

LPS305B-TC SCPI communication protocol

Triple output programmable power supply



Ver1.10/JAN, 2012/ LPS305B-TC

Chapter 1 SCPI command table	錯誤! 尚未定義書籤。
1.1 output control command.....	3
1.2 apply command	3
1.3 current setup command.....	3
1.4 voltage setup command	3
1.5 calibration command.....	4
1.6 Measurement command.....	4
1.7 Channel combination command.....	4
1.8 SCPI essential command.....	5
1.9 register command.....	5
1.10 system command	6
1.11 Trigger command	6
Chapter 2 SCPI register	錯誤! 尚未定義書籤。
Chapter 3 SCPI command description	錯誤! 尚未定義書籤。
3.1 IEEE488.2 common command.....	8
3.2 sysem command	11
3.3 input control command	17
3.4 current setup command.....	18
3.5 voltage setup command	19
3.6 trigger command.....	20
3.7 measurement command.....	20
3.8 apply command	21
3.9 calibration command.....	22
3.10 channel combination command	23

Chapter 1 SCPI command table

1.1 Output control command

[SOURce:]OUTPut[:STATe][:ALL]
[SOURce:]OUTPut[:STATe][:ALL]?
[SOURce:]OUTPut:SERies[:STATe]
[SOURce:]OUTPut:SERies[:STATe]?
[SOURce:]OUTPut:PARAllel[:STATe]
[SOURce:]OUTPut:PARAllel[:STATe]?
[SOURce:]CHANnel:OUTPut[:STATe]
[SOURce:]CHANnel:OUTPut[:STATe]?
[SOURce:]OUTPut:PROTection:CLEar

1.2 Apply command

[SOURce:]APPLy
[SOURce:]APPLy?

1.3 Current setup command

[SOURce:]CURRent[:LEVel][:IMMediate][:AMPLitude]
[SOURce:]CURRent[:LEVel][:IMMediate][:AMPLitude]?
[SOURce:]CURRent[:LEVel]:UP[:IMMediate][:AMPLitude]
[SOURce:]CURRent[:LEVel]:DOWN[:IMMediate][:AMPLitude]
[SOURce:]CURRent[:LEVel][:IMMediate]:STEP[:INCRement]
[SOURce:]CURRent[:LEVel][:IMMediate]:STEP[:INCRement]?
[SOURce:]CURRent[:LEVel]:TRIGgered[:IMMediate][:INCRement]
[SOURce:]CURRent[:LEVel]:TRIGgered[:IMMediate][:INCRement]?

1.4 Voltage setup command

[SOURce:]VOLTage[:LEVel][:IMMediate][:AMPLitude]
[SOURce:]VOLTage[:LEVel][:IMMediate][:AMPLitude]?
[SOURce:]VOLTage[:LEVel]:UP[:IMMediate][:AMPLitude]
[SOURce:]VOLTage[:LEVel]:DOWN[:IMMediate][:AMPLitude]
[SOURce:]VOLTage[:LEVel][:IMMediate]:STEP[:INCRement]
[SOURce:]VOLTage[:LEVel][:IMMediate]:STEP[:INCRement]?
[SOURce:]VOLTage[:LEVel]:TRIGgered[:AMPLitude]

[SOURce:]VOLTage[:LEVel]:TRIGgered[:AMPLitude]?
[SOURce:]VOLTage:LIMIt[:LEVel]
[SOURce:]VOLTage:LIMIt[:LEVel]?

1.5 Calibration command

CALibrate:SECure[:STATe]
CALibrate:SECure[:STATe]?
CALibrate:INITial
CALibrate:SAVe
CALibrate:VOLTage:LEVel
CALibrate:VOLTage[:DATA]
CALibrate:CURRent:LEVel
CALibrate:CURRent[:DATA]
FACTory:SAVe
CALibrate:STRing
CALibrate:STRing?
CALibrate:CLEar

1.6 Measurement command

MEASure[:SCALar]:CURRent[:DC]?
FETCh:CURRent[:DC]?
MEASure[:SCALar][:VOLTage][:DC]?
FETCh[:VOLTage][:DC]?
MEASure[:SCALar]:POWER[:DC]?
FETCh:POWER[:DC]?
MEASure:TEMPerature?

