

Triple Channel Programmable DC Power Supply SCPI Programme Manual

Case sensitivity

SCPI commands are case insensitive: you can use upper or lower case any combination

For example:

```
*RST = *rst  
*IDN? = *idn?  
*RCL = *rcl
```

Long command and short command

SCPI command can send long type, short type, long and short type combination, this article use long type. Short type use upper case.

For example:

```
SYSTem:LOCAl long type  
SYST:LOC short type  
SYSTem:LOC long and short combination  
SYST:LOCAl long and short combination
```

Pay attention: each command must be long type or short type, cannot be in the middle of long and short form

For example: :SYSTe:LOCa is illegal, this command will not be conducted.

Command format

According to the command syntax, most commands (and some arguments) are represented as a mixture of upper and lower case letters. Capital letters denote abbreviations of commands. For shorter program lines, you can send commands in abbreviated format. For better program readability, send long-form commands. For example, VOLT and VOLTAGE are both acceptable formats. You can use upper or lower case 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. Brace ({}) contain the parameter options for the given command string. Braces are not sent with the command string.
2. A vertical bar (|) separates multiple parameter choices for a given command string. For example, in the above command, {0|1|OFF|ON} means that you can specify "0", "1", "OFF", "ON". Vertical bars are not sent with the command string.
3. Angle brackets (<>) indicate that a value must be specified for the parameter within the brackets. For example VOLTage {<voltage value>}, angle brackets are not sent with the command string. You must specify a value for the parameter. Such as: VOLT 1.23
4. A colon (:) is used to separate a command keyword from the keyword at the next level. For example: SYSTem:LOCAl
5. Question mark (?) The current value of a parameter can be queried by adding a question mark (?) to the command. For example: MEASure:VOLTage?
6. Space You must use a space character, [TAB], or [space] to separate arguments from command keywords.
7. Terminator The command string sent to the instrument must end with a '\n\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 level conversion circuit through the DB9 plug on the rear panel. The following content can help you understand how to control the output of the power supply through a PC. Communication settings

Before performing communication operations, you should first match the power supply with the following parameters

of the PC. Baud rate: 9600

Data bits: 8

stop bit: 1

Check: None

IEEE 488.2 Common 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 default state.

*SAV {<Address>}

This command saves the current parameters to the specified address (0~9)

Example: *SAV 1

*RCL {<Address>}

This command calls the parameters of the specified address (0~9)

Example: *RCL 1

SAV{<Address>}

This command saves the current parameters to the specified address (0~9)

Example: SAV2

RCL{<Address>}

This command calls the parameters of the specified address (0~9)

Example: RCL2

SYSTem command

SYSTem commands are used to set and query system related status

SYSTem:LOCal

This command sets the power supply to local operation mode.

SYSTem:REMote

This command sets the power supply to remote operation mode.

SYSTemp:TEMP?

This command can query the internal temperature of the power supply.

Example: SYST:TEMP?

Return parameter: temperature

SYSTem: BEEPer {0 | 1 | OFF | ON}

This command enables or disables the power beep.

Example: SYST:BEEP OFF "Disable power beep"

SYST:BEEP 1 "Enable Power Beep"

SYSTem:BEEPer?

This command can query the tone status of the power supply.

Example: SYST:BEEP?

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

SYSTem:MEMory:GROUP {<group>}

This command sets the power storage group (group number 1~4).

Example: SYST:MEM:GROUP 1

APPLY command

The APPLY command is used to set or read the voltage value, current value, overvoltage value, overcurrent status, and output status of the three channels at the same time.

APPLY:VOLTage {<CH1 Voltage >, <CH2 Voltage >,<CH3 Voltage >}

This command sets the voltage value of three channels at the same time

Example: APP:VOLT 12,5,3

Set the output voltage as 12V, 5V, 3V

APPLY:VOLTage?

This command queries the set voltage value of three channels at the same time

Example: APP:VOLT?

Return parameters: CH1 setting voltage (X.XXX), CH2 setting voltage (X.XXX), CH3 setting voltage (X.XXX)

APPLY:CURREnt {<CH1 Current >, <CH2 Current >,<CH3 Current >}

This command sets the current value of three channels at the same time

Example: APP:CURR 3,1,3

Set the output current to 3A, 1A, 3A respectively

APPLY:CURREnt?

