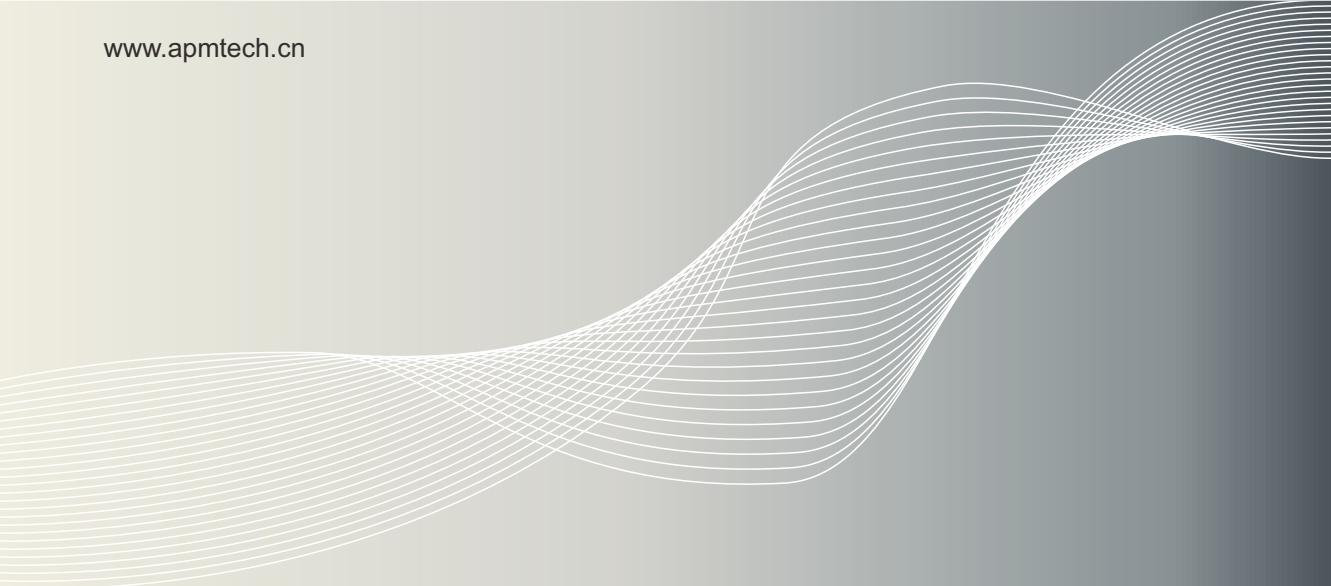




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SCPI Communication Protocol for SP-3U/6U Series Wide-range High-power Programmable DC Power Supply



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SCPI Command Descriptions

The following parentheses are used in the command descriptions to indicate whether a command is necessary or optional and whether a choice has to be made. The symbols <>, _, | are not actually used in the programming commands. The symbols <> , _ and | are merely used to illustrate the command syntax as needed.

<> Angle brackets: indicates that a value must be assigned to the parameter in the brace. Angle brackets are not sent along with command strings.

_ Underscore: Indicates a space 0x20 character. Added for readability of the manual only. **DO NOT** include these underscore characters when sending commands. Use a space character 0x20 instead.

| Vertical stripes: This symbol acts as a separator between multiple parameter options. For example, "0|DISABLE" indicates that you may assign "0" or "Disable" in the command. Vertical stripes are not sent along with command strings.

All commands should be terminated with **Carriage Return** or **Line Feed**, or they will not be accepted by the power source. But for GPIB communication mode it will add terminated automatically.

1. IEEE488.2 Common Commands

*IDN?

Description: Returns the power supply identification.

Return Example: APM, SP80VDC6000W, ADVANCED, 0166481953000003, V100R100C01, V100R101C02, V100R101C03, V100R101C04, V100R101C05

*CLS

Description: This command clears the following:

1. Clears the error queue.
2. Clears the status result.

Parameter: None

*ESE_<VALUE>

Description: This command sets the condition of the Standard Event Status Enable register, which determines which events of the Standard Event Status Enable register are allowed to set the ESB (Event Summary Bit) of the Status Byte register.

Parameter: 0~255

Query Example: *ESE?

Return Parameter: 0~255

***RST**

Description: Reset system.

Parameter: None

***OPC**

Description: This command causes the interface to set the OPC bit of the Standard Event Status register when the DC Power Supply has completed all pending operations.

Parameter: None

Query Example: ***OPC?**

Return Parameter: 1

***RCL_<VALUE>**

Description: This command restores the High Slew Rate Load to the state that was previously stored in memory with the *SAV command to the specified location (see *SAV).

Parameter: 0~10. 0, factory default value. 1~10, user defined value.

***SAV_<VALUE>**

Description: This command stores the present state of the DC Power Supply and the states of the current mode in a specified location in memory.

Parameter: 1~10

Return Parameter: None

***SRE_<VALUE>**

Description: This command sets the condition of the Service Request Enable register, which determines which events of the Status Byte register are allowed to set the MSS bit.

Parameter: 0~255

Return Parameter: None

Query Example: ***SRE?**

Return Parameter: Returns the current settings of the Service Request Enable register.

***STB?**

Description: This query reads the Status Byte register.

Parameter: None

Return Parameter: Returns the contents of the Status Byte.

2. SYSTEM Subsystem

SYSTem:ERRor?

Description: Returns the Power Supply code and error message.

Parameter: None

Query Example: **SYST:ERR?**

Return Parameter: "No error", "Missing parameter", "Execution error", "Command error", "Undefined header"

SYSTem:ERRor:COUNT?

Description: Returns the number of the error message.

Query Example: **SYST:ERR:COUN?**

Return Parameter: The quantity of the error message.

ASWRS?

Description: Returns the alarm information.

Parameter: None

Return Parameter: Alarm code. Refer to the table below for details.

Code	Alarm Information	Description
1	OVP	Output over voltage protection
2	OCP	Output over current protection
4	OPP	Output over power protection
8	MOTP	Hardware over temperature
16	FAN	Fan fault
32	SCP	Output shorted
64	CC-CV	Output is changed from CC to CV
128	CV-CC	Output is changed from CV to CC
256	DC LOCK	DC LOCK
513	PWR	Power module failed
514	MOPP	Hardware over power protection
516	LOAD	Sink module failed
520	OTPA	Over temperature
528	OTP	Over temperature
544	AOVP	PDU phase A over voltage protection
576	BOVP	PDU phase B over voltage protection
640	COVP	PDU phase C over voltage protection
768	AUVP	PDU phase A under voltage protection
1025	BUVP	PDU phase B under voltage protection
1026	CUVP	PDU phase C under voltage protection
1028	AOCP	PDU phase A over current protection
1032	BOCP	PDU phase B over current protection
1040	COCP	PDU phase C over current protection
1056	OFP	PDU over frequency protection
1088	UFP	PDU under frequency protection
1152	MOVP	Power module over voltage protection
1280	MOPP	Power module over power protection

ASWRC

Description: Clears the alarm information.

Parameter: None

Return Parameter: OK/FALSE

SYSTem:REC:DEF

Description: Resets the unit to factory settings.

Parameter: None

Return Parameter: OK/FALSE

SBEEP_<STATE>

Description: This command enables or disables the buzzer.

Parameter: OFF|0, ON|1

Example: SBEEP ON

Return Parameter: OK/FALSE

Query Example: SBEEP?

SYSTem:SHORTMODE_<STATE>

Description: This command enables or disables short mode.

Parameter: OFF|0, ON|1

Example: SYST:SHORTMODE ON

Return Parameter: OK/FALSE

Query Example: SYST:SHORTMODE?

SYSTem:SHORTMODE:VOLTage_<VALUE>

Description: This command sets short mode voltage.

Parameter: Voltage, unit: 0.001V

Example: SYST:SHORTMODE:VOLT 0.7

Return Parameter: OK/FALSE

Query Example: SYST:SHORTMODE:VOLT?

SYSTem:LVMODE_<STATE>

Description: This command enables or disables LVMODE.

Parameter: OFF|0, ON|1

Example: SYST:LVMODE ON

Return Parameter: OK/FALSE

Query Example: SYST:LVMODE?

SYSTem:CURRentSHARE_<STATE>

Description: This command enables or disables current sharing function.

Parameter: OFF|0, ON|1

Example: SYST:CURRSHARE ON

Return Parameter: OK/FALSE

Query Example: SYST:CURRSHARE?

COUNT:MODE_<STATE>

Description: This command sets counting function mode.

Parameter: 0(OFF), 1(VOLTAGE), 2(CURRENT)

Example: COUNT:MODE 2

Return Parameter: OK/FALSE

Query Example: COUNT:MODE?

COUNT:CURREntB_<VALUE>

Description: This command sets Ib for current counting function.

Parameter: Current value, unit: 0.001A

Example: COUNT:CURRB 50

Return Parameter: OK/FALSE

Query Example: COUNT:CURRB?

COUNT:CURREntL_<VALUE>

Description: This command sets IL for current counting function.

Parameter: Current value, unit: 0.001A

Example: COUNT:CURRL 0.5

Return Parameter: OK/FALSE

Query Example: COUNT:CURRL?

COUNT:TIME?

Description: This command queries the running time of counting function.

Parameter: None.

Return: Time

Query Example: COUNT:TIME?

CVCC:PRIOR_<STATE>

Description: This command sets the priority of CV or CC mode.

Parameter: CC|1, CV|0

Example: CVCC:PRIOR CC

Return Parameter: OK/FALSE

Query Example: CVCC:PRIOR?

CVCC:PRIOR:DELay_<VALUE>

Description: This command sets slew rate of voltage or current rising.

Parameter: Time value, unit: 0.001s

Example: CVCC:PRIOR:DEL 10

Return Parameter: OK/FALSE

Query Example: CVCC:PRIOR:DEL?