1.7 Channel combination command

INSTrument[:SElect]
INSTrument[:SElect]?
INSTrument:NSElect
INSTrument:NSElect?
INSTrument:COUPle[:TRIGger]
INSTrument:COUPle[:TRIGger]?
INSTrument:COMbine:SERies
INSTrument:COMbine:PARAllel
INSTrument:COMbine:OFF
INSTrument:COMbine?

1.8 SCPI essential command

*CLS
*ESE
*ESE?
*ESR?
*IDN?
*OPC
*OPC?
*RST
*SRE
*SRE?
*STB?
*TRG
*SAV
*RCL
*TST?
*WAI
*PSC
*PSC?

1.9 Register command

STATus:QUEStionable[:EVENT]?
STATus:QUEStionable:ENABLE
STATus:QUEStionable:ENABLE?
STATus:PRESet
STATus:QUEStionable:INSTrument[:EVENT]?
STATus:QUEStionable:INSTrument:ENABLE
STATus:QUEStionable:INSTrument:ENABLE?
STATus:QUEStionable:INSTrument:ISUMmary1[:EVENT]?
STATus:QUEStionable:INSTrument:ISUMmary1:ENABLE
STATus:QUEStionable:INSTrument:ISUMmary1:ENABLE?
STATus:QUEStionable:INSTrument:ISUMmary1:CONDition?
STATus:QUEStionable:INSTrument:ISUMmary2[:EVENT]?
STATus:QUEStionable:INSTrument:ISUMmary2:ENABLE
STATus:QUEStionable:INSTrument:ISUMmary2:ENABLE?
STATus:QUEStionable:INSTrument:ISUMmary2:CONDition?
STATus:QUEStionable:INSTrument:ISUMmary3[:EVENT]?
STATus:QUEStionable:INSTrument:ISUMmary3:ENABLE
STATus:QUEStionable:INSTrument:ISUMmary3:ENABLE?
STATus:QUEStionable:INSTrument:ISUMmary3:CONDition?

STATus:OPERation[:EVENT]?
STATus:OPERation:ENABLE
STATus:OPERation:ENABLE?
STATus:OPERation:INSTrument[:EVENT]?
STATus:OPERation:INSTrument:ENABLE
STATus:OPERation:INSTrument:ENABLE?
STATus:OPERation:INSTrument:ISUMmary1[:EVENT]?
STATus:OPERation:INSTrument:ISUMmary1:ENABLE
STATus:OPERation:INSTrument:ISUMmary1:ENABLE?
STATus:OPERation:INSTrument:ISUMmary1:CONDition?
STATus:OPERation:INSTrument:ISUMmary2[:EVENT]?
STATus:OPERation:INSTrument:ISUMmary2:ENABLE
STATus:OPERation:INSTrument:ISUMmary2:ENABLE?
STATus:OPERation:INSTrument:ISUMmary2:CONDition?
STATus:OPERation:INSTrument:ISUMmary3[:EVENT]?
STATus:OPERation:INSTrument:ISUMmary3:ENABLE
STATus:OPERation:INSTrument:ISUMmary3:ENABLE?
STATus:OPERation:INSTrument:ISUMmary3:CONDition?

1.10 System command

SYSTem:VERSion?
SYSTem:ERRor?
SYSTem:REMOte
SYSTem:LOCal
SYSTem:BEEPer
SYSTem:RWLock
SYSTem:KEY
SYSTem:KEY?
SYSTem:MODUle?

1.11 Trigger command

TRIGger[:IMMediate]
TRIGger:DELay
TRIGger:DELay?

Chapter 2 SCPI register

Users could ensure present status of power supply by reading value of operation status register. The four status registers of power supply record different instrument status; they are

status byte register, standard event register, query status register and operation status register. Status byte register records the information of other status registers. Definitions of each status register as follows:

BIT	Signal	Meaning
0 1	CAL ON	Operation status register. Calculate the new calibration coefficient. Wait for trigger signal
0 1 9	CV OC OV	Query status register CV mode CC mode Over voltage
0 2 3 4 5 7	OPC QYE DDE EXE CME PON	Standard event register Finish operation. Finish all the parallel operation Query error. lose output queue data Instrument relevant error. Lose storage data of instrument or self-checking error Execution error. Command parameter overflow or operation condition inconformity Command error. There is syntax or semanteme error of received command information. Start bit. This bit will display 1 once powered
2 3 4 5 6 7	EAV QUES MAV ESB RQS OPER	Status byte register Error cache available QUES bit is 1 when status of enable query status register changes Output cache available ESB bit is 1 when status of enable standard event register changes Service request of power supply OPER bit is 1 when status of enable operation status register changes