This command queries the set current value of three channels at the same time

Example: APP:CURR?

Return parameters: CH1 setting current (X.XXX), CH2 setting current (X.XXX), CH3 setting current (X.XXX)

APPLY:VOLTage:PROTection {<CH1 OVP >, <CH2 OVP >,<CH3 OVP >}

This command sets the overvoltage protection value of three channels at the same time

Example: APP:VOLT:PROT 12,5,3

Set the overvoltage protection value to 12V, 5V, 3V respectively

APPLY:VOLTage:PROTection?

This command queries the set overvoltage protection value of three channels at the same time

Example: APP:VOLT:PROT?

Return parameters: CH1 sets the overvoltage value (X.XXX), CH2 sets the overvoltage value (X.XXX), CH3 sets the overvoltage value (X.XXX)

APPLY:CURREnt: PROTection {<0 |1 |ON|OFF>, <0 |1 |ON |OFF >,<0 |1 |ON|OFF >}

This command sets the overcurrent protection status of three channels at the same time

Example: APP:CURR:PROT OFF,0,1

Set the output current protection status as OFF, OFF, ON

APPLY:CURRnet:PROTECTION?

This command queries the set current protection status of three channels at the same time

Example: APP:CURR:PROT?

Return parameters: CH1 sets the current protection state (0|1), CH2 sets the current protection state (0|1), CH3 sets the current protection state (0|1)

APPLY:OUTput {<0 |1 |ON|OFF>, <0 |1 |ON |OFF >,<0 |1 |ON|OFF >}

This command sets the output state of three channels at the same time

Example: APP:OUT OFF,0,1

Set the three-channel output status as OFF, OFF, ON

APPLY:OUTput?

This command queries the output status of three channels at the same time

Example: APP:OUT?

Return parameters: CH1 output status (0|1), CH2 output status (0|1), CH3 output status (0|1)

MEASURECommand

MEASURE command is used to query the actual output voltage and current value of the power supply

MEASURE: VOLTage?

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

Example: MEAS:VOLT?

Return parameter: actual voltage value (X.XXX)

MEASURE:VOLTage:ALL?

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

Example: MEAS:VOLT:ALL?

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

MEASURE: CURRent?

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

Example: MEAS:CURR?

Return parameter: Actual current value (X.XXX)

MEASURE: CURRent:ALL?

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

Example: MEAS:CURR:ALL?

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

OUTPUT command

The OUTPUT command is used to set and query the output and output time of the power supply

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

This command enables or disables the output status of all channels of the power supply

Example: OUTP OFF "disable power output"

OUTP 1 "Enable power output"

OUTPut?

This command can query the output status of all channels of the power supply

Example: OUTP?

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

OUTPut:STATe?

This command can query the output status of all channels of the power supply

Example: OUTP:STAT?

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

OUTPut:TIMer {<0|1|ON|OFF>}

This command sets the output timer state of the current channel of the power supply

Example: OUTP:TIM ON

Set the current channel output output timer on

OUTPut:TIMer:STATe?

This command can query the set output timer status of the current channel of the power supply

Example: OUTP:TIM:STAT?

Return parameter: 0/1

OUTPut:TIMer:DELay {<OutputTime>}

This command sets the output time value of the current channel of the power supply

Example: OUTP:TIM:DEL 2300

Set the current channel output time to 230.0 seconds

OUTPut:TIMer:DELay?

This command can query the set output time of the current channel of the power supply

Example: OUTP:TIM:DEL?

Return parameter: Time

OUTPut:TRACk {<0|1|ON|OFF>}

This command sets the follow state of power channel CH1+CH2

Example: OUTP:TRAC ON

OUTPut:SERies {<0|1|ON|OFF>}

This command sets the serial state of power channels CH1+CH2

Example: OUTP:SER ON

OUTPut:PARallel {<0|1|ON|OFF>}

This command sets the parallel state of power channels CH1+CH2

Example: OUTP:PAR ON

OUT command

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

CHANnel command

CHANnel commands are used to set and query the output status of the current channel of the power supply

CHANnel:OUTPut {<0 | 1 | OFF | ON>}

This command enables or disables the output state of the current channel of the power supply

Example: CHAN:OUTP OFF "Disable power output"

CHAN:OUTP 1 "Enable power output"

CHANnel:OUTPut?

