☆Preface☆

Thank you very much for choosing the V series UV electronic power supply produced by Shenzhen UWET Electric Technologies Co., Ltd. The power supply combines modern electronic power technology such as vector control algorithm and IGBT inverter technology to make the product highly efficient, energy-saving, stable and reliable, precise control, small size, light weight, etc. It is mainly used in graphic printing, UV curing, spraying, wood furniture manufacturing and other industries ,to replace traditional UV control regulation system (UV transformer + capacitor) with the ideal variable frequency power supply .

This manual is a manual for the V-Series UV electronic power supply and is applicable to program version 5208.3 or above. It will provide you with related rules and precautions for V series UV electronic power supply installation, wiring, function parameters, routine maintenance, fault diagnosis and elimination.

In order to properly use the V series UV electronic power supply (hereinafter referred to as " electronic power supply" or "UV power supply"), to maximize the performance of the product and to ensure the safety of users and equipment, please read this manual carefully before using the product. Improper use may cause the product to operate abnormally, malfunction, reduce the service life, resulting in equipment damage, personal injury and other accidents!

This manual is sent with power supply. Please keep it properly for future maintenance and inspection. Due to continuous improvement and upgrade of the products, the information provided by the company is subject to change without notice.

V Series UV Electronic Power Supply User Manual

Version V 6.0

Revision date:2022.12.

Content

Chapter 1 Product Information

1.1 Production Information

V series electronic power supply is a high-tech product developed for the driving of gas discharge lamps such as mercury lamps and halogen lamps. It takes high-performance MCU as the control core and high-precision vector control algorithm to ensure the stable output of energy, so as to create excellent curing equipment for customers. This product is widely used in more than 20 fields such as painting, printing, woodworking, PCB, military medical.

1.2 Function Introduction

（1）Flexible control mode: standard operation panel control, external terminal control, optional RS485 communication control.

（2）Rich lighting characteristics: high voltage mercury lamps, metal halogen lamps parameters are optional.

（3）Automatically match the lamp: As long as the rated power of the lamp is set correctly, the power supply automatically compensates for the rated voltage error of the lamp.

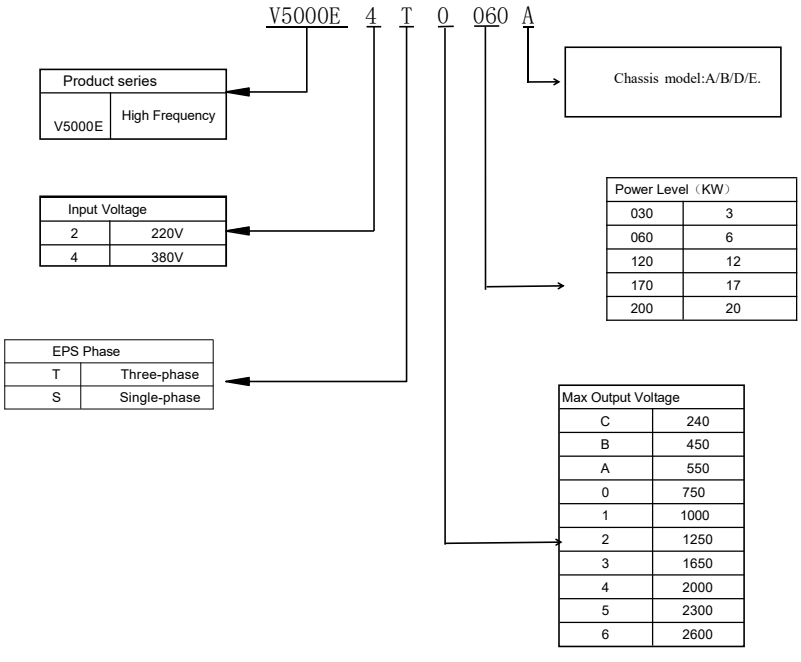
（4）Automatic compensation for ambient temperature of lamps: automatically compensates for the energy drop caused by the exhaust.

（5）Status monitoring: This machine comes with LCD human-machine interface to display the working status of the machine and lamp in real time.

（6）Abundant status signal output: fan control, fault alarm, start-up completion, etc.

（7）Standard operation panel is easy to use: start-stop control, power setting, status monitoring, parameter modification, etc.

1.3 Model Description (Label Description)



1.4 Technical Indicators and Specifications

Input	Rated voltage, frequency	Three Phase（4T#series）380V 50/60Hz Single Phase （2T#series） 220 50/60Hz
	Voltage allowable range	Determined by model
Output	Lamp Voltage	Determined by model
	Frequency	8K Hz ～16K Hz
	Overload Capability	110% 10min
Control Mode		Vector Control
Control Characteristic	Power Setting Resolution	1%
	Current Limitation	Power Allowable Setting
	Voltage Limitation	110% of rated lamp voltage
	Power Limitation	Max Rated Output Power of Lamp
	Under-voltage suppression in operation	Especially for users with low grid voltage and frequent fluctuation of grid voltage, even below the allowable voltage range, the system can maintain the longest running time according to unique algorithm and residual energy allocation strategy.
Typical Function	Standby	Set standby power consumption when equipment is intermittent for energy-saving applications
	Working Time Record	can read lamp working time in operation

	RS485 Communication		Standard Configuration RS485 Communication Interface, Running and Stopping Commands and Machine Status Reading
	The Function of Operation		Using External Dry Contact Control to Start and Stop
	Fault Analysis		with function of fault record query and fault cause analysis
Display	Operational panel dispaly	Operational Status	Monitor output voltage, output current, set power, output power, etc.
		Parameter Setting	Set the relevant parameter values according to actual requirements.
Protection / Alarm			Protection / Alarm of Over current, overvoltage, under voltage, overtemperature, short circuit, internal memory failure
Environment	Ambient temperature		-10ºC--+50ºC（not frozen）
	Ambient humidity		Below 90%（no frost）
	Ambient environment		Indoor (no direct sunlight, no corrosion, no flammable gas, no oil mist, no dust, etc.)
	Altitude		Below 1000m
Structure	Degree of Protection		IP52
	Cooling Method		Independent air-duct design forced air cooling

1.5 A/B/D Chassis Installation Size

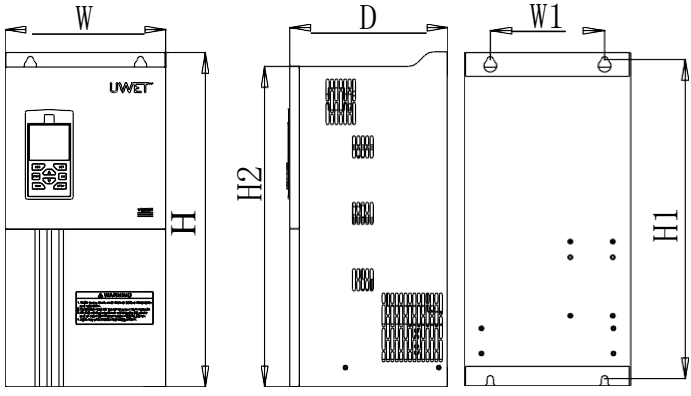


Figure 1-1 Drawing of Digital Power Supply Installation

Dimension V5000E series installation dimensions are as follows:

Chassis Number	Overall And Installation Dimensions (mm)							Weight （KG）
	W	H	D	W1	H1	H2	Screw	
A Chassis	195	410	205	100	393	390	M6	12
B Chassis	210	475	230	130	455	455	M6	15
D Chassis	255	530	250	175	507	507	M8	23

E Chassis Installation Size