Chapter 3 SCPI command description

3.1 IEEE488.2 common command

◆ *CLS

This command eliminates the following registers:

Standard event register

Query event register

Operation event register

Status byte register

Error code

Command syntax: ***CLS**

Parameter: No

◆ *ESE

This command edits value of standard event enable register. The program parameters determine which bit of standard event register is 1 will cause ESB bit of status byte register to 1.

Command syntax: ***ESE <NRf>**

Parameters: 0~255

Power on value: Refer *PSC command

For example: ***ESE 128**

Query syntax: ***ESE?**

Return parameter: <NR1>

◆ *ESR?

This command reads value of standard event register. The value of standard event register will zero clearing after it is carried out. The bit definition of standard event register is same as standard event enable register.

Query syntax: ***ESR?**

Parameter: No

Return parameter: <NR1>

Relevant command: ***CLS *ESE *ESE? *OPC**

◆ *IDN?

This command reads relevant information of power supply. Its Return parameters include four segments which separated by comma symbol.

Query syntax: ***IDN?**

Parameters: No

Return information as follows:

BK manufacturer
LPS305B-TC product model
XXXXXX product serial No.
VXX. XX software version

For example: BK, LPS305B-TC, 0000000004, V1.01-V1.02

◆ *OPC

OPC bit of standard event register is 1 when all the commands before this command have carried out.

Command syntax: ***OPC**

Parameter: No

Query syntax: ***OPC?**

Return parameter: <NR1>

◆ *PSC

This command is used to control power supply whether there is service request when it is repowered on.

1 OR ON: When power supply is powered on, the values of status byte enable register, operation event enable register, query event enable register and standard event enable register will zero clearing.

0 OR OFF: The values of status byte enable register, operation event enable register, query event enable register and standard event enable register will be saved to NVM which could be recalled once it is repowered.

Command syntax: ***PSC <bool>**

Parameter: 0|1|ON|OFF

Query syntax: ***PSC?**

Return parameter: 0|1

Relevant command: ***ESE *SRE STAT:OPER:ENAB STAT:QUES:ENAB**

◆ *RST

This command resets power supply to the industry state

CAL:SEC:STAT 1

OUTP OFF

CURR MAX

VOLT:LIMIT MAX

INST:COM:OFF

Command syntax: ***RST>**

Parameter: No

◆ *SRE

This command edits value of status byte enable register. Program parameters determine which bit of status byte register is 1 will affects the RQS bit of status byte register to be 1. Bit definition of status byte enable register is the same as status byte register.

Command syntax: ***SRE <NRf>**

Parameter: 0~255

Powered on value: refer to *PSC command

For example: *SRE 128

Query syntax: ***SRE?**

Return parameter: <NR1>

Relevant command: ***ESE *ESR? *PSC**

◆ *STB?

This command reads value of status byte register. The value of status byte register will zero clearing when it is carried out.

Query syntax: ***STB?**

Parameter: No

Return parameter: <NR1>

Relevant command: ***CLS *ESE *ESR**

◆ *TRG

When the trigger source of power supply is in command mode, this command will generate a trigger signal. This function is same as **[SYSTEM:]TRIGger** command.

Command syntax: ***TRG**

Parameter: No

Relevant command: **TRIG**

◆ *SAV

This command will save present setting of power supply to specified storage area. The parameters are: current setup, voltage setup e, Max. voltage and stepped voltage.

Command syntax: ***SAV<NRf>**

Parameter: 1-27

For example: *SAV 3

Relevant command: *RCL

◆ *RCL

This command recovers setup value of power supply from specified storage area.

Command syntax: ***RCL<NRf>**

Parameter: 1-27

For example: *RCL 3

Relevant command: *SAV

◆ *TST?

This query command could make power supply do self-test, and report the mistakes.

Query syntax: *TST?