This command queries the output status of the current channel of the power supply

Example: CHAN:OUTP? "

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

CHANnel?

This command can query the current channel selected by the power supply

Example: CHAN?

Return parameter: CH1|CH2|CH3

VOLTage command

The VOLTage command is used to set and query the set voltage value and overvoltage protection value

VOLTage {<voltage>}

This command is used to set the output voltage value of the current channel of the power supply

Example: VOLT 12.345

Set the voltage to 12.345V

VOLTage?

This command is used to query the set voltage value of the current channel of the power supply

Example: VOLT?

Return parameter: voltage set value (X.XXX)

VOLTage MIN

This command is used to set the output voltage value of the current channel of the power supply to the minimum value

Example: VOLT MIN

Set the voltage to the minimum value

VOLTage MAX

This command is used to set the output voltage value of the current channel of the power supply to the maximum value

Example: VOLT MAX

Set the voltage to the maximum value

VOLTage:DOWN

This command is used to set the output voltage reduction step value of the current channel of the power supply

Example: VOLT:DOWN

Set the voltage to decrease by one step

VOLTage:UP

This command is used to set the output voltage of the current channel of the power supply to increase the step value

Example: VOLT:UP

Set the voltage to increase by a step value

VOLTage:STEP {<step>}

This command is used to set the voltage step value of the current channel of the power supply

Example: VOLT:STEP 1

Set the voltage step value to 1V

VOLTage: STEP?

This command is used to query the voltage step value of the current channel of the power supply

Example: VOLT:STEP?

Return parameter: voltage step value (X.XXX)

VOLTage: PROTection {<ovp>}

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

Example: VOLT:PROT 12.3

Set the overvoltage value of the current channel of the power supply to 12.3V

Note: When the set overvoltage protection value is greater than 0V, the overvoltage protection state is turned on, otherwise it is turned off.

VOLTage: PROTection?

This command is used to query the overvoltage protection value of the current channel of the power supply

Example: VOLT:PROT?

Return parameter: the overvoltage protection value of the current channel of the power supply (X.XXX)

CURRentCommand

The CURRent command is used to set and query the set current value and overcurrent protection status

CURRent {<current>}

This command is used 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

CURRent?

This command is used 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)

CURRent MIN

This command is used to set the output current value of the current channel of the power supply to the minimum value

Example: CURR MIN

Set the current to the minimum value

CURRent MAX

This command is used to set the output current value of the current channel of the power supply to the maximum value

Example: CURR MAX

Set the current to the maximum value

CURRent:DOWN

This command is used to set the output current reduction step value of the current channel of the power supply

Example: CURR:DOWN

Set the current to decrease the step value

CURRent:UP

This command is used to set the output current increase step value of the current channel of the power supply

Example: CURR:UP

Set the current to increase the step value

CURRent:STEP {<step>}

This command is used to set the current step value of the current channel of the power supply

Example: CURR:STEP 1

Set the current step value to 1A

CURRent: STEP?

This command is used to query the current step value of the current channel of the power supply

Example: CURR:STEP?

Return parameter: current step value (X.XXX)

CURRent: PROTection {<0|1|ON|OFF>}

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

Example: CURR:PROT ON

Set the overcurrent protection of the current channel of the power supply to open

CURRent: PROTection?

This command is used to query the overcurrent protection status of the current channel of the power supply

Example: CURR:PROT?

Return parameter: the overcurrent protection of the current channel of the power supply (0|1)

VSET command

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

VSET1:{<voltage>}

This command is used to set the set voltage value of the first channel of the power supply

Example: VSET1:12.000

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

VSET1?

This command is used to query the set voltage value of the first channel of the power supply

Example: VSET1?

Return parameter: the set voltage value of the first channel of the power supply

VSET2:{<voltage>}

This command is used to set the set voltage value of the second channel of the power supply

Example: VSET2:12.000

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

VSET2?

This command is used to query the set voltage value of the second channel of the power supply

Example: VSET2?

