

SCPI Programmable Manual

Programmable DC Power Supply

HDP3323



Case sensitivity

SCPI commands are case insensitive: you can use uppercase or lowercase or any combination of uppercase and lowercase.

For example: *RST = *rst

*IDN? = *idn?

*RCL = *rcl

Command Format

According to the command syntax, most commands (and some parameters) are expressed in a mixture of uppercase and lowercase letters. Uppercase letters indicate abbreviations of commands. For shorter program lines, you can send the abbreviated form of the command. For better program readability, you can send the long form of the command. For example: VOLT and VOLTAGE are both acceptable formats. You can use uppercase or lowercase letters. Therefore, VOLTAGE, volt, and Volt are all acceptable formats. Other formats (such as VOL and VOLTAG) are invalid and will not be executed.

1. Curly braces ({}) contain parameter options for a given command string. Curly braces are not sent with the command string.
2. Vertical bars (|) separate multiple parameter options for a given command string. For example, in the above command, {0|1|OFF|ON} means that you can specify "0", "1", "OFF", "ON". The vertical bar is not sent with the command string.
3. Angle brackets (<>) indicate that you must specify a value for the parameter in the brackets. For example, VOLT {<voltage value>}, the angle brackets are not sent with the command string. You must specify a value for the parameter. For example: VOLT 1.23
4. A colon (:) is used to separate a command keyword from the keyword at the next level. For example: SYST:LOC
5. Question mark (?) You can query the current value of a parameter by adding a question mark (?) to the command. For example: MEAS:VOLT?
6. Space You must use a blank character, [TAB], or [Space] to separate a parameter from a command keyword.
7. Terminator The command string sent to the instrument must end with a \r\n (0X0D, 0X0A) character. Command string termination always resets the current SCPI command path to the root level.

Remote Interface Connection

The power supply can be connected to the RS-232 interface through the DB9 plug on the rear panel via the level conversion circuit. The following content can help you understand how to control the output of the power supply through the PC.

Communication Settings

Before performing communication operations, you should first match the following parameters of the power supply and the PC.

Baud rate: 9600

Data bit: 8

Stop bit: 1

Check: None

IEEE 488.2 General Commands

***IDN?**

This query command reads the identification string of the power supply.

Return parameters: manufacturer name, product model, hardware version number, software version number.

***RST**

This command resets the power supply to the factory settings.

***SAV {<Address >}**

This command saves the current parameters to the specified address (1~4).

Example: *SAV 1

***RCL {<Address >}**

This command calls the parameters of the specified address (1~4).

Example: *RCL 1

SAV{<Address >}

This command saves the current parameters to the specified address (1~4).

Example: SAV2

RCL{<Address >}

This command calls the parameters of the specified address (1~4).

Example: RCL2

BEEP{<0 | 1>}

This command can enable or disable the beep of the power supply.

Example: BEEP0 "Disable the power beep"

BEEP1 "Enable the power beep"

LOCAL

This command sets the power supply to local operation mode.

REMOTE

This command sets the power supply to remote operation mode.

SYST Command

SYST command is used to set and query system related status.

SYST:LOC

This command sets the power supply to local operation mode.

SYST:REM

This command sets the power supply to remote operation mode.

SYST: BEEP {0 | 1 | OFF | ON}

This command can enable or disable the power supply beep.

Example: SYST:BEEP OFF "Disable the power supply beep"

SYST:BEEP 1 "Enable the power supply beep"

SYST:BEEP?

This command can query the power supply beep status.

Example: SYST:BEEP?

Return parameter: 0=disable 1=enable

SYST:ERR?

This command can query the power supply error information.

Example: SYST:ERR?

Return parameter: error information

APPL Command

The APPL command is used to set or read voltage and current values at the same time.

APPL:VOLT {<CH1 Voltage >, <CH2 Voltage >,<CH3 Voltage >,<CH4 Voltage >}

This command sets the set voltage values of four channels at the same time.