Parameter: No

Return parameter: <NR1> 0 means power supply passes self-test

Non-zero means error code (see attached table C)

◆ *WAI

This command indicates the electronic load don't execute further command until all the unfinished operation finished.

Parameter: None

Relevant command: *OPC

◆ *PSC

This command indicates whether it needs to send service query when power supply powered on.

1/ON: Clean up all enable registers when power supply powered on.

0/OFF: The values of all registers are the same as last saving when power supply powered on.

Command syntax: *PSC <NR1>

Parameter: 0/1/ON/OFF

Query syntax: *PSC?

3.2 SCPI essential command

◆ SYSTem:ERRor?

This command reads error code and error information of power supply

Command syntax: **SYST:ERR?**

Parameter: No

Return parameter: <NR1>, <SRD>

◆ SYSTem:VERSion?

This command queries software version,

Command syntax: **SYST:VERS?**

Parameter: No

Return parameter: <NR2>

For example: 1991.1

◆ SYSTem:REMOte

This command sets SOURCE METER as remote control mode

Command syntax: **SYST:REM**

Parameter: No

◆ SYSTem:LOCal

This command sets SOURCE METER as panel controlled mode.

Command syntax: **SYST:LOC**

Parameter: No

◆ SYSTem:RWLock[:STATe]

This command sets whether LOCAL key of SOURCE METER is available.

Command syntax: **SYST:RWL**

Parameter: No

◆ SYSTem:BEEPer

This command makes the instrument sound beeper.

Command syntax: **SYSTem:BEEPer**

Parameter: No

◆ STATus:QUEStionable[:EVENT]?

This command reads value of query event register. Values of query event register will be zero cleaning after it is carried out.

Query syntax: **STATus:QUEStionable[:EVENT]?**

Parameter: No

Return parameter: <NR1>

Relevant command: STATus:QUEStionable:ENABLE

◆ STATus:QUEStionable:ENABLE

This command edits values of query event enable register. Program parameters determine which bit of query event register is 1 will affect the QUES bit of status byte register to be 1.

Command syntax: **STATus:QUEStionable:ENABLE** <NRf>

Parameter : 0~255

Value of powered on: Refer to *PSC command

For example: **STATus:QUEStionable:ENABLE** 128

Query syntax: **STATus:QUEStionable:ENABLE?**

Return parameter: <NR1>

Relevant command: ***PSC**

◆ STATus:PRESet

This command clears status event
Command syntax: STATus:PRESet
Parameter: No

◆ STATus:QUEStionable:INSTrument[:EVENT]?

This command queries channel event register. Value of present register will be cleaned once return query.
Query syntax: STATus:QUEStionable:INSTrument[:EVENT]?
Parameter: No
Return parameter: <Nrf>

◆ STATus:QUEStionable:INSTrument:ENABLE

This command modifies values of instrument query enable register.
Command syntax: **STATus:QUEStionable:INSTrument:ENABLE**
Parameter: Register value
Query syntax: STATus:QUEStionable:INSTrument:ENABLE?

◆ STATus:QUEStionable:INSTrument:ISUMmary1[:EVENT]?

This command queries event register of channel1. Value of present register will be cleaned once return query.
Command syntax: STATus:QUEStionable:INSTrument:ISUMmary1 [:EVENT]?
Parameter: No

◆ STATus:QUEStionable:INSTrument:ISUMmary1:ENABLE

This command modifies query enable register value of channel 1.
Command syntax: **STATus:QUEStionable:INSTrument:ISUMmary1:ENABLE**
Parameter: Register value
Query syntax: STATus:QUEStionable:INSTrument:ISUMmary1:ENABLE?

◆ STATus:QUEStionable:INSTrument:ISUMmary1:CONDition?

This command queries query status register value of channel 1
Query syntax : STATus:QUEStionable:INSTrument:ISUMmary1:CONDition?
Parameter: No

◆ STATus:QUEStionable:INSTrument:ISUMmary2[:EVENT]?

This command queries event register of channel 2. The register will be cleaned once query value returns.
Query syntax: STATus:QUEStionable:INSTrument:ISUMmary2[:EVENT]?

Parameter: No

◆ STATus:QUEStionable:INSTrument:ISUMmary2:ENABle

This command modifies query enable register value of channel 2.

