITch

Command format

MEASure:RISE:FALL:SWITch <swi>

MEASure:RISE:FALL:SWITch?

Function description

Set or query the rise and fall time measurement switch.

Parameter

swi: ON | OFF | 1 | 0

Explanation

ON: Turn on the ascending and descending time measurement switch

OFF: Turns off the switch for measuring the rise and fall time

Return value

The query is returned ON| OFF.

Example:

MEASure:RISE:FALL:SWITch ON /* Turn on rise and fall time measurement */
MEASure:RISE:FALL:SWITch? /* The query returns ON*/

MEASure:RISE:FALL:VOLT:LOW

Command format

MEASure:RISE:FALL:VOLT:LOW <volt>

MEASure:RISE:FALL:VOLT:LOW?

Function description

Set or query the start voltage value to capture voltage rise/fall time.

Parameter

volt: Start voltage, unit V, floating point type.

Explanation

Set the start voltage value to capture the voltage rise/fall time.

Return value

Query Returns the set start voltage value.

Example:

MEASure:RISE:FALL:VOLT:LOW 1 /* Set start voltage value of 1 v */
MEASure:RISE:FALL:VOLT:LOW? /* The query returns 1*/

MEASure:RISE:FALL:VOLT:HIGH

Command format

MEASure:RISE:FALL:VOLT:HIGH <volt>

MEASure:RISE:FALL:VOLT:HIGH?

Function description

Set or query the end voltage value to capture voltage rise/fall time.

Parameter

volt: End voltage, unit V, floating point type.

Explanation

Set the end voltage value to capture the voltage rise/fall time.

Return value

Query Returns the set end voltage value.

Example:

MEASure:RISE:FALL:VOLT:HIGH 1 /* Set HIGH end voltage value of 1 v * /

MEASure:RISE:FALL:VOLT:HIGH? /* The query returns 1*/

MEASure:RIPPle:SWITch

Command format

MEASure:RIPPle:SWITch <swi>

MEASure:RIPPle:SWITch?

Function description

Set or query the ripple measurement switch.

Parameter

swi: ON | OFF | 1 | 0

Explanation

ON: Turn on the ripple measurement

OFF: Turn off the ripple measurement

Return value

The query is returned ON| OFF.

Example:

MEASure:RIPPle:SWITch ON /* Turn on ripple measurement */

MEASure:RIPPle:SWITch? /* The query returns ON*/

MEASure:VOLT:CURR?

Command format

MEASure:VOLT:CURR?

Function description

Query the current on-load voltage and current.

Return value

Query Returns the current on-load voltage and current in units V and A.

Example:

MEASure:VOLT:CURR?

Control system

MODE

Command format

MODE <mode>

MODE?

Function description

Set or query instrument operating mode.

Parameter

mode: MODE_CC | MODE_CV | MODE_CR | MODE_CW | MODE_TRAN | MODE_LIST | MODE_OCP | MODE_OPP | MODE_BATT | MODE_CRLED | MODE_SHORT

Return value

Query return MODE_CC | MODE_CV | MODE_CR | MODE_CW | MODE_TRAN | MODE_LIST | MODE_OCP | MODE_OPP | MODE_BATT | MODE_CRLED | MODE_SHORT

Example:

```
MODE MODE_CC        /* Set the device working mode to CC */
MODE?                 /* The query returns MODE_CC */
```

INPut

Command format

INPut <swi>

INPut?

Function description

Set or query the device load switch.

Parameter

swi: ON | OFF | 1 | 0

Explanation

ON: Turns on the device

OFF: Turns off the device

Return value

The query is returned ON| OFF.

Example:

```
INPut ON        /* Opens the device */
INPut?          /* The query returns ON*/
```

TRIGger

Command format

TRIGger

Function description

Trigger once when the trigger type is bus trigger.

Example:

```
TRIGger        /* Triggers once */
```