Example: APPL:VOLT 1,2,3,4

Set the output voltage to 1V, 2V, 3V, 4V.

APPL:VOLT?

This command queries the set voltage values of four channels at the same time.

Example: APPL:VOLT?

Return parameter: CH1 set voltage (X.XXX), CH2 set voltage (X.XXX), CH3 set voltage (X.XXX), CH4 set voltage (X.XXX).

APPL:CURREN{<CH1 Current >, <CH2 Current >,<CH3 Current >,<CH4 Current >}

This command sets the set current values of four channels at the same time.

Example: APPL:CURREN 1,2,1,1

Set the output current to 1A, 2A, 1A, 1A

APPL:CURREN?

This command queries the set current values of four channels at the same time.

Example: APPL:CURREN?

Return parameter: CH1 set current (X.XXXX), CH2 set current (X.XXXX), CH3 set current (X.XXXX), CH4 set current (X.XXXX).

INST Command

INST command is used to set and query the current channel of the power supply.

INST {<CH1| CH2| CH3| CH4|1|2|3|4>}

To switch the current channel of the power supply.

Example: INST CH1 Set the power supply CH1 channel as the current channel

INST 1 Set the power supply CH2 channel as the current channel

INST?

To query which channel the power supply is currently in.

Example: INST?

Return parameter: current channel of the power supply (CH1| CH2| CH3| CH4).

MEAS Command

The MEAS command is used to query the actual output voltage and current value of the power supply.

MEAS:VOLT?

This command queries the actual output voltage value of the current channel of the power supply.

Example: MEAS:VOLT?

Return parameter: the actual voltage value of the current channel (X.XXX).

MEAS:VOLT:ALL?

This command simultaneously queries the actual output voltage value of the four channels of the power supply.

Example: MEAS:VOLT:ALL?

Return parameter: CH1 actual voltage value (X.XXX), CH2 actual voltage value (X.XXX), CH3 actual voltage value (X.XXX), CH4 actual voltage value (X.XXX).

MEAS:CURREN?

This command queries the actual output current value of the current channel of the power supply.

Example: MEAS:CURREN?

Return parameter: the actual current value of the current channel (X.XXX).

MEAS: CURR:ALL?

This command simultaneously queries the actual output current value of the four channels of the power supply.

Example: MEAS:CURR:ALL?

Return parameter: CH1 actual current value (X.XXX), CH2 actual current value (X.XXX), CH3 actual current value (X.XXX), CH4 actual current value (X.XXX).

OUTP Command

OUTP command is used to set and query the activation and output of power supply channels.

OUTP {<0 | 1 | OFF | ON>}

To turn on the output of all channels of the power supply.

Example: OUTP 1 "Turn on the output of all channels of the power supply"

OUTP 0 "Disable all channels of the power supply"

OUTP?

To query the output status of all channels of the power supply.

Example: OUTP?

Return parameter: 0=output off 1=output on

OUTP<1|2|3|4> {<0 | 1 | OFF | ON>}

This command enables or disables the output status of the specified channel of the power supply.

Example: OUTP1 OFF "Disable the output of the first channel of the power supply"

OUTP2 1 "Enable the output of the second channel of the power supply"

OUTP <1|2|3|4>?

This command can query the output status of the specified channel of the power supply.

Example: OUTP3?

Return parameter: 0 (disable output) | 1 (enable output)

OUT Command

The OUT command is used to set the output status of all channels of the power supply.

OUT1

This command enables the output status of all channels of the power supply.

OUT0

This command disables the output status of all channels of the power supply.

VOLT Command

The VOLT command is used to set and query the set voltage, minimum voltage, maximum voltage, and overvoltage protection.

VOLT {<voltage>}

To set the output voltage value of the current channel of the power supply.

Example: VOLT 12.345

Set the current channel voltage of the power supply to 12.345V.

VOLT?

To query the set voltage value of the current channel of the power supply.

Example: VOLT?

Return parameter: The current channel voltage setting value of the power supply (X.XXX).