Command syntax: STATus:QUEStionable:INSTrument:ISUMmary2:ENABle

Parameter: Register value

Query syntax: STATus:QUEStionable:INSTrument:ISUMmary2:ENABle?

◆ STATus:QUEStionable:INSTrument:ISUMmary2:CONDition?

This command queries query status register value of channel 2.

Query syntax: STATus:QUEStionable:INSTrument:ISUMmary2:CONDition?

Parameter: No

◆ STATus:QUEStionable:INSTrument:ISUMmary3[:EVENT]?

This command queries event register of channel 3. The register will be cleaned once query value returns.

Query syntax: STATus:QUEStionable:INSTrument:ISUMmary3[:EVENT]?

Parameter: No

◆ STATus:QUEStionable:INSTrument:ISUMmary3:ENABle

This command modifies query enable register value of channel 3.

Command syntax: STATus:QUEStionable:INSTrument:ISUMmary3:ENABle

Parameter: Register value

Query syntax: STATus:QUEStionable:INSTrument:ISUMmary3:ENABle?

◆ STATus:QUEStionable:INSTrument:ISUMmary3:CONDition?

This command queries status register value of channel 3.

Query syntax: STATus:QUEStionable:INSTrument:ISUMmary3:CONDition?

Parameter: No

◆ STATus:OPERation[:EVENT]?

This command reads values of operation event register. Values of operation event register will zero cleaning after it is carried out.

Query syntax: STATus:OPERation[:EVENT]?

Parameter: No

Return parameter: <NR1>

Relevant syntax: STATus:OPERation:ENABle

◆ STATus:OPERation:ENABle

This command edits value of operation event enable register. Program parameters determine which bit of operation event registers is 1 will cause OPER bit of status byte register to be 1.

Command syntax: STATus:OPERation:ENABle <NRf>

Parameter: 0~255

Value of powered on: Refer to *PSC command

For example: STATus:OPERation:ENABle 128

Query syntax: STATus:OPERation:ENABle?

Return parameter: <NR1>

◆ STATus:OPERation:INSTrument[:EVENT]?

This command queries values of instrument operation event register. The register will be cleaned once it is carried out.

Query syntax: STATus:OPERation:INSTrument[:EVENT]?

Parameter: No

◆ STATus:OPERation:INSTrument:ENABle

This command modifies values of operation enable register.

Command syntax: STATus:OPERation:INSTrument:ENABle

Parameter: Register value

Query syntax: STATus:OPERation:INSTrument:ENABle?

◆ STATus:OPERation:INSTrument:ISUMmary1[:EVENT]?

This command queries operation event register value of channel 1. And the register will be cleaned once it is carried out.

Query syntax: STATus:OPERation:INSTrument:ISUMmary1[:EVENT]?

Parameter: No

◆ STATus:OPERation:INSTrument:ISUMmary1:ENABle

This command modifies operation enable register value of channel 1.

Command syntax: STATus:OPERation:INSTrument:ISUMmary1:ENABle

Parameter: Register value

Query syntax: STATus:OPERation:INSTrument:ISUMmay1:ENABle?

◆ STATus:OPERation:INSTrument:ISUMmary1:CONDition?

This command queries operation status register value of channel 1.

Query syntax: STATus:OPERation:INSTrument:ISUMmary1:CONDition?

Parameter: No

◆ STATus:OPERation:INSTrument:ISUMmary2[:EVENT]?

This command queries operation event register value of channel 2. The register will be cleaned once it is carried out.

Query syntax: STATus:OPERation:INSTrument:ISUMmary2[:EVENT]?

Parameter: No

◆ STATus:OPERation:INSTrument:ISUMmary2:ENABle

This command modifies operation enable register value of channel 2.

Command syntax: STATus:OPERation:INSTrument:ISUMmary2:ENABle

Parameter: Register value

Query syntax: STATus:OPERation:INSTrument:ISUMmary2:ENABle?

◆ STATus:OPERation:INSTrument:ISUMmary2:CONDition?

This command queries operation status register value of channel 2.

Query syntax: STATus:OPERation:INSTrument:ISUMmary2:CONDition?

Parameter: No

◆ STATus:OPERation:INSTrument:ISUMmary3[:EVENT]?

This command queries operation event register value of channel 3. The register will be cleaned once it is carried out.

