Ultrasonic Generator User Manual

Contents

1 Ultrasonic Generator

1.1 Display functions

1) Left nixie tube: frequency display;
2) Middle nixie tube: current/internal temperature display;
3) Right nixie tube: time display;
4) Progress bar: current proportion;

1.2 Key functions

1) P +/P-: power plus or minus;
2) T +/T-: regular addition and subtraction (maximum value: 9999S);
3) RP: degassing function;
4) SW: sweep function;
5) ON/OFF: switch on/off;
6) SW & P-: Engineering Mode;
7) T + & T-: frequency setting

1.3 Max current setting

Turn on the power and press P+ key for more than 5 seconds in the OFF state, The value displayed by the middle digital tube is the maximum working current value.

1.4 Frequency setting

Push T+ and T- In same time. Frequency blinking, you can press P+/P- to adjust frequency.

2 Engineering Mode

After powering on, press the 【ON/OFF】 button to pause output. Simultaneously press 【SWEEP】 and 【P-】 to enter the password input interface. Use 【P+】 and 【P-】 to enter password 1, then press 【SWEEP】 to confirm and access the engineering settings menu.

No.	Function	Parameter	Default
Under rocker switch on and output power off: press "SWEEP + P-", input password "1", "P+/P-" set password, "T+ / T-" to move			
A-02	Machine output on/off after input power on	0：output power off 1：output power on	0
C-03	Frequency setting	(20K/22K/25K/28K/33K/40K)	F40.0
C-04	Input frequency	Fix display input frequency	F40.0
C-05	Maximum operation current	6.5A（0-8.0A)	6.5A
C-06	Percentage setting of working current	0-100%	100
C-07	Ultrasonic mode	Standard	0
C-08	Remote control method	0：Close active, 1：Open active	0
C-09	Count-down function setting	1: ON, 0: OFF	0
C-11	Current/Power display	0: Current, 1: Power	0
C-12	Threshold of over heat	40-70	65°C
C-13	Offset percentage of over current alarm value	10-20%	20
C-14	Offset percentage of under current alarm value	10-20%	10
C-15	Failure alarm delay time	0-30S	20
C-16	Ultrasonic address	1-254	1
C-17	Baud rate	0:600, 1 :1200, 2 :2400, 3 :4800, 4 : 9600 5：19200 6：38400 7：115200	4
C-18	Parity	0:no parity, 1:odd, 2:even	1
C-22	Stop bit	1/2	1
C-23	Timer of output power on	0-9999 minutes	0
C-24	Timer of output power off	0-9999 minutes	0

3 I/O port description

4 RS-485 Communication

The generator is equipped with RS-485 communication function, allowing the remote host to monitor and control the working parameters of the ultrasonic generator in real time. The generator operates in slave mode, with an address range of 1-32. The communication protocol is described as follows:

1. Modbus RTU protocol format
2. Register read function code 0x03, coil status read function code 0x01
3. Register write function code 0x06/0x10, coil status set function code 0x05
4. The description of read/write addresses and parameters is as follows:

4.1 Generator Operating Status Reading

CODE:0x01	Description	communication parameters (1 station, baud rate 9600, odd parity, 1 stop bit)	Read/Write
Coil address: 0x01	PLC send	01 01 00 01 00 01 AC 0A	Read
	Generator reply	Stop: 01 01 01 00 51 88	
		Work: 01 01 01 01 90 48	

4.2 Generator Working Status

CODE: 0x05	Description	Generator communication parameters (1 station, baud rate 9600, odd parity, 1 stop bit)	Read/Write
Coil address: 0x01	PLC send	Generator start: 01 05 00 01 FF 00 DD FA (The generator returns the same data)	Read
		Generator stop: 01 05 00 01 00 00 9C 0A (The generator returns the same data)	
		Group Boot: 00 05 00 01 FF 00 DC 2B (The generator is not responding)	
		Group shutdown: 00 05 00 01 00 00 9D DB (The generator is not responding)	