AMARG_<STATE>

Description: This command sets average time.

Parameter: SLOW|0, MIDDLE|1, FAST|2

Example: AMARG FAST

Return Parameter: OK/FALSE

Query Example: AMARG?

HI:MODE_<STATE>

Description: This command sets the state of the dummy load.

Parameter: OFF|0, ON|1

Example: HI:MODE ON

Return Parameter: OK/FALSE

Query Example: HI:MODE?

SYSTem:POSTATUS_<STATE>

Description: This command sets the output state of the unit.

Parameter: 0(OFF), 1(ON)

Example: SYST:POSTATUS 1

Return Parameter: OK/FALSE

Query Example: SYST:POSTATUS?

SYSTem:POUT_<STATE>

Description: This command sets the programmed state after turning on the power supply.

Parameter: 0(OFF), 1(User), 2>Last)

Example: SYST:POUT 1

Return Parameter: OK/FALSE

Query Example: SYST:POUT?

SYSTem:USER:VOLTage_<VALUE>

Description: This command sets the specific voltage for user mode.

Parameter: Voltage, unit: 0.001V

Example: SYST:USER:VOLT 15.25

Return Parameter: OK/FALSE

Query Example: SYST:USER:VOLT?

SYSTem:USER:CURRent_<VALUE>

Description: This command sets the specific current for user mode.

Parameter: Current, unit: 0.001A

Example: SYST:USER:CURR 22.22

Return Parameter: OK/FALSE

Query Example: SYST:USER:CURR?

SYSTem:USER:POWER_<VALUE>

Description: This command sets the specific power for user mode.

Parameter: Power, unit: 0.1W

Example: SYST:USER:POWER 100.6

Return Parameter: OK/FALSE

Query Example: SYST:USER:POWER?

SYSTem:USER:RESistance_<VALUE>

Description: This command sets the specific resistance for user mode.

Parameter: Resistance, unit: 1.02

Example: SYST:USER:RES 1.02

Return Parameter: OK/FALSE

Query Example: SYST:USER:RES?

3. OUTPUT Subsystem

OUTPUT:OUT_<STATE>

Description: This command turns on or turns off the output of the power supply.

Parameter: OFF|0, ON|1

Example: OUTPUT:OUT ON

Return Parameter: OK/FALSE

Query Example: OUTPUT:OUT?

OUTPUT:VSET_<VALUE>

Description: This command sets the output voltage. The setting range is 0~1.05 x rated voltage value.

Parameter: Voltage, unit: 0.001V

Example: OUTPUT:VSET 15.25

Return Parameter: OK/FALSE

Query Example: OUTPUT:VSET?

OUTPUT:ISET_<VALUE>

Description: This command sets the output current. The setting range is 0~1.05 x rated current value.

Parameter: Current, unit: 0.001A

Example: OUTPUT:ISET 22.22

Return Parameter: OK/FALSE

Query Example: OUTPUT:ISET?

OUTPUT:PSET_<VALUE>

Description: This command sets the output power. The setting range is 0~1.05 x rated power value.

Parameter: Power, unit: 0.1W

Example: OUTPUT:PSET 100.6

Return Parameter: OK/FALSE

Query Example: OUTPUT:PSET?

OUTPUT:RSET_<VALUE>

Description: This command sets the output programmable resistance. The setting range is 0~1.05 x rated resistance value.

Parameter: Resistance, unit: 0.0001Ω

Example: OUTPUT:RSET 1.02

Return Parameter: OK/FALSE

Query Example: OUTPUT:RSET?

OUTPUT:VOLTage:RISE_<VALUE>

Description: This command sets the voltage rise slew rate.

Parameter: Slew rate, unit: 0.001V/s

Example: OUTPUT:VOLT:RISE 0.05

Return Parameter: OK/FALSE

Query Example: OUTPUT:VOLT:RISE?

OUTPUT:VOLTage:FALL_<VALUE>

Description: This command sets the voltage fall slew rate.

Parameter: Slew rate, unit: 0.001V/s

Example: OUTPUT:VOLT:FALL 0.05

Return Parameter: OK/FALSE

Query Example: OUTPUT:VOLT:FALL?

OUTPUT:CURRent:RISE_<VALUE>

Description: This command sets the current rise slew rate.

Parameter: Slew rate, unit: 0.001A/ms

Example: OUTPUT:CURR:RISE 0.05

Return Parameter: OK/FALSE

Query Example: OUTPUT:CURR:RISE?

OUTPUT:CURRent:FALL_<VALUE>

Description: This command sets the current fall slew rate.

Parameter: Slew rate, unit: 0.001A/ms

Example: OUTPUT:CURR:FALL 0.05

Return Parameter: OK/FALSE

Query Example: OUTPUT:CURR:FALL?

4. PROTECTION Subsystem

PROtection:OVP_<STATE>

Description: This command enables or disables the over voltage protection.

Parameter: ENABLE|1, DISABLE|0

Example: PROT:OVP ENABLE

Return Parameter: OK/FALSE

Query Example: PROT:OVP?

PROtection:OVP:VOLTage_<VALUE>

Description: This command sets the over voltage protection value. The setting range is 0~1.1 x rated voltage value.

Parameter: Voltage, unit: 0.001V

Example: PROT:OVP:VOLT 15.25

Return Parameter: OK/FALSE

Query Example: PROT:OVP:VOLT?

PROtection:OVP:DELay_<VALUE>

Description: This command sets the over voltage protection delay time. The setting range is 0.001~10s.

Parameter: Time value, unit: 0.001s

Example: PROT:OVP:DEL 5

Return Parameter: OK/FALSE

Query Example: PROT:OVP:DEL?

PROTection:UVP_<STATE>

Description: This command enables or disables the under voltage protection.

Parameter: ENABLE|1, DISABLE|0

Example: PROT:UVP ENABLE

Return Parameter: OK/FALSE

Query Example: PROT:UVP?

PROTection:UVP:VOLTage_<VALUE>

Description: This command sets the under voltage protection value. The setting range is 0~1.1 x rated voltage value.

Parameter: Voltage, unit: 0.001V

Example: PROT:UVP:VOLT 15.25

Return Parameter: OK/FALSE

Query Example: PROT:UVP:VOLT?

PROTection:UVP:DELay_<VALUE>

Description: This command sets the under voltage protection delay time. The setting range is 0.001~10s.

Parameter: Time value, unit: 0.001s

Example: PROT:UVP:DEL 5

Return Parameter: OK/FALSE

Query Example: PROT:UVP:DEL?

PROTection:OCP_<STATE>

Description: This command enables or disables the over current protection.

Parameter: ENABLE|1, DISABLE|0

Example: PROT:OCP ENABLE

Return Parameter: OK/FALSE

Query Example: PROT:OCP?

PROTection:OCP:CURRent_<VALUE>

Description: This command sets the over current protection value. The setting range is 0~1.1 x rated current value.

Parameter: Current, unit: 0.001A

Example: PROT:OCP:CURR 22.22

Return Parameter: OK/FALSE

Query Example: PROT:OCP:CURR?

PROtection:OCP:DELay_<VALUE>

Description: This command sets the over current protection delay time. The setting range is 0.001~10s.

Parameter: Time value, unit: 0.001s

Example: PROT:OCP:DEL 5

Return Parameter: OK/FALSE

Query Example: PROT:OCP:DEL?

PROtection:OPP:<STATE>

Description: This command enables or disables the over power protection.

Parameter: ENABLE|1, DISABLE|0

Example: PROT:OPP 1

Return Parameter: OK/FALSE

Query Example: PROT:OPP?

PROtection:OPP:POWER_<VALUE>

Description: This command sets the over power protection value. The setting range is 0~1.1 x rated power value.

Parameter: Power value, unit: 0.1W

Example: PROT:OPP:POWER 100.6

Return Parameter: OK/FALSE

Query Example: PROT:OPP:POWER?

PROtection:OPP:DELay_<VALUE>

Description: This command sets the over power protection delay time. The setting range is 0.001~10s.

Parameter: Time value, unit: 0.001s

Example: PROT:OPP:DEL 5

Return Parameter: OK/FALSE

Query Example: PROT:OPP:DEL?

PROtection:CVCC:<STATE>

Description: This command enables or disables the CVCC or CCCV protection.

Parameter: ENABLE|1, DISABLE|0

Example: PROT:CVCC ENABLE

Return Parameter: OK/FALSE

Query Example: PROT:CVCC?

PROTection:CVCC:MODE_<STATE>

Description: This command sets CVCC protection mode.

Parameter: 1 (CV TO CC Protection) , 0 (CC TO CV Protection)

Example: PROT:CVCC:MODE 1

Return Parameter: OK/FALSE

Query Example: PROT:CVCC:MODE?

PROTection:CVCC:DELay_<VALUE>

Description: This command sets CCCV or CVCC protection delay time. The setting range is 0.001~10s.

Parameter: Time value, unit: 0.001s

Example: PROT:CVCC:DEL 5

Return Parameter: OK/FALSE

Query Example: PROT:CVCC:DEL?

5. LIMIT Subsystem

LIMITation:VMAX_<VALUE>

Description: This command sets the upper voltage limit. The setting range is 0~1.05 x rated voltage value.

Parameter: Voltage value, unit: 0.001V

Example: LIMIT:VMAX 15.25

Return Parameter: OK/FALSE

Query Example: LIMIT:VMAX?

LIMITation:VMIN_<VALUE>

Description: This command sets the lower voltage limit. The setting range is 0~1.05 x rated voltage value.

Parameter: Voltage value, unit: 0.001V

Example: LIMIT:VMIN 15.25

Return Parameter: OK/FALSE

Query Example: LIMIT:VMIN?