Query syntax: STATus:OPERation:INSTrument:ISUMmary3[:EVENT]?

Parameter: No

◆ STATus:OPERation:INSTrument:ISUMmary3:ENABle

This command modifies operation enable register value of channel 3.

Command syntax: STATus:OPERation:INSTrument:ISUMmary3:ENABle

Parameter: Register value

Query syntax :STATus:OPERation:INSTrument:ISUMmary3:ENABle?

◆ STATus:OPERation:INSTrument:ISUMmary3:CONDition?

This command queries operation status register value of channel 3.

Query command: STATus:OPERation:INSTrument:ISUMmary3:CONDition?

Parameter: No

3.3 Output setup command

◆ OUTPut[:STATe][:ALL]

This command controls on/off of power supply output.

Command syntax: OUTPut [:STATe] <bool>

Parameter: 0|1|ON|OFF

*RST value: OFF

Query syntax: OUTPut:STATe[:ALL]?

Return parameter: 0|1

◆ OUTPut:SERIes[:STATe]

This command sets series status of channel 1 and channel 2.

Command syntax: OUTPut:SERIes[:STATe]

Parameter: 0|1|ON|OFF

Query syntax: OUTPut:SERIes[:STATe]?

◆ OUTPut:PARAllel[:STATe]

This command sets parallel status of channel 1 and channel 2.

Command syntax: OUTPut:PARAllel [:STATe]

Parameter: 0|1|ON|OFF

Query syntax: OUTPut:PARAllel[:STATe]?

◆ [SOURce:]CHANnel:OUTPut[:STATe]

This command controls output status of present channel.

Command syntax: [SOURce:]CHANnel:OUTPut[:STATe] <bool>

Parameter: 0|1|ON|OFF

*RST value: OFF

Query syntax: [SOURce:]CHANnel:OUTPut[:STATe]?

Return parameter: 0|1

◆ [SOURce:]OUTPut:PROTection:CLEAr

This command eliminates protection status of power supply, such as, OVP and OTP.

Command syntax: [SOURce:]OUTPut:PROTection:CLEAr

Parameter: No

3.4 Current setup command

◆ [SOURce:]CURRent[:LEVel][:IMMediate][:AMPLitude]

This command sets current value of power supply.

Command syntax: [SOURce:]CURRent [:LEVel] <NRf>

Parameter: num|MIN|MAX|UP|DOWN|DEF

Unit: A mA

*RST value: MIN

For example: CURR 3A, CURR 30mA, CURR MAX, CURR MIN

Query syntax: [SOURce:]CURRent[:LEVel][:IMMediate][:AMPLitude]?

Parameter: [MIN|MAX]

For example: CURR? , CURR? MAX, CURR? MIN

Return parameter: <NR2>

◆ [SOURce:]CURRent[:LEVel]:UP[:IMMediate][:AMPLitude]

This command adds a step current value to the present channel.

Command syntax: [SOURce:]CURRent[:LEVel]:UP[:IMMediate][:AMPLitude]

Parameter: No

Related command: [SOURce:]CURRent[:LEVel][:IMMediate]:STEP[:INCRement]

◆ SOURce:]CURRent[:LEVel]:DOWN[:IMMediate][:AMPLitude]

This command reduces a step current value to the present channel.

Command syntax: [SOURce:]CURRent[:LEVel]:DOWN[:IMMediate][:AMPLitude]

Parameter: No

Related command: [SOURce:]CURRent[:LEVel][:IMMediate]:STEP[:INCRement]

◆ [SOURce:]CURRent[:LEVel][:IMMediate]:STEP[:INCRement]

This command sets step value of present current.

Command syntax: [SOURce:]CURRent[:LEVel][:IMMediate]:STEP[:INCRement]

Parameter: Current value

Unit: A|mA|uA

Query syntax: [SOURce:]CURRent[:LEVel][:IMMediate]:STEP[:INCRement]?

◆ [SOURce:]CURRent[:LEVel]:TRIGgered[:IMMediate][:INCRement]

This command sets trigger current.

Command syntax: [SOURce:]CURRent[:LEVel]:TRIGgered[:IMMediate][:INCRement]

Parameter: Current value|Min|Max|Def|Up|Down

Unit: A|mA|uA

Query: [SOURce:]CURRent[:LEVel]:TRIGgered[:IMMediate][:INCRement]?