4.3 Read the generator operating current or operating current percentage

CODE: 0x03	Description	Generator communication parameters (1 station, baud rate 9600, odd parity, 1 stop bit)	Read/Write
Register Address: 0x5F	Operating current value	PLC send: 01 03 00 5F 00 01 B4 18	Write
		Generator reply: 01 03 02 00 1E 38 4C (Current value 3A)	
Register Address: 0xB6	Operating current percentage	PLC Send: 01 03 00 B6 00 01 65 EC	
		Generator reply: 01 03 02 00 64 B9 AF (Percentage is 100%)	

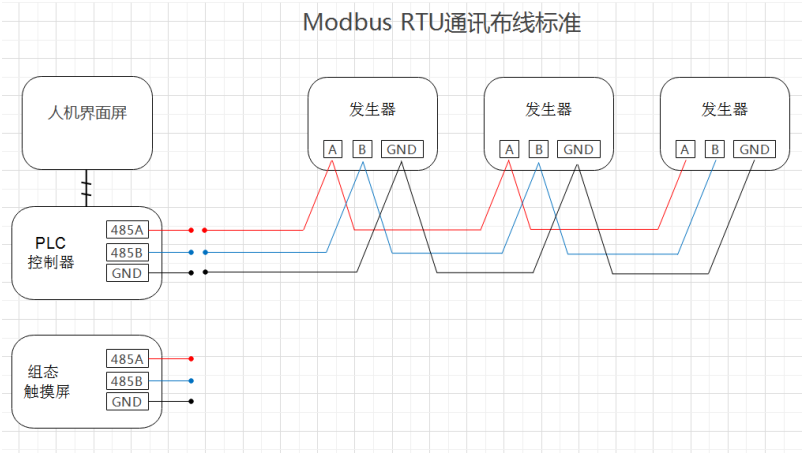
4.4 Set the generator operating current or percentage of operating current

Code: 0x06	Description	Generator communication parameters (1 station, baud rate 9600, odd parity, 1 stop bit)	Read/Write
Register Address: 0x0A	Operating current value	PLC send: 01 06 00 0A 00 1E 29 C0 (Set current to 3A)	Write
		Generator reply: 01 06 00 0A 00 1E 29 C0 (Current value 3A)	
Register Address: 0x52	Operating current percentage	PLC send: 01 06 00 52 00 64 29 F0 (Set percentage 100%)	
		Generator reply: 01 06 00 52 00 64 29 F0	

4.5 485 Communication Interface (1: A, 2: B, 3: COM)

Remark:

1. It takes a certain amount of time for the generator to start and for the current to stabilize, so data should be read 10-15 seconds after power-on.
2. When the host computer reads and writes, it must wait for the generator to respond before sending the next command to avoid data interference on the 485 buses.
3. When multiple generators are connected to a single 485 communication port, it should be determined whether to add a repeater amplifier based on the port's load capacity.
4. If the communication distance is long and the process is unstable, connect a 120-ohm terminating resistor in parallel on the 485A and 485B of the last generator.
5. To ensure stable communication, wire and select materials strictly according to RS485 communication requirements. The wiring is as follows:



5 Cautions

- Ultrasound generator wiring: first check whether the generator's frequency and power match the cleaning machine, connect the wires before powering on
- Ultrasound generator should be placed in a dry and well-ventilated area, with the rear of the machine positioned more than 30mm away from any obstructions to ensure proper heat dissipation.。
- The ultrasonic generator must be properly grounded to prevent the risk of electric shock.
- Ultrasound generator malfunction: please contact maintenance personnel. Do not open the cover casually to avoid danger.

Maximum operating current reference table：

Power (W)	600	900	1200	1500	1800	2100	2400	2700	3000
Rated current(A)	2	3	4	4.5	5.5	6	6.5	7	7.5