VOLT: PROT {<ovp>}

To set the overvoltage protection value of the current channel of the power supply.

Example: VOLT:PROT 32

Set the overvoltage value of the current channel of the power supply to 32V.

VOLT: PROT?

To query the overvoltage protection value of the current channel of the power supply.

VOLT: PROT:STAT {<0 | 1 | ON | OFF>}

To set the overvoltage protection status of the current channel of the power supply.

Example: VOLT:PROT:STAT ON

Set the overvoltage protection mode of the current channel of the power supply to on.

VOLT: PROT:STAT?

To query the overvoltage protection status of the current channel of the power supply.

Example: VOLT:PROT:STAT?

Return parameter: 0 | 1

VOLT: PROT:CLE

To reset the overvoltage protection flag of the current channel of the power supply.

Example: VOLT:PROT:CLE

Reset the overvoltage protection flag of the current channel of the power supply.

VOLT: PROT:TRIP?

To query the overvoltage protection flag of the current channel of the power supply.

Example: VOLT:PROT:TRIP?

Return parameter: 0=unprotected 1=protected

CURR Command

CURR command is used to set and query the set current, minimum current, and maximum current.

CURR {<current>}

To set the output current value of the current channel of the power supply.

Example: CURR 2.345

Set the output current value of the current channel of the power supply to 2.345A.

CURR?

To query the set current value of the current channel of the power supply.

Example: CURR?

Return parameter: The current setting value of the current channel of the power supply (X.XXX).

CURR: PROT {<ovp>}

This command is used to set the overcurrent protection value of the current channel of the power supply.

Example: CURR:PROT 3.2

Set the overcurrent value of the current channel of the power supply to 3.2A.

CURR: PROT?

To query the overcurrent protection value of the current channel of the power supply.

Example: CURR:PROT?

Return parameter: The overcurrent protection value of the current channel of the power supply (XX.XXX).

CURR: PROT:STAT {<0 | 1 | ON | OFF>}

To set the overcurrent protection status of the current channel of the power supply.

Example: CURR:PROT:STAT ON

Set the overcurrent protection mode of the current channel of the power supply to on.

CURR: PROT:STAT?

To query the overcurrent protection status of the current channel of the power supply.

Example: CURR:PROT:STAT?

Return parameter: 0 | 1

CURR: PROT:CLE

To reset the overcurrent protection flag of the current channel of the power supply.

Example: CURR:PROT:CLE

Reset the overcurrent protection flag of the current channel of the power supply.

CURR: PROT:TRIP?

To query the overcurrent protection flag of the current channel of the power supply.

Example: CURR:PROT:TRIP?

Return parameter: 0=unprotected 1=protected

VSET Command

The VSET command is used to set and query the set voltage value.

VSET<1|2|3|4>:{<voltage>}

To set the set voltage value of the specified channel of the power supply.

Example: VSET1:12.000

Set the set voltage value of the first channel of the power supply to 12V.

VSET<1|2|3|4>?

To query the set voltage value of the specified channel of the power supply.

Example: VSET2?

Return parameter: set voltage value of the second channel of the power supply.

ISET Command

ISET command is used to set and query the set current value.

ISET<1|2|3|4>:{<current>}

To set the current value of the specified channel of the power supply.

Example: ISET1:1.000

Set the set current value of the first channel of the power supply to 1A.

ISET<1|2|3|4>?

To query the set current value of the specified channel of the power supply.

Example: ISET3?

Return parameter: the set current value of the third channel of the power supply.

VOUT Command

The VOUT command is used to query the actual output voltage value.

VOUT<1|2|3|4>?

To query the actual output voltage value of the specified channel of the power supply.

Example: VOUT1?

Return parameter: The actual output voltage value of the first channel of the power supply.

IOUT command

The IOUT command is used to query the actual output current value.

IOUT<1|2|3|4>?

To query the actual output current value of the specified channel of the power supply.

Example: IOUT1?

Return parameter: The actual output current value of the first channel of the power supply.