3.5 Voltage setup command:

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

This command sets voltage value of power supply.

Command syntax: [SOURce:]VOLTage[:LEVel] <NRf>

Parameter: num|MIN|MAX|UP|DOWN|DEF

Unit: V mV kV

*RST value: MIN

Query syntax: [SOURce:]VOLTage[:LEVel]?

Parameter: [MIN|MAX]

Return parameter: <NR2>

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

This command adds one step value of voltage to present channel.

Command syntax: [SOURce:] VOLTage[:LEVel]:UP[:IMMediate][:AMPLitude]

Parameter: No

Relevant command: [SOURce:]VOLTage[:LEVel][:IMMediate]:STEP[:INCRement]

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

This command reduces one step value of voltage to present channel.

Command syntax: [SOURce:] VOLTage [:LEVel]:DOWN[:IMMediate][:AMPLitude]

Parameter: No

Relevant command: [SOURce:]VOLTage[:LEVel][:IMMediate]:STEP[:INCRement]

◆ [SOURce:]VOLTage[:LEVel][:IMMediate]:STEP[:INCRement]

This command sets step value of present voltage.

Command syntax: [SOURce:] VOLTage[:LEVel][:IMMediate]:STEP[:INCRement]

Parameter: Voltage value

Unit: kV|V|mV|uV

Query syntax: [SOURce:] VOLTage[:LEVel][:IMMediate]:STEP[:INCRement]?

◆ [SOURce:] VOLTage [:LEVel]:TRIGgered[:IMMediate][:INCRement]

This command sets trigger voltage.

Command syntax: [SOURce:] VOLTage[:LEVel]:TRIGgered[:IMMediate][:INCRement]

Parameter: voltage value|Min|Max|Def|Up|Down

Unit: kV|V|mV|uV

Query: [SOURce:] VOLTage[:LEVel]:TRIGgered[:IMMediate][:INCRement]?

◆ [SOURce:]VOLTage:LIMIT[:LEVel]

This command sets upper limit of present output voltage.

Command syntax: [SOURce:]VOLTage:LIMIT[:LEVel]

Parameter: num|Min|Max|def

Unit: kV|V|mV|μV

Query syntax: [SOURce:]VOLTage:LIMIT[:LEVel]?

3.6 Trigger command

◆ TRIGger[:IMMediate]

This command generates a trigger signal when it is carried out.

This function is same as *TRG command.

Command syntax: * TRIGger[:IMMediate]

Parameter: No

◆ TRIGger:DElay

This command sets trigger delay time which will be carried out when instrument receive trigger signal.

Command syntax: TRIGger:DElay <nr1>

Parameter: time

Unit: S

Query: TRIGger:DElay?

3.7 Measurement command

◆ MEASure[:SCALar]:CURRent[:DC]?

◆ FETCh:CURRent[:DC]?

This command reads output current of power supply.

Command syntax: MEASure[:SCALar]:CURRent[:DC]? <nr>

Optional character: CH1|CH2|CH3|ALL

Return parameter:

If choose CH1|CH2|CH3, return actual current value of assigned channel;

If choose ALL, return actual current value of all channel;

If not choose optional character, return actual current of present channel;

Unit of return parameter: A

For example: MEAS:CURRE?

◆ MEASure[:SCALar][:VOLTage][:DC]?

◆ FETCh[:VOLTage][:DC]?

This command reads output voltage of power supply.

Command syntax: MEASure[:SCALar][:VOLTage][:DC]? <nr>

Optional parameter: CH1|CH2|CH3|ALL

Return parameter:

If choose CH1|CH2|CH3, return actual voltage value of assigned channel;

If choose ALL, return actual voltage value of all channel;

If not choose optional character, return actual voltage of present channel;

Unit of return parameter: V

For example: MEAS?

◆ MEASure[:SCALar]:POWER[:DC]?

◆ FETCh:POWER[:DC]?

This command reads output power of power supply.

Command syntax: MEASure[:SCALar]:POWER[:DC]? <nr>

Optional parameter: CH1|CH2|CH3|ALL

Return parameter:

If choose CH1|CH2|CH3, return actual power value of assigned channel;

If choose ALL, return actual power value of all channel;

If not choose optional character, return actual power of present channel;

Unit of return parameter: W

For example: MEAS:POW?

3.8 Apply command

[SOURce:]APPLy

Command syntax: [SOURce:]APPLy <nr1>, <nr2>, <nr3>

The command sets current and voltage value for assigned channel.

INST <nr1>

VOLT <nr2>

CURR <nr3>

Parameter 1: CH1|CH2|CH3

Optional parameter 2: num|MIN|MAX|UP|DOWN|DEF

Unit: V mV kV

Optional parameter 3: num|MIN|MAX|UP|DOWN|DEF

Unit: A mA uA

Query: APPL? <nr>

Parameter: CH1|CH2|CH3

Return parameter: <volt>, <curr>

Note: it will not change present value if there is no default parameter.

3.9 Calibration command

◆ CALibrate:SECure[:STATe]

This command sets whether the protection mode is valid or invalid when calibrate the power supply.

Command syntax: CALibration:SECure[:STATe] {<ON|OFF>,[<password>]}

Parameter: 0|1, 'LPS305B-TC'

For example: CAL:SEC 0, 'LPS305B-TC'; CAL:SEC 1

Query syntax: CALibration:SECure:STATe?

Parameter: No

◆ CALibrate:VOLTage:LEVel

This command sets voltage calibration point.

Command syntax: CALibrate:VOLTage:LEVel <level>

Parameter: P1|P2|P3|P4

Note: Sequence of the parameter follows: P1->P2->P3->P4

◆ CALibrate:VOLTage[:DATA]

Return real output voltage of the calibration point of power supply.

Command syntax: CALibrate:VOLTage[:DATA] <NRf>

Parameter: <NRf>

For example: CAL:VOLT 0.3V

Note: this command should be executed after the power supply output holds constantly.

◆ CALibrate:CURREnt:LEVel

This command sets current calibration point.

Command syntax: CALibrate:CURREnt:LEVel <level>

Parameter: P1|P2

Note: calibration point, P1, should be calibrated in sequence.

◆ CALibrate:CURREnt[:DATA]

This command returns real output current of the calibration point of power supply.

Command syntax: CALibration:CURREnt[:DATA] <NRf>

Parameter: <NRf>

For example: CAL:CURRE 3.0002A

Note: this command should be executed after the power supply output holds constantly.

◆ CALibrate:SAVe

This command saves calibration coefficient to NVM

Command syntax: CALibration:SAVe

Parameter: No

◆ CALibrate:INITital

This command sets calibration coefficient as default.

Command syntax: CALibration: INITital

Parameter: No

◆ CALibrate:STRing

This command sets calibration relevant information.

Command syntax: CALibrate:STRing 'str'

Parameter: Character string, no more than 24 characters.

Query: CALibrate:STRing?

Note: the message will be displayed on VFD. Please use frequently-used characters, such as, number, letter and common punctuation.

3.10 Channel combination command

◆ INSTRument[:SElect]

This command is used to exchange present channel.

Command syntax: INSTRument[:SElect] <cr>

Parameter: CH1|CH2|CH3

Query: INSTRument[:SElect]?

◆ INSTRument:NSElect

This command exchanges present channel.

Command syntax: INSTRument:NSElect <nr>

Parameter: 1-3

Query: INSTRument:NSElect?

◆ INSTRument:COUPle[:TRIGger]

This command is prepared for trigger command. When the channel is not assigned, the command only affect present channel.

Command syntax: INSTRument:COUPle[:TRIGger] <cr1> <cr2> <cr3>

Parameter: CH1|CH2|CH3|NONE

Query: INSTRument:COUPle[:TRIGger]?

◆ INSTRument:COMbine:SERies

This command sets series connection of CH1 and CH2.

Command syntax: INSTRument:COMbine:SERies

Parameter: No

Query: INSTRument:COMbine?

◆ INSTRument:COMbine:PARAllel

This command sets parallel connection of CH1 and CH2

Command syntax: INSTRument:COMbine:PARAllel

Parameter: No

Query: INSTRument:COMbine?

◆ INSTRument:COMbine:OFF

This command releases present series-parallel and synchronization status of CH1 and CH2

Command syntax: INSTRument:COMbine:OFF

Parameter: No

Query: INSTRument:COMbine?