LIMITation:IMAX_<VALUE>

Description: This command sets the upper current limit. The setting range is 0~1.05 x rated current value.

Parameter: Current value, unit: 0.001A

Example: LIMIT:IMAX 22.22

Return Parameter: OK/FALSE

Query Example: LIMIT:IMAX?

LIMITation:IMIN_<VALUE>

Description: This command sets the lower current limit. The setting range is 0~1.05 x rated current value.

Parameter: Current value, unit: 0.001A

Example: LIMIT:IMIN 22.22

Return Parameter: OK/FALSE

Query Example: LIMIT:IMIN?

LIMITation:PMAX_<VALUE>

Description: This command sets the upper power limit. The setting range is 0~1.05 x rated power value.

Parameter: Power value, unit: 0.1W

Example: LIMIT:PMax 100.6

Return Parameter: OK/FALSE

Query Example: LIMIT:PMax?

LIMITation:PMIN_<VALUE>

Description: This command sets the lower power limit. The setting range is 0~1.05 x rated power value.

Parameter: Power value, unit: 0.1W

Example: LIMIT:PMIN 100.6

Return Parameter: OK/FALSE

Query Example: LIMIT:PMIN?

LIMITation:RMAX_<VALUE>

Description: This command sets the upper output programmable resistance limit.

The setting range is 0~1.05 x rated resistance value.

Parameter: Resistance value, unit: 0.0001Ω

Example: LIMIT:RMAX 1.02

Return Parameter: OK/FALSE

Query Example: LIMIT:RMAX?

LIMITation:RMIN_<value>

Description: This command sets the lower output programmable resistance limit.

The setting range is 0~1.05 x rated resistance value.

Parameter: Resistance value, unit: 0.0001Ω

Example: LIMIT:RMIN 1.02

Return Parameter: OK/FALSE

Query Example: LIMIT:RMIN?

6. MEASURE Subsystem

MEASure:VOLTage?

Description: This returns the voltage measured at the output of the Power Supply.

Parameter: None

Return Parameter: Voltage value, unit: 0.001V

Query Example: MEAS:VOLT?

MEASure:CURRent?

Description: This returns the current measured at the output of the Power Supply.

Parameter: None

Return Parameter: Current value, unit: 0.001A

Query Example: MEAS:CURR?

MEASure:POWER?

Description: This returns the power measured at the output of the Power Supply.

Parameter: None

Return Parameter: Power value, unit: 0.1W

Query Example: MEAS:POWER?

MEASure:RESistance?

Description: This returns the resistance measured at the output of the Power Supply.

Parameter: None

Return Parameter: Resistance value, unit: 0.0001Ω

Query Example: MEAS:RES?

MEASure:ALL?

Description: This returns all the measured value on the main screen.

Parameter: None

Return Parameter: Voltage, current, power, resistance, output state and alarm information

Query Example: MEAS:ALL?

7. External Control Subsystem

EXTERN:VOLTage?

Description: This returns voltage setup given through analog input.

Parameter: None

Return Parameter: Voltage, unit: 0.001V

Query Example: EXTERN:VOLT?

EXTERN:CURRent?

Description: This returns current setup given through analog input.

Parameter: None

Return Parameter: Current, unit: 0.001A

Query Example: EXTERN:CURR?

EXTERN:POWER?

Description: This returns power setup given through analog input.

Parameter: None

Return Parameter: Power, unit: 0. 1W

Query Example: EXTERN:POWER?

EXTERN:RESistance?

Description: This returns resistance setup given through analog input.

Parameter: None

Return Parameter: Resistance, unit: 0. 0001Ω

Query Example: EXTERN:RES?

EXTERN:MEASure:VOLTage?

Description: This returns the voltage measured value under external mode.

Parameter: None

Return Parameter: Voltage, unit: 0.001V

Query Example: EXTERN:MEAS:VOLT?

EXTERN:MEASure:CURRent?

Description: This returns the current measured value under external mode.

Parameter: None

Return Parameter: Current, unit: 0.001A

Query Example: EXTERN:MEAS:CURR?

EXTERN:CONTROL_<STATE>

Description: This command enables or disables the external control mode.

Parameter: ENABLE|1, DISABLE|0

Example: EXTERN:CONTROL 1

Return Parameter: OK/FALSE

Query Example: EXTERN:CONTROL?

EXTERN:VREF_<STATE>

Description: This command sets reference voltage.

Parameter: 0(5V), 1(10V)

Example: EXTERN:VREF 0

EXTERN:ENABLE_<STATE>

Description: This command sets the active level for EXT-EN signal.

Parameter: 0(Active Low), 1(Active High)

Example: EXTERN:ENABLE 0

Return Parameter: OK/FALSE

Query Example: EXTERN:ENABLE?

EXTERN:ON_<STATE>

Description: This command sets the active level for EXT-ON signal.

Parameter: 0(Active Low), 1(Active High)

Example: EXTERN:ON 0

Query Example: EXTERN:ON?

EXTERN:POWER_<STATE>

Description: This command sets the active level for Power mode.

Parameter: 0(Active Low), 1(Active High)

Example: EXTERN:POWER 0

Return Parameter: OK/FALSE

Query Example: EXTERN:POWER?

EXTERN:INHIBIT_<STATE>

Description: This command sets the active level for INHIBIT signal.

Parameter: 0(Active Low), 1(Active High)

Example: EXTERN:INHIBIT 0

Return Parameter: OK/FALSE

Query Example: EXTERN:INHIBIT?

EXTERN:NA_<STATE>

Description: This command sets the active level for AI-EN signal.

Parameter: 0(Active Low), 1(Active High)

Example: EXTERN:NA 0

Return Parameter: OK/FALSE

Query Example: EXTERN:NA?

EXTERN:LOADMODE?

Description: This command returns SINK working mode.

Parameter: None

Return Parameter: 0(CC), 1(CV), 2(CP), 3(CR)

Query Example: EXTERN:LOADMODE?

EXTERN:OVP_<STATE>

Description: This command sets active level for OVP signal.

Parameter: 0(Active Low), 1(Active High)

Example: EXTERN:OVP 0

Return Parameter: OK/FALSE

Query Example: EXTERN:OVP?

EXTERN:OTP_<STATE>

Description: This command sets active level for OTP signal.

Parameter: 0(Active Low), 1(Active High)

Example: EXTERN:OTP 0

Return Parameter: OK/FALSE

Query Example: EXTERN:OTP?

EXTERN:OCP_<STATE>

Description: This command sets active level for OCP signal.

Parameter: 0(Active Low), 1(Active High)

Example: EXTERN:OCP 0

Return Parameter: OK/FALSE

Query Example: EXTERN:OCP?

EXTERN:OPMODE_<STATE>

Description: This command sets active level for OPMODE signal.

Parameter: 0(Active Low), 1(Active High)

Example: EXTERN:OPMODE 0

Return Parameter: OK/FALSE

Query Example: EXTERN:OPMODE?

8. LIST Subsystem

LIST:ID_<VALUE>

Description: This command sets the LIST file number.

Parameter: 1~300

Example: LIST:ID 5

Return Parameter: OK/FALSE

LIST:TOTAL_<VALUE>

Description: This command sets the total steps of the LIST file.

Parameter: 1~8

Example: LIST:TOTAL 5

Return Parameter: OK/FALSE

LIST:MODE_<STATE>

Description: This command sets the format mode of the LIST file.

Parameter: 0(Rectangle), 1(S_Ramp), 2(F_Ramp)

Example: LIST:MODE 1

Return Parameter: OK/FALSE

LIST:STEP:NUMber_<VALUE>

Description: This command selects the step to be edited.

Parameter: 1~8

Example: LIST:STEP:NUM 5

Return Parameter: OK/FALSE

LIST:REPEAT_<VALUE>

Description: This command sets the repeat times of the LIST file.

Parameter: 0~9999

Example: LIST:REPEAT 5

Return Parameter: OK/FALSE

LIST:VOLTage_<VALUE>

Description: This command sets the voltage of the specified step.

Parameter: Voltage value, unit: 0.001V

Example: LIST:VOLT 5

Return Parameter: OK/FALSE

LIST:VOLTage:SLOPE_<VALUE>

Description: This command sets slope value for the voltage of a specified step.

Parameter: Time value, unit: 0.001s

Example: LIST:VOLT:SLOPE 5

Return Parameter: OK/FALSE

LIST:CURRent_<VALUE>

Description: This command sets the current of the specified step.

Parameter: Current value, unit: 0.001A

Example: LIST:CURR 10

Return Parameter: OK/FALSE

LIST:CURRent:SLOPE_<VALUE>

Description: This command sets slope value for the current of a specified step.

Parameter: Time Value

Example: LIST:CURR:SLOPE 5

Return Parameter: OK/FALSE

LIST:POWER_<VALUE>

Description: This command sets the power of the specified step.

Parameter: Power value, 0.1W

Example: LIST:POWER 1000

Return Parameter: OK/FALSE

LIST:RESistance_<VALUE>

Description: This command sets the output programmable resistance of the specified step.

Parameter: Resistance value, unit: 0.1Ω

Example: LIST:RES 0.15

Return Parameter: OK/FALSE

LIST:WIDTH_<value>

Description: This command sets the dwell time of the specified step.

Parameter: Time value, unit: 0.001s

Example: LIST:WIDTH 10

Return Parameter: OK/FALSE

LIST:STEP:CYCLE_<VALUE>

Description: This command sets repeat times of the specified step.

Parameter: 1~9999

Example: LIST:STEP:CYCLE 5

Return Parameter: OK/FALSE

LIST:STEP:MODE_<STATE>

Description: This command sets the running mode of the specified step.

Parameter: 0(CONT), 1(STEP)

Example: LIST:STEP:MODE 0

Return Parameter: OK/FALSE

LIST:ALL_<VALUE 1>,< VALUE 2>,...,< VALUE 11>

Description: This command sets all the parameters for a single step.

Parameter: All the parameters for a single step, separated by commas. Refer to the table below for details.

NO.	Syntax	Examples
VALUE 1	LIST:ID	LIST:ID 2
VALUE 2	LIST:STEP:NUMBER	LIST:STEP:NUM 1
VALUE 3	LIST:VOLTage	LIST:VOLT 5
VALUE 4	LIST:VOLTage:SLOPE	LIST:VOLT:SLOPE 10
VALUE 5	LIST:CURRent	LIST:CURR 20
VALUE 6	LIST:CURRent:SLOPE	LIST:CURR:SLOPE 5
VALUE 7	LIST:POWER	LIST:POWER 2000
VALUE 8	LIST:RESistance	LIST:RES 0.15
VALUE 9	LIST:WIDTH	LIST:WIDTH 300
VALUE 10	LIST:STEP:CYCLE	LIST:STEP:CYCLE 5
VALUE 11	LIST:STEP:MODE	LIST:STEP:MODE 0

Example: LIST:ALL 2,2,5,10,20,5,2000,0.15,300,5,0

Return Parameter: OK/FALSE

LIST:ALL?_<VALUE 1>,<VALUE 2>

Description: This command returns the parameters of specified LIST file.

Parameter: VALUE 1, LIST ID; VALUE 2, Step ID

Return Parameter: 11 parameters, separated by commas.

Query Example: LIST:ALL? 1,5

LIST:SAVE

Description: This command saves the specified LIST file.

Parameter: None

Example: LIST:SAVE

Return Parameter: OK/FALSE

LIST:LOAD

Description: This command loads the specified LIST file.

Parameter: None

Example: LIST:LOAD

Return Parameter: OK/FALSE

LIST:RUN

Description: This command runs the specified LIST file.

Parameter: None

Example: LIST:RUN

Return Parameter: OK/FALSE

LIST:PAUSE

Description: This command pauses the specified LIST file.

Parameter: None

Example: LIST:PAUSE

Return Parameter: OK/FALSE

LIST:CONTINUE

Description: This command continues the specified LIST file.

Parameter: None

Example: LIST:CONTINUE

Return Parameter: OK/FALSE

LIST:STOP

Description: This command stops the specified LIST file.

Parameter: None

Example: LIST:STOP

Return Parameter: OK/FALSE

LIST:RUNTIME?

Description: This command returns the running time of the specified LIST file.

Parameter: None

Query Example: LIST:RUNTIME?

LIST:REMAINTIME?

Description: This command returns the remaining running time.

Parameter: None

Query Example: LIST:REMAINTIME?

9. PROGRAM Subsystem

PROGram:TOTAL_<VALUE>

Description: This command sets the total steps of the PROGRAM file.

Parameter: 1~18

Example: PROG:TOTAL 10

Return Parameter: OK/FALSE

PROGram:STEP_<VALUE>

Description: This command selects the step to be edited.

Parameter: 1~18

Example: PROG:STEP 5

Return Parameter: OK/FALSE

PROGram:STEP:LIST_<VALUE>

Description: This command selects LIST file.

Parameter: 1~300

Example: PROG:STEP:LIST 2

Return Parameter: OK/FALSE

PROGram:STEP:CYCLE_<VALUE>

Description: This command sets the repeat times of the specified step.

Parameter: 0~9999

Example: PROG:STEP:CYCLE 3

Return Parameter: OK/FALSE

PROGram:STEP:MODE_<STATE>

Description: This command sets the running mode of the current step.

Parameter: 0(CONT), 1(STEP)

Example: PROG:STEP:MODE 0

Return Parameter: OK/FALSE

PROGram:SAVE

Description: This command saves the specified PROGRAM file.

Parameter: None

Example: PROG:SAVE

Return Parameter: OK/FALSE

PROGram:REPEAT_<VALUE>

Description: This command sets repeat times of the specified PROGRAM file.

Parameter: 0~9999

Example: PROG:REPEAT 5

Return Parameter: OK/FALSE

PROG:ALL_<VALUE 1>,< VALUE 2>,...,< VALUE 4>

Description: This command sets all the parameters for a single step.

Parameter: All the parameters for a single step, separated by commas. Refer to the table below for details.

NO.	Syntax	Examples
VALUE 1	PROG:STEP	PROG:STEP 1
VALUE 2	PROG:STEP:LIST	PROG:STEP:LIST 2
VALUE 3	PROG:STEP:CYCLE	PROG:STEP:CYCLE 3
VALUE 4	PROG:STEP:MODE	PROG:STEP:MODE 0

Example: 1,2,3,0

Return Parameter: OK/FALSE

PROGRAM:ALL?_<VALUE>

Description: This command returns the parameters of the specified PROGRAM file.

Parameter: Step ID

Return Parameter: Step ID, LIST ID, Repeat times of the current step, running mode of the current step.

Query Example: PROGRAM:ALL? 1

PROGram:LOAD

Description: This command loads the specified PROGRAM file.

Parameter: None

Example: PROG:LOAD

Return Parameter: OK/FALSE

PROGram:RUN

Description: This command runs the specified PROGRAM file.

Parameter: None

Example: PROG:RUN

Return Parameter: OK/FALSE

PROGram:PAUSE

Description: This command pauses the specified PROGRAM file.

Parameter: None

Example: PROG:PAUSE

Return Parameter: OK/FALSE

PROGram:CONTINUE

Description: This command continues the specified PROGRAM file.

Parameter: None

Example: PROG:CONTINUE

Return Parameter: OK/FALSE

PROGram:STOP

Description: This command stops the specified PROGRAM file.

Parameter: None

Example: PROG:STOP

Return Parameter: OK/FALSE

PROGram:RUN:LISTSTEP?

Description: This command returns the step ID of the running LIST file in PROGRAM file.

Parameter: None

Example: PROG:RUN:LISTSTEP?

Return Parameter: Step ID of the running list file.

PROGram:RUN:LISTSTEP CYCLE?

Description: This command returns repeat times of the current step of the running LIST file in PROGRAM file.

Parameter: None

Example: PROG:RUN:LISTSTEP CYCLE?

Return Parameter: Repeat times of the current step of the running LIST file

PROGram:RUN:LIST?

Description: This command returns the LIST ID of the running LIST file in PROGRAM file.

Parameter: None

Example: PROG:RUN:LIST?

Return Parameter: LIST ID of the running LIST file.

PROGram:RUN:LISTCYCLE?

Description: This command returns repeat times of the current running LIST file in PROGRAM file.

Parameter: None

Example: PROG:RUN:LISTCYCLE?

Return Parameter: Repeat times of the current running LIST file.

10. STEP Subsystem

STEP:ID_<VALUE>

Description: This command sets STEP file ID.

Parameter: 1~5

Example: STEP:ID 5

Return Parameter: OK/False

STEP:TOTAL_<VALUE>

Description: This command sets the step count.

Parameter: 1~9999

Example: STEP:TOTAL 10

Return Parameter: OK/False

STEP:VOLTage_<VALUE>

Description: This command sets the start voltage of the STEP file.

Parameter: Voltage value, unit: 0.001V

Example: STEP:VOLT 50

Return Parameter: OK/False

STEP:DELTA:VOLTage_<VALUE>

Description: This command sets the step value of the voltage.

Parameter: Voltage value, unit: 0.001V

Example: STEP:DELTA:VOLT 0.5

Return Parameter: OK/False

STEP:CURRent_<VALUE>

Description: This command sets the start current of the STEP file.

Parameter: Current value, unit: 0.001A

Example: STEP:CURR 100

Return Parameter: OK/False

STEP:DELTA:CURRent_<VALUE>

Description: This command sets the step value of the current.

Parameter: Current value, unit: 0.001A

Example: STEP:DELTA:CURR 3

Return Parameter: OK/FALSE

STEP:POWER_<VALUE>

Description: This command sets the start power of the STEP file.

Parameter: Power value, unit: 0.1W

Example: STEP:POWER 1000

Return Parameter: OK/FALSE

STEP:DELTA:POWER_<VALUE>

Description: This command sets the step value of the power.

Parameter: Power value, unit: 0.1W

Example: STEP:DELTA:POWER 10

Return Parameter: OK/FALSE

STEP:RESistance_<VALUE>

Description: This command sets the start output programmable resistance of the STEP file.

Parameter: Resistance value, unit: 0.0001Ω

Example: STEP:RES 10

Return Parameter: OK/FALSE

STEP:DELTA:RESistance_<VALUE>

Description: This command sets the step value of the resistance.

Parameter: Resistance value, unit: 0.0001Ω

Example: STEP:DELTA:RES 0.05

Return Parameter: OK/FALSE

STEP:LASTTIME_<VALUE>

Description: This command sets the dwell time of the current step.

Parameter: Time value, unit: 0.001s

Example: STEP:LASTTIME 5

Return Parameter: OK/FALSE

STEP:ALL_<VALUE 1>,< VALUE 2>,...,< VALUE 11>

Description: This command sets all the parameters in a single STEP file.

Parameter: All the parameters for a single step, separated by commas. Refer to the table below for details.

NO.	Syntax	Examples
VALUE 1	STEP:ID	STEP:ID 1
VALUE 2	STEP:TOTAL	STEP:TOTAL 5
VALUE 3	STEP:VOLTage	STEP:VOLT 50
VALUE 4	STEP:DELTA:VOLTage	STEP:DELTA:VOLT 0.5
VALUE 5	STEP:CURRent	STEP:CURR 10
VALUE 6	STEP:DELTA:CURRent	STEP:DELTA:CURR 0.5
VALUE 7	STEP:POWER	STEP:POWER 1000
VALUE 8	STEP:DELTA:POWER	STEP:DELTA:POWER 10
VALUE 9	STEP:RESistance	STEP:RES 10
VALUE 10	STEP:DELTA:RES	STEP:DELTA:RES 0.5
VALUE 11	STEP:LASTTIME	STEP:LASTTIME 5

Example: STEP:ALL 1,5,50,0.5,10,0.5,1000,10,10,0.5,5

Return Parameter: OK/FALSE

STEP:ALL?_<VALUE>

Description: This command returns all the parameters of the specified STEP file.

Parameter: Step file ID

Return Parameter: 11 parameters , separated by commas

Query Example: STEP:ALL? 1

STEP:SAVE

Description: This command saves the specified STEP file.

Parameter: None

Example: STEP:SAVE

Return Parameter: OK/FALSE

STEP:REPEAT_<VALUE>

Description: This command sets the repeat count of the STEP file.

Parameter: 1~9999

Example: STEP:REPEAT 10

Return Parameter: OK/FALSE

STEP:LOAD

Description: This command loads the STEP file.

Parameter: None

Example: STEP:LOAD

Return Parameter: OK/FALSE

STEP:RUN

Description: This command runs the STEP file.

Parameter: None

Example: STEP:RUN

Return Parameter: OK/FALSE

STEP:PAUSE

Description: This command pauses the STEP file.

Parameter: None

Example: STEP:PAUSE

Return Parameter: OK/FALSE

STEP:CONTINUE

Description: This command continues the STEP file.

Parameter: None

Example: STEP:CONTINUE

Return Parameter: OK/FALSE

STEP:STOP

Description: This command stops the STEP file.

Parameter: None

Example: STEP:STOP

Return Parameter: OK/FALSE

STEP:RUNTIME?

Description: This command returns the running time of the STEP file.

Parameter: None

Query Example: STEP:RUNTIME?

STEP:REMAINTIME?

Description: This command returns the remaining running time.

Parameter: None

Query Example: STEP:REMAINTIME?

STEP:RUN:CYCLE?

Description: This command returns the repeat count of the STEP file.

Parameter: None

Query Example: STEP:RUN:CYCLE?

11. Master-Slave Subsystem

PARAllel:MODE_<STATE>

Description: This command sets working mode for each power unit in master-slave system.

Parameter: 0(single), 1(Master), 2(Slave)

Example: PARA:MODE 2

Return Parameter: OK/False

PARAllel:KEEP_<STATE>

Description: This command saves the master-slave configuration after power off.

Parameter: 0(Cancel) , 1(Save)

Example: PARA:KEEP 1

Return Parameter: OK/False

PARAllel:SLaver_<VALUE>

Description: This command sets SLAVE ID for the slave units.

Parameter: 1~15

Example: PARA:SL 2

Return Parameter: OK/False

PARAllel:NUMber_<VALUE>

Description: This command sets number of slave units for the master-slave system.

Parameter: 1~15

Example: PARA:NUM 5

Return Parameter: OK/False

PARAllel:OUTPUT:MODE_<STATE>

Description: This command sets connection mode for master-slave system.

Parameter: 0(Parallel mode), 1(Series mode)

Example: PARA:OUTPUT:MODE 0

Return Parameter: OK/False

PARAllel:START

Description: This command starts to configure master-slave mode.

Parameter: None

Example: PARA:START

Return Parameter: OK/FALSE

PARAllel:STOP

Description: This command exits master-slave mode.

Parameter: None

Example: PARA:STOP

Return Parameter: OK/FALSE

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SCPI通信指令描述

SCPI是一种用于可程序设计仪表的标准指令，用于定义一套通讯时的指令规则。本系列可编程直流电源支持SCPI通讯协议，采用两大类指令：基本指令(IEEE-488.2公用指令集)和全天科技的可编程直流电源的指令集。

说明：

1. 所有指令以回车键(换行符)结束，GPIB通讯已经自带回车；
2. 指令中的“<>”表示必须为括号内的参数指定一个值。尖括号不随命令字符串一起发送。
3. 指令中的“_”表示一个空格，发送指令时无需写出“_”，但需要用空格来分隔；
4. 指令中“|”给定字符串的多个参数选择，例如，在一些指令中，参数包括0|DISABLE，表示可以指定“0”或者“DISABLE”，该“|”不随命令发送；

1. IEEE488.2 公共指令

*IDN?

该指令用来读取电源的基本信息。

参数：无

返回：产品信息，公司名，机种信息以及各固件版本号。

*CLS

该指令用来清除错误队列或者状态结果。

参数：无

*ESE_<VALUE>

该指令设定标准事件启用缓存器以决定哪一个缓存器可用来设定状态元缓存器。

参数：0~255

*ESE?

该指令查询读取标准事件状态缓存器，缓存器读取后会清除。

参数：无

返回：回传标准事件状态缓存器读值。

*RST

该指令强制执行ABORT, *CLS，指令并设定参数为工厂默认值。

参数：无

***OPC**

当电源完成所有待办操作后，该指令使界面设定标准事件状态寄存器的OPC位。

参数：无

***OPC?**

该查询指令在待办操作后，返回一个ASCII“1”。

参数：无

返回：1

***RCL_<VALUE>**

该指令回复电源之前以*SAV指令用记忆的状态储存在特定位置。

参数：数字，0~10，0：工厂预设档，1~10：用户自定义文件位。

返回：无

***SAV_<VALUE>**

该指令储存单一电源和多个电源所有信道的现状至记忆单元中特定的位置。

参数：数字，1~10。

返回：无

***SRE_<VALUE>**

该指令设定服务需求启用缓存器的状况，以决定哪一个状态位缓存器可设定MSS位。

参数：数字，0~255。

返回：无

***SRE?**

该指令查询服务需求启用缓存器的状况。

参数：数字，0~255。

返回：Service Request Enable 的现行设定

***STB?**

该指令会读取状态位缓存器。

参数：无

返回：状态位的内容

2. SYSTEM 子系统

SYSTem:ERRor?

该指令用于查询分析器的错误字段。

参数:无

返回:“No error”, “Missing parameter”, “Execution error”, “Command error”,
“Undefined header”

查询范例:SYST:ERR?

SYSTem:ERRor:COUNt?

该指令用于查询分析器的错误个数。

参数:无

返回:整数

查询范例:SYST:ERR:COUN?

ASWRS?

该指令用于查询告警信息。

参数:无

返回:告警值

查询范例:ASWRS?

告警信息列表如下:

代码	名称	描述
1	OVP	输出过压保护
2	OCP	输出过流保护
4	OPP	输出过功率保护
8	MOTP	硬件过温保护
16	FAN	风扇故障
32	SCP	输出短路故障
64	CC-CV	恒流-恒压告警
128	CV-CC	恒压-恒流告警
256	DC LOCK	DC LOCK
513	PWR	电源模块故障
514	MOPP	硬件过功率保护
516	LOAD	负载模块故障
520	OTPA	输出过温保护
528	OTP	输出过温保护
544	AOVP	PDUA 相过压告警
576	BOVP	PDUB 相过压告警
640	COVP	PDUC 相过压告警
768	AUVP	PDUA 相欠压告警

代码	名称	描述
1025	BUVP	PDUB 相欠压告警
1026	CUVP	PDUC 相欠压告警
1028	AOCP	PDUA 相过流告警
1032	BOCP	PDUB 相过流告警
1040	COPC	PDUC 相过流告警
1056	OFP	PDU 过频告警
1088	UFP	PDU 欠频告警
1152	MOVP	模块过压告警
1280	MOPP	模块过功率告警

ASWRC

该指令用于清除告警值。

参数:无

返回:OK/False

SYSTem:REC:DEF

该指令用于恢复出厂设置。

参数:无

返回:OK/False

设置范例:SYST:REC:DEF

SBEEP_<STATE>

设定电源蜂鸣器状态。

参数:OFF|0,ON|1

返回:OK/False

设置范例:SBEEP OFF

查询范例:SBEEP?

SYSTem:SHORTMODE_<STATE>

该指令用于设定短路模式的开关状态。

参数:OFF|0, ON|1

返回:OK/False

设置范例:SYST:SHORTMODE ON

查询范例:SYST:SHORTMODE?

SYSTem:SHORTMode:VOLTage_<VALUE>

该指令用于设定短路模式电压。

参数:电压值, 单位0.001V

返回:OK/False

设置范例:SYST:SHORTMode:VOLT 0.7

查询范例:SYST:SHORTMode:VOLT?

SYSTem:LVMODE_<STATE>

该指令用于设定超低压模式状态。

参数:OFF|0, ON|1

返回:OK/False

设置范例:SYST:LVMODE ON

查询范例:SYST:LVMODE?

SYSTem:CURRentSHARE_<STATE>

该指令用于设定均流模式状态。

参数:OFF|0, ON|1

返回:OK/False

设置范例:SYST:CURRSHARE ON

查询范例:SYST:CURRSHARE?

COUNT:MODE_<STATE>

该指令用于设定计数模式状态。

参数:0(OFF), 1(VOLTAGE), 2(CURRENT)

返回:OK/False

设置范例:COUNT:MODE 2

查询范例:COUNT:MODE?

COUNT:CURRentB_<VALUE>

设定计数模式电流参数Ib。

参数:电流值, 单位0.001A

返回:OK/False

设置范例:COUNT:CURRB 50

查询范例:COUNT:CURRB?

COUNT:CURR_L<VALUE>

设定电流计数模式电流参数IL。

参数：电流值，单位0.001A

返回：OK/FALSE

设置范例：COUNT:CURRL 0.5

查询范例：COUNT:CURRL?

COUNT:TIME?

查询计数模式运行时间。

参数：无

返回：计数模式运行时间

查询范例：COUNT:TIME?

CVCC:PRIORITY<STATE>

该指令设定CV/CC优先级。

参数：CC|1, CV|0

返回：OK/FALSE

设置范例：CVCC:PRIORITY CC

查询范例：CVCC:PRIORITY?

CVCC:PRIORITY:DELAY<VALUE>

该指令设定CV/CC优先延迟时间。

参数：时间，单位0.001s

返回：OK/FALSE

设置范例：CVCC:PRIORITY:DELAY 10

查询范例：CVCC:PRIORITY:DELAY?

AMARG_<STATE>

设定测量采样速率。

参数：SLOW|0, MIDDLE|1, FAST|2

返回：OK/FALSE

设置范例：AMARG FAST

查询范例：AMARG?

HI:MODE_<STATE>

该指令用于设定电源假负载的开关状态。

参数:OFF|0, ON|1

返回:OK/FALSE

设置范例:HI:MODE ON

查询范例:HI:MODE?

SYSTem:POSTATUS_<STATE>

该指令用于设置电源开机后的输出状态。

参数:0(OFF), 1(ON)

返回:OK/FALSE

设置范例:SYST:POSTATUS 1

查询范例:SYST:POSTATUS?

SYSTem:POUT_<STATE>

该指令用于设置电源开机时的参数设置状态。

参数:0(默认), 1(自定义), 2(上次关机状态)

返回:OK/FALSE

设置范例:SYST:POUT 1

查询范例:SYST:POUT?

SYSTem:USER:VOLTage_<VALUE>

该指令用于自定义状态下的电压参数设置。

参数:电压值, 单位0.001V

返回:OK/FALSE

设置范例:SYST:USER:VOLT 15.25

查询范例:SYST:USER:VOLT?

SYSTem:USER:CURRent_<VALUE>

该指令用于自定义状态下的电流参数设置。

参数:电流值, 单位0.001A

返回:OK/FALSE

设置范例:SYST:USER:CURR 22.22

查询范例:SYST:USER:CURR?

SYSTem:USER:POWER_<VALUE>

该指令用于自定义状态下的功率参数设置。

参数：功率值，单位0.1W

返回：OK/ FALSE

设置范例：SYST:USER:POWER 100.6

查询范例：SYST:USER:POWER?

SYSTem:USER:RESistance_<VALUE>

该指令用于自定义状态下的电阻值设置。

参数：电阻值，单位0.0001Ω

返回：OK/ FALSE

设置范例：SYST:USER:RES 1.02

查询范例：SYST:USER:RES?

3. OUTPUT子系统

OUTPUT:OUT_<STATE>

设定电源开关机状态。

参数：OFF|0， ON|1

返回：OK/ FALSE

设置范例：OUTPUT:OUT ON

查询范例：OUTPUT:OUT?

OUTPUT:VSET_<VALUE>

设定输出电压值。

参数：0~1.05*额定电压， 单位0.001V

返回：OK/ FALSE

设置范例：OUTPUT:VSET 15.25

查询范例：OUTPUT:VSET?

OUTPUT:ISET_<VALUE>

设定输出电流值。

参数：0~1.05*额定电流， 单位0.001A

返回：OK/ FALSE

设置范例：OUTPUT:ISET 22.22

查询范例：OUTPUT:ISET?

OUTPUT:PSET_<VALUE>

设定输出功率值。

参数:0~1.05*额定功率, 单位0.1W

返回:OK/False

设置范例:OUTPUT:PSET 100.6

查询范例:OUTPUT:PSET?

OUTPUT:RSET_<VALUE>

设定输出电阻值。

参数:0~1.05*额定电阻, 单位0.0001Ω

返回:OK/False

设置范例:OUTPUT:RSET 1.02

查询范例:OUTPUT:RSET?

OUTPUT:VOLTage:RISE_<VALUE>

设定电压上升斜率。

参数:斜率, 单位0.001V/s

返回:OK/False

设置范例:OUTPUT:VOLT:RISE 0.05

查询范例:OUTPUT:VOLT:RISE?

OUTPUT:VOLTage:FALL_<VALUE>

设定电压下降斜率。

参数:斜率, 单位0.001V/ms

返回:OK/False

设置范例:OUTPUT:VOLT:FALL 0.05

查询范例:OUTPUT:VOLT:FALL?

OUTPUT:CURREnt:RISE_<VALUE>

设定电流上升斜率。

参数:斜率, 单位0.001A/ms

返回:OK/False

设置范例:OUTPUT:CURR:RISE 0.05

查询范例:OUTPUT:CURR:RISE?

OUTPUT:CURREnt:FALL_<VALUE>

设定电流下降斜率。

参数:斜率, 单位0.001A/ms

返回:OK/False

设置范例:OUTPUT:CURR:FALL 0.05

查询范例:OUTPUT:CURR:FALL?

4. PROTECTION 子系统**PROtection:OVP_<STATE>**

该指令设定OVP保护状态。

参数:ENABLE|1, DISABLE|0

返回:OK/False

设置范例:PROT:OVP ENABLE

查询范例:PROT:OVP?

PROtection:OVP:VOLTage_<VALUE>

该指令用于设定OVP的保护值。

参数:0~1.1*额定电压, 单位0.001V

返回:OK/False

设置范例:PROT:OVP:VOLT 15.25

查询范例:PROT:OVP:VOLT?

PROtection:OVP:DELay_<VALUE>

该指令设定OVP延迟保护时间。

参数:0.001~10, 单位0.001s

返回:OK/False

设置范例:PROT:OVP:DEL 5

查询范例:PROT:OVP:DEL?

PROtection:UVP_<STATE>

该指令设定UVP保护状态。

参数:ENABLE|1, DISABLE|0

返回:OK/False

设置范例:PROT:UVP ENABLE

查询范例:PROT:UVP?

PROTection:UVP:VOLTage_<VALUE>

该指令用于设定UVP的保护值。

参数:0~1.1*额定电压, 单位0.001V

返回:OK/False

设置范例:PROT:UVP:VOLT 15.25

查询范例:PROT:UVP:VOLT?

PROTection:UVP:DELay_<VALUE>

该指令设定UVP延迟保护时间。

参数:0.001~10, 单位0.001s

返回:OK/False

设置范例:PROT:UVP:DEL 5

查询范例:PROT:UVP:DEL?

PROTection:OCP_<STATE>

该指令设定OCP保护状态。

参数:ENABLE|1, DISABLE|0

返回:OK/False

设置范例:PROT:OCP ENABLE

查询范例:PROT:OCP?

PROTection:OCP:CURRent_<VALUE>

该指令用于设定OCP的保护值。

参数:0~1.1*额定电流, 单位0.001A

返回:OK/False

设置范例:PROT:OCP:CURR 22.22

查询范例:PROT:OCP:CURR?

PROTection:OCP:DELay_<VALUE>

该指令设定OCP延迟保护时间。

参数:0.001~10, 单位0.001s

返回:OK/False

设置范例:PROT:OCP:DEL 5

查询范例:PROT:OCP:DEL?

PROtection:OPP_<STATE>

该指令设定OPP保护状态。

参数:ENABLE|1, DISABLE|0

返回:OK/FALSE

设置范例:PROT:OPP ENABLE

查询范例:PROT:OPP?

PROtection:OPP:POWER_<VALUE>

该指令用于设定OPP的保护值。

参数:0~1.1*额定功率, 单位0.1W

返回:OK/FALSE

设置范例:PROT:OPP:POWER 100.6

查询范例:PROT:OPP:POWER?

PROtection:OPP:DELay_<VALUE>

该指令设定OPP延迟保护时间。

参数:0.001~10, 单位0.001s

返回:OK/FALSE

设置范例:PROT:OPP:DEL 5

查询范例:PROT:OPP:DEL?

PROtection:CVCC_<STATE>

该指令设定CVCC保护状态。

参数:ENABLE|1, DISABLE|0

返回:OK/FALSE

设置范例:PROT:CVCC ENABLE

查询范例:PROT:CVCC?

PROtection:CVCC:MODE_<STATE>

该指令设定CVCC的保护模式。

参数:1(CV to CC), 0(CC to CV)

返回:OK/FALSE

设置范例:PROT:CVCC:MODE 1

查询范例:PROT:CVCC:MODE?

PROTection:CVCC:DELay_<VALUE>

该指令设定CVCC的保护延迟时间。

参数:0.001~10, 单位0.001s

返回:OK/FALSE

设置范例:PROT:CVCC:DEL 5

查询范例:PROT:CVCC:DEL?

5.LIMITATION 子系统

LIMITation:VMAX_<VALUE>

该指令设置电压上限值。

参数:0~1.05*额定电压, 单位0.001V

返回:OK/FALSE

设置范例:LIMIT:VMAX 15.25

查询范例:LIMIT:VMAX?

LIMITation:VMIN_<VALUE>

该指令设置电压下限值。

参数:0~1.05*额定电压, 单位0.001V

返回:OK/FALSE

设置范例:LIMIT:VMIN 15.25

查询范例:LIMIT:VMIN?

LIMITation:IMAX_<VALUE>

该指令设置电流上限值。

参数:0~1.05*额定电流, 单位0.001A

返回:OK/FALSE

设置范例:LIMIT:IMAX 22.22

查询范例:LIMIT:IMAX?

LIMITation:IMIN_<VALUE>

该指令设置电流下限值。

参数:0~1.05*额定电流, 单位0.001A

返回:OK/FALSE

设置范例:LIMIT:IMIN 22.22

查询范例:LIMIT:IMIN?

LIMITation:PMAX_<VALUE>

该指令设置功率上限值。

参数:0~1.05*额定功率, 单位0.1W

返回:OK/FALSE

设置范例:LIMIT:PMAX 100.6

查询范例:LIMIT:PMAX?

LIMITation:PMIN_<VALUE>

该指令设置功率下限值。

参数:0~1.05*额定功率, 单位0.1W

返回:OK/FALSE

设置范例:LIMIT:PMIN 100.6

查询范例:LIMIT:PMIN?

LIMITation:RMAX_<VALUE>

该指令设置可编程输出阻抗上限值。

参数:0~1.05*额定电阻, 单位0.0001Ω

返回:OK/FALSE

设置范例:LIMIT:RMAX 1.02

查询范例:LIMIT:RMAX?

LIMITation:RMIN_<value>

该指令设置可编程输出阻抗下限值。

参数:0~1.05*额定电阻, 单位Ω

返回:OK/FALSE

设置范例:LIMIT:RMIN 1.02

查询范例:LIMIT:RMIN?

6. MEASURE子系统

MEASure:VOLTage?

该指令用来查询电压测量值。

参数:无

返回:电压值, 单位0.001V

查询范例:MEAS:VOLT?

MEASure:CURREnt?

该指令用来查询电流的测量值。

参数:无

返回:电流, 单位0.001A

查询范例:MEAS:CURR?

MEASure:POWER?

该指令用来查询功率的测量值。

参数:无

返回:功率, 单位0.1W

查询范例:MEAS:POWER?

MEASure:RESistance?

该指令用来查询可编程阻抗的测量值。

参数:无

返回:电阻值, 单位0.0001Ω

查询范例:MEAS:RES?

MEASure:ALL?

该指令用于单机返回主界面的回读值。

参数:无

返回:依次返回电压值、电流值、功率值、电阻值、开关机状态、告警值

查询范例:MEAS:ALL?

7. 外部控制子系统

EXTERN:VOLTage?

查询外部控制电压给定值，此数值范围与外部参考电压有关。

参数:无

返回:电压值, 单位0.001V

查询范例:EXTERN:VOLT?

EXTERN:CURRent?

查询外部控制电流给定值，此数值范围与外部参考电压有关。

参数:无

返回:电流值, 单位0.001A

查询范例:EXTERN:CURR?

EXTERN:POWER?

查询外部控制功率给定值，此数值范围与外部参考电压有关。

参数:无

返回:功率值, 单位0.1W

查询范例:EXTERN:POWER?

EXTERN:RESistance?

查询外部控制电阻给定值，此数值范围与外部参考电压有关。

参数:无

返回:电阻值, 单位0.0001Ω

查询范例:EXTERN:RES?

EXTERN:MEASure:VOLTage?

查询外部控制回读电压值，此数值范围与外部参考电压有关。

参数:无

返回:电压值, 单位0.001V

查询范例:EXTERN:MEAS:VOLT?

EXTERN:MEASure:CURRent?

查询外部控制回读电流值，此数值范围与外部参考电压有关。

参数:无

返回:电压值, 单位0.001A

查询范例:EXTERN:MEAS:CURR?

EXTERN:CONTROL_<STATE>

配置外部控制模式。

参数:ENABLE|1, DISABLE|0

返回:OK/FALSE

设置范例:EXTERN:CONTROL ENABLE

EXTERN:VREF_<STATE>

设置外部控制参考电压。

参数:0(5V),1(10V)

返回:OK/FALSE

设置范例:EXTERN:VREF 0

EXTERN:ENABLE_<STATE>

设置外部控制启用功能的电平状态。

参数:0(L有效), 1(H有效)

返回:OK/FALSE

设置范例:EXTERN:ENABLE 0

查询范例:EXTERN:ENABLE?

EXTERN:ON_<STATE>

设置开启输出功能的电平状态。

参数:0(L有效), 1(H有效)

返回:OK/FALSE

设置范例:EXTERN:ON 0

查询范例:EXTERN:ON?

EXTERN:POWER_<STATE>

设置开启电源模式的电平状态。

参数:0(L有效), 1(H有效)

返回:OK/FALSE

设置范例:EXTERN:POWER 0

查询范例:EXTERN:POWER?

EXTERN:INHIBIT_<STATE>

设置禁止输出模式的电平状态。

参数:0(L有效), 1(H有效)

返回:OK/FALSE

设置范例:EXTERN:INHIBIT 0

查询范例:EXTERN:INHIBIT?

EXTERN:NA_<STATE>

设置模拟输入量启用的电平状态。

参数:0(L有效), 1(H有效)

返回:OK/FALSE

设置范例:EXTERN:NA 0

查询范例:EXTERN:NA?

EXTERN:LOADMODE?

查询外部输入量控制耗散器工作模式。

参数:无

返回:0(CC), 1(CV), 2(CP), 3(CR)

查询范例:EXTERN:LOADMODE?

EXTERN:OVP_<STATE>

设置OVP信号电平状态。

参数:0(L有效), 1(H有效)

返回:OK/FALSE

设置范例:EXTERN:OVP 0

查询范例:EXTERN:OVP?

EXTERN:OTP_<STATE>

设置OTP信号电平状态。

参数:0(L有效), 1(H有效)

返回:OK/FALSE

设置范例:EXTERN:OTP 0

查询范例:EXTERN:OTP?

EXTERN:OCP_<STATE>

设置OCP信号电平状态。

参数:0(L有效), 1(H有效)

返回:OK/FALSE

设置范例:EXTERN:OCP 0

查询范例:EXTERN:OCP?

EXTERN:OPMODE_<STATE>

设置电源输出模式电平状态。

参数:0(L有效), 1(H有效)

返回:OK/FALSE

设置范例:EXTERN:OPMODE 0

查询范例:EXTERN:OPMODE?

8. LIST 子系统

LIST:ID_<VALUE>

设置当前LIST文件名。

参数:1~300

返回:OK/FALSE

设置范例:LIST:ID 5

LIST:TOTAL_<VALUE>

设置当前LIST文件的总步数。

参数:1~8

返回:OK/FALSE

设置范例:LIST:TOTAL 8

LIST:MODE_<STATE>

设置当前LIST文件格式。

参数:0(Rectangle), 1(S_Ramp), 2(F_Ramp)

返回:OK/FALSE

设置范例:LIST:MODE 1

LIST:STEP:NUMBER_<VALUE>

设置当前要编辑的步骤序号。

参数:1~8

返回:OK/FALSE

设置范例:LIST:STEP:NUM 5

LIST:REPEAT_<VALUE>

设定当前LIST文件的重复运行次数。

参数:0~9999

返回:OK/FALSE

设置范例:LIST:REPEAT 5

LIST:VOLTage_<VALUE>

设定单步电压值。

参数:电压值, 单位0.001V

返回:OK/FALSE

设置范例:LIST:VOLT 5

LIST:VOLTage:SLOPE_<VALUE>

设置单步电压斜率。

参数:斜率时间, 单位0.001s

返回:OK/FALSE

设置范例:LIST:VOLT:SLOPE 5

LIST:CURRent_<VALUE>

设置单步电流值。

参数:电流值, 单位0.001A

返回:OK/FALSE

设置范例:LIST:CURR 10

LIST:CURRent:SLOPE_<VALUE>

设置单步电流斜率。

参数:斜率时间, 单位0.001s

返回:OK/FALSE

设置范例:LIST:CURR:SLOPE 5

LIST:POWER_<VALUE>

设置单步功率值。

参数:功率值, 单位0.1W

返回:OK/FALSE

设置范例:LIST:POWER 1000

LIST:RESistance_<VALUE>

设置单步电阻值。

参数:电阻值, 单位0.1Ω

返回:OK/FALSE

设置范例:LIST:RES 0.15

LIST:WIDTH_<VALUE>

设置单步持续时间。

参数:时间, 单位0.001s

返回:OK/FALSE

设置范例:LIST:WIDTH 10

LIST:STEP:CYCLE_<VALUE>

设置单步循环次数。

参数:1~9999

返回:OK/FALSE

设置范例:LIST:STEP:CYCLE 5

LIST:STEP:MODE_<STATE>

设置单步运行模式。

参数:0(CONT), 1(STEP)

返回:OK/FALSE

设置范例:LIST:STEP:MODE 0

LIST:ALL_<VALUE 1>,< VALUE 2>,...,< VALUE 11>

该指令用于设定LIST文件的全部参数。

参数:设置List每步的所有参数, 每个参数用逗号隔开。具体参数排列顺序见下表:

VALUE 1	LIST:ID	指定要设置的List的编号
VALUE 2	LIST:STEP:NUMber	指定List当前配置的步数
VALUE 3	LIST:VOLTage	指定List单步电压
VALUE 4	LIST:VOLTage:SLOPE	指定List单步电压斜率
VALUE 5	LIST:CURRent	指定List单步电流
VALUE 6	LIST:CURRent:SLOPE	指定List单步电流斜率
VALUE 7	LIST:POWER	指定List单步功率
VALUE 8	LIST:RESistance	指定List单步电阻
VALUE 9	LIST:WIDTH	指定List单步持续时间
VALUE 10	LIST:STEP:CYCLE	指定List单步周期
VALUE 11	LIST:STEP:MODE	指定List单步运行模式

返回:OK/FALSE

设置范例:LIST:ALL 5,5,5,5,10,5,1000,0.15,10,5,0

LIST:ALL?_<VALUE 1>,<VALUE 2>

查询LIST文件的配置参数。

参数:VALUE1, LIST文件序号, VALUE2, 步骤编号

返回:11个参数

查询范例:LIST:ALL? 1,5

返回范例:1,5,10.1,0.1,2.3,0.2,5,2,6,1,0

LIST:SAVE

保存LIST文件参数。

参数:无

返回:OK/FALSE

LIST:LOAD

加载LIST文件。

参数:无

返回:OK/FALSE

LIST:RUN

运行LIST文件。

参数:无

返回:OK/FALSE

LIST:PAUSE

暂停LIST文件。

参数:无

返回:OK/FALSE

LIST:CONTINUE

继续运行LIST文件。

参数:无

返回:OK/FALSE

LIST:STOP

停止运行LIST文件。

参数:无

返回:OK/FALSE

LIST:RUNTIME?

查询LIST文件运行时间。

参数:无

返回:时间

LIST:REMAINTIME?

查询LIST文件剩余运行时间。

参数:无

返回:LIST剩余时间参数

9. PROGRAM 子系统

PROGram:TOTAL_<VALUE>

设定当前PROGRAM文件的总步数。

参数:1~18

返回:OK/False

设置范例:PROG:TOTAL 10

PROGram:STEP_<VALUE>

设定当前要配置的PROGRAM文件步骤编号。

参数:1~18

返回:OK/False

设置范例:PROG:STEP 5

PROGram:STEP:LIST_<VALUE>

设定当前步骤的LIST文件序号。

参数:1~300

返回:OK/False

设置范例:PROG:STEP:LIST 2

PROGram:STEP:CYCLE_<VALUE>

设定当前步骤的运行周期。

参数:0~9999

返回:OK/False

设置范例:PROG:STEP:CYCLE 3

PROGram:STEP:MODE_<STATE>

设定当前步骤的运行模式。

参数:0(CONT), 1(STEP)

返回:OK/FALSE

设置范例:PROG:STEP:MODE 0

PROGram:SAVE

保存PROGRAM文件设置参数。

参数:无

返回:OK/FALSE

设置范例:PROG:SAVE

PROGram:REPEAT_<VALUE>

设定PROGRAM文件的运行周期。

参数:0~9999

返回:OK/FALSE

设置范例:PROG:REPEAT 5

PROG:ALL_<VALUE 1>,< VALUE2 >,...,< VALUE 4>

该指令用于设定PROGRAM文件的每步参数。

参数:设置PROGRAM每步的多个参数, 每个参数用逗号隔开。具体参数排列顺序见下表:

VALUE 1	PROGram:STEP	指定要设置的PROGRAM的步数
VALUE 2	PROGram:STEP:LIST	指定PROGRAM当前步数运行LIST的序号
VALUE 3	PROGram:STEP:CYCLE	指定PROGRAM当前步数LIST运行周期数
VALUE 4	PROGram:STEP:MODE	指定PROGRAM当前步数LIST运行模式

返回:OK/FALSE

设置范例:PROG:ALL 5,2,3,0

PROGRAM:ALL?_<VALUE>

查询PROGRAM文件的配置参数。

参数:步数序号

返回:当前步骤的编号, 当前运行的LIST文件编号, 当前LIST文件的运行周期, 当前
LIST文件的运行模式

查询范例:PROGRAM:ALL? 1

PROGram:LOAD

该指令用于加载PROGRAM文件。

参数:无

返回:OK/FALSE

设置范例:PROG:LOAD

PROGram:RUN

该指令用于运行PROGRAM文件。

参数:无

返回:OK/FALSE

设置范例:PROG:RUN

PROGram:PAUSE

暂停PROGRAM文件。

参数:无

返回:OK/FALSE

设置范例:PROG:PAUSE

PROGram:CONTINUE

继续运行PROGRAM文件。

参数:无

返回:OK/FALSE

设置范例:PROG:CONTINUE

PROGram:STOP

停止运行PROGRAM文件。

参数:无

返回:OK/FALSE

设置范例:PROG:STOP

PROGram:RUN:LISTSTEP?

该指令请求PROGRAM文件中正在运行的LIST文件的步骤编号。

参数:无

返回:步骤编号

查询范例:PROG:RUN:LISTSTEP?

PROGram:RUN:LISTSTEP CYCLE?

该指令请求PROGRAM文件中LIST文件当前步骤的周期数。

参数:无

返回:周期参数

查询范例:PROG:RUN:LISTSTEP CYCLE?

PROGram:RUN:LIST?

该指令请求PROGRAM文件中当前正在运行的LIST文件的编号。

参数:无

返回:LIST文件编号

查询范例:PROG:RUN:LIST?

PROGram:RUN:LISTCYCLE?

该指令请求PROGRAM文件中正在运行的LIST文件的周期数。

参数:无

返回:LIST文件的周期数

查询范例:PROG:RUN:LISTCYCLE?

10 STEP 子系统

STEP:ID_<VALUE>

设定当前STEP文件编号。

参数:1~5

返回:OK/ FALSE

设置范例:STEP:ID 5

STEP:TOTAL_<VALUE>

设定当前STEP文件的步进次数。

参数:1~9999

返回:OK/ FALSE

设置范例:STEP:TOTAL 10

STEP:VOLTage_<VALUE>

设定当前STEP文件的电压值。

参数:电压值, 单位0.001V

返回:OK/ FALSE

设置范例:STEP:VOLT 50

STEP:DELTA:VOLTage_<VALUE>

设定当前STEP文件的电压步进值。

参数:电压步进值, 单位0.001V

返回:OK/False

设置范例:STEP:DELTA:VOLT 0.5

STEP:CURRent_<VALUE>

设定当前STEP文件的电流值。

参数:电流值, 单位0.001A

返回:OK/False

设置范例:STEP:CURR 100

STEP:DELTA:CURRent_<VALUE>

设定当前STEP文件的电流步进值。

参数:电流步进值, 单位0.001A

返回:OK/False

设置范例:STEP:DELTA:CURR 3

STEP:POWER_<VALUE>

设定当前STEP文件的功率值。

参数:功率值, 单位0.1W

返回:OK/False

设置范例:STEP:POWER 1000

STEP:DELTA:POWER_<VALUE>

设定当前STEP文件的功率步进值。

参数:功率步进值, 单位0.1W

返回:OK/False

设置范例:STEP:DELTA:POWER 10

STEP:RESistance_<VALUE>

设定当前STEP文件的电阻值。

参数:电阻值, 单位0.0001Ω

返回:OK/False

设置范例:STEP:RES 10

STEP:DELTA:RESistance_<VALUE>

设定当前STEP文件的电阻步进值。

参数：电阻步进值，单位0.0001Ω

返回：OK/ FALSE

设置范例：STEP:DELTA:RES 0.05

STEP:LASTTIME_<VALUE>

设定当前STEP文件的单步持续时间。

参数：时间，单位0.001s

返回：OK/ FALSE

设置范例：STEP:LASTTIME 5

STEP:ALL_<VALUE 1>,< VALUE 2>,...,< VALUE 11>

该指令用于设置STEP文件的全部参数。

参数：设置STEP每步的多个参数，每个参数用逗号隔开。具体参数排列顺序见下表：

VALUE 1	STEP:ID	指定要设置的STEP的编号
VALUE 2	STEP:TOTAL	指定STEP总步进次数
VALUE 3	STEP:VOLTage	指定STEP电压值
VALUE 4	STEP:DELTA:VOLTage	指定STEP步进电压值
VALUE 5	STEP:CURRent	指定STEP电流值
VALUE 6	STEP:DELTA:CURRent	指定STEP电流步进值
VALUE 7	STEP:POWER	指定STEP功率值
VALUE 8	STEP:DELTA:POWER	指定STEP功率步进值
VALUE 9	STEP:RESistance	指定STEP电阻值
VALUE 10	STEP:DELTA:RES	指定STEP电阻步进值
VALUE 11	STEP:LASTTIME	指定STEP持续时间

返回：OK/ FALSE

设置范例：STEP:ALL 5,10,50,0.5,100,3,1000,10,10,0.05,5

STEP:ALL?_<VALUE>

查询指定STEP文件的全部参数，以逗号隔开。

参数：STEP文件编号

返回：11个参数，以逗号隔开

查询范例：STEP:ALL? 1

STEP:SAVE

保存STEP文件参数。

参数:无

返回:OK/FALSE

STEP:REPEAT_<VALUE>

设定STEP文件的重复运行次数。

参数:周期数1~9999

返回:OK/FALSE

设置范例:STEP:REPEAT 10

STEP:LOAD

加载STEP文件。

参数:无

返回:OK/FALSE

STEP:RUN

运行STEP文件。

参数:无

返回:OK/FALSE

STEP:PAUSE

暂停运行STEP文件。

参数:无

返回:OK/FALSE

STEP:CONTINUE

继续运行STEP文件。

参数:无

返回:OK/FALSE

STEP:STOP

停止运行STEP文件。

参数:无

返回:OK/FALSE

STEP:RUNTIME?

返回STEP文件运行时间。

参数:无

返回:STEP文件的运行时间

STEP:REMAINTIME?

返回STEP文件的剩余运行时间。

参数:无

返回:剩余时间

STEP:RUN:CYCLE?

查询当前STEP文件运行周期。

参数:无

返回:运行周期

11. 主从模式指令

PARAllel:MODE_<STATE>

配置主从系统中电源单机模式。

参数:0(单机), 1(主机), 2(从机)

返回:OK/False

设置范例:PARA:MODE 2

PARAllel:KEEP_<STATE>

配置主从设置断电是否保存。

参数:0(不保存), 1(保存)

返回:OK/False

设置范例:PARA:KEEP 1

PARAllel:SLaver_<VALUE>

配置当前从机序号。

参数:1~15

返回:OK/False

设置范例:PARA:SL 2

PARAllel:NUMber_<VALUE>

配置主从系统从机数量。

参数:1~15

返回:OK/False

设置范例:PARA:NUM 5

PARALLEL:OUTPUT:MODE_<STATE>

配置并机输出模式。

参数:0(并联模式), 1(串联模式)

返回:OK/FALSE

设置范例:PARA:OUTPUT:MODE 0

PARALLEL:START

开始并机模式。

参数:无

返回:OK/FALSE

设置范例:PARA:START

PARALLEL:STOP

退出主从模式。

参数:无

返回:OK/FALSE

设置范例:PARA:STOP



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