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

VSET3:{<voltage>}

This command is used to set the set voltage value of the third channel of the power supply

Example: VSET3:6.000

Set the set voltage value of the third channel of the power supply to 6V

VSET3?

This command is used to query the set voltage value of the third channel of the power supply

Example: VSET3?

Return parameter: the set voltage value of the third channel of the power supply

ISET command

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

ISET1:{<current>}

This command is used to set the set current value of the first channel of the power supply

Example: ISET1:1.000

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

ISET1?

This command is used to query the set current value of the first channel of the power supply

Example: ISET1?

Return parameter: the set current value of the first channel of the power supply

ISET2:{<current>}

This command is used to set the set current value of the second channel of the power supply

Example: ISET2:1.000

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

ISET2?

This command is used to query the set current value of the second channel of the power supply

Example: ISET2?

Return parameter: the set current value of the second channel of the power supply

ISET3:{<current>}

This command is used to set the set current value of the third channel of the power supply

Example: ISET3:1.000

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

ISET3?

This command is used to query the set current value of the third 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

VOUT1?

This command is used to query the actual output voltage value of the first channel of the power supply

Example: VOUT1?

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

VOUT2?

This command is used to query the actual output voltage value of the second channel of the power supply

Example: VOUT2?

Return parameter: the actual output voltage value of the second channel of the power supply

VOUT3?

This command is used to query the actual output voltage value of the third channel of the power supply

Example: VOUT3?

Return parameter: the actual output voltage value of the third channel of the power supply

IOUT command

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

IOUT1?

This command is used to query the actual output current value of the first channel of the power supply

Example: IOUT1?

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

IOUT2?

This command is used to query the actual output current value of the second channel of the power supply

Example: IOUT2?

Return parameter: the actual output current value of the second channel of the power supply

IOUT3?

This command is used to query the actual output current value of the third channel of the power supply

Example: IOUT3?

Return parameter: the actual output current value of the third channel of the power supply

INSTrumentCommand

The INSTrument command is used to switch the current channel of the power

INSTrument {<CH1|CH2|CH3>}

This command is used to switch the current channel of the power supply

Example: INST CH2

Set the power CH2 channel as the current channel

INSTrument?

This command is used to query which channel the current channel of the power supply is.

Example: INST?

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

INSTrument:NSElectCommand

The INSTrument command is used to switch the current channel of the power supply. The function is the same as the INSTrument command, but the parameter types are different!

INSTrument:NSElect {<1|2|3>}

This command is used to switch the current channel of the power supply

Example: INST:NSEL 2

Set the power CH2 channel as the current channel

INSTrument:NSElect?

This command is used to query which channel the current channel of the power supply is.

Example: INST:NSEL?

Return parameter: current channel of power supply (1|2|3)

CH1 command

CH1 commands are used to set and query the parameters of the first channel of the power supply

CH1 {< Voltage >, < Current >, <0|1|ON|OFF>}

This command sets the voltage value, current value and output state of the first channel at the same time.

Example: CH1 5,1,1

Set the voltage of the first channel to 5V, 1A, enable the power output

CH1?

This command is used to query the set voltage value, current value and output status of the first channel of the power supply

Example: CH1?

Return parameters: XX.XXX, X.XXX, 0

CH2 command

CH2 commands are used to set and query the parameters of the second channel of the power supply

CH2 {< Voltage >, < Current >, <0|1|ON|OFF>}

This command sets the voltage value, current value and output state of the second channel at the same time.

Example: CH2 10,2,1

Set the voltage of the second channel to 10V, 2A, enable the power output

CH2?

This command is used to query the set voltage value, current value and output status of the second channel of the power supply

Example: CH2?

Return parameters: XX.XXX, X.XXX, 1

CH3 command

CH3 commands are used to set and query the parameters of the third channel of the power supply

CH3 {< Voltage >, < Current >, <0|1|ON|OFF>}

This command sets the voltage value, current value and output state of the third channel at the same time.

Example: CH3 5,1,1

Set the voltage of the third channel to 5V, 1A, enable the power output

CH3?

This command is used to query the set voltage value, current value and output status of the third channel of the power supply

Example: CH3?

Return parameters: XX.XXX, X.XXX, 0