Programming Manual

**UAP500A&1000A AC Power Source
(SCPI&MODBUS)-V1.0**

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Explanation: Communication protocol can be selected from the "Protocol" item in the "Setup" menu, use up/down key to change the setting. "0" indicates the communication function is disabled. "1" refers to SCPI protocol. "2" refers to MODBUS protocol.

Protocol 1-SCPI

Instruction	Description
?MAXPOW	Power of the instrument
?MAXVOL	Maximum voltage of the instrument
?MAXCUR	Maximum current of the instrument
?MAXFRE	Maximum frequency of the instrument
?MINFRE	Minimum frequency of the instrument
*IDN?	Read the instrument model
PON	Start
POFF	Stop
SVOL n	Set the voltage
SFRE n	Set the frequency
SCUR n	Set the current
?SVOL	Read the currently setting voltage
?SFRE	Read the currently setting frequency
?SCUR	Read the currently setting current
?MVOL	Read the currently measured voltage
?MFRE	Read the currently measured frequency
?MCUR	Read the currently measured current
?MPF	Read the currently measured PF value
?MPOW	Read the currently measured power
*SSHIFTL	Switch to low scale
*SSHIFTH	Switch to high scale

Protocol 2-MODBUS

1. The format of PC send data to power source

Device ID (1byte) +Command Code (1byte) +Operation Code (1byte) +Data (4bytes) +Check Code (1byte)

Device ID	1-28		ID of each variable frequency power supply
Command Code	ASCII	HEX	
	'R'	0x52	Read data
	'W'	0x57	Write data
	'X'	0x58	Software reset
Operation Code	The details will explain at below.		Operand
Data	Low byte in the front, high byte in the behind. The details will explain at below.		Write command: Data written to the slave computer
			Read command: Data return to the upper computer
			Reset command: Ignored

2. The data format of power source respond to the upper computer

Device ID (1byte) +Command Code (1byte) +Operation Code (1byte) +Data (4bytes) +Check Code (1byte)

Device ID	1-28		ID of each variable frequency power supply
Command Code	ASCII	HEX	
	'R'	0x52	Read respond
	'W'	0x57	Write respond
Operation Code	The details will explain at below.		Operand
Data	Low byte in the front, high byte in the behind. The details will explain at below.		Return 4 bytes Data
Check Code			The sum of the first 7 bytes of data

Notes: If the power supply receives reset software command, it will not return respond command.

3. Operating Instruction

Operation Code	Function Description	Data Description		The meaning of read data	The meaning of written data
0x30	Output Status	0 byte	Whether current is overload.	1: Current overload 0: Normal	0: Clear symbol of current overload
		1 byte	Power failure alarm	1: Power failure 0:Nnormal	1: Reset to clear alarm symbol
		2 bytes	The current status is in high or low.	1: High 0: Low	Ignored
		3 bytes	Whether output or not.	1: Output 0: Not output	Ignored
0x31	Target Frequency	4 bytes of frequency value, the unit is 0.1Hz, the range is 450-1200.		The current frequency value	The updated frequency value
0x32	Target voltage of high scale	4 bytes of voltage value, the unit is 0.1V, the range is 0-3000.		The current voltage value	The updated voltage value, if it is low scale, it will turn to high scale.
0x33	Target voltage of automatic scale	4 bytes of voltage value, the unit is 0.1V, the range is 0-3000.		The current voltage value	The updated voltage value can switch to high or low scale according to the setting. The switching standard is if the voltage is less than 15000, switch to high scale, otherwise, it is low scale.
0x34	Maximum of output current	4 bytes of current value, the unit is 0.001A, not higher than 30000.		Current threshold	Current threshold
0x35	Control output	4 bytes of output status value (It is valid for read operation.)	1: output 0: not output	Enable output
0x36	Control output	4 bytes of output status value (It is valid for read operation.)	1: output 0: not output	Output disable
0x4A	Serial number	Serial number of 4 bytes		Serial number	It cannot be written.
0x60	Irms	4 bytes of current RMS, the unit is 0.001A.		Current RMS	It cannot be written.

0x61	Vrms	4 bytes of voltage RMS, the unit is 0.1V.	Voltage RMS	It cannot be written.
0x62	Ipeak	4 bytes of current peak, the unit is 0.001A.	Current peak	It cannot be written.
0x63	Vpeak	4 bytes of voltage peak, the unit is 0.1V.	Voltage peak	It cannot be written.
0x64	Pva	4 bytes of apparent power value, the unit is 0.1VA.	Apparent power value	It cannot be written.
0x65	Pw	4 bytes of active power value, the unit is 0.1W.	Active power value	It cannot be written.
0x66	Pf	4 bytes of power factor value, the unit is 0.001.	Power factor value	It cannot be written.
0x67	Freq	4 bytes of frequency value, the unit is 0.1 Hz.	Measured frequency value	It cannot be written.

4. Example

(If ID is 0x01, the following examples are all expressed in hexadecimal notation)

(1) Set voltage of automatic scale to 120V: 01 57 33 B0 04 00 00 3F
Successfully respond: 01 57 33 B0 04 00 00 3F
(2) Set voltage of automatic scale to 240V: 01 57 33 60 09 00 00 F4
Successfully respond: 01 57 33 60 09 00 00 F4
(3) Set voltage of high scale to 120V: 01 57 32 B0 04 00 00 3E
Successfully respond: 01 57 32 B0 04 00 00 3E
(4) Set voltage of high scale to 240V: 01 57 32 60 09 00 00 F3
Successfully respond: 01 57 32 60 09 00 00 F3
(5) Set frequency to 60Hz: 01 57 31 58 02 00 00 E3
Successfully respond: 01 57 31 58 02 00 00 E3
(6) Output ON: 01 57 35 00 00 00 00 8D
Successfully respond: 01 57 35 01 00 00 00 8E
(7) Output OFF: 01 57 36 00 00 00 00 8E
Successfully respond: 01 57 36 00 00 00 00 8D
(8) Clear Faults (CLEAR): 01 57 30 00 01 00 00 89
Successfully respond: 01 57 30 00 00 00 00 88

5. Send

(1) Send data (voltage) and (frequency) at first, and then send power (ON), sending data during the output, the power supply responds immediately.
(2) Send (OFF), the power will stop output.
(3) If output short circuit or power failure, send (CLEAR) to clear the fault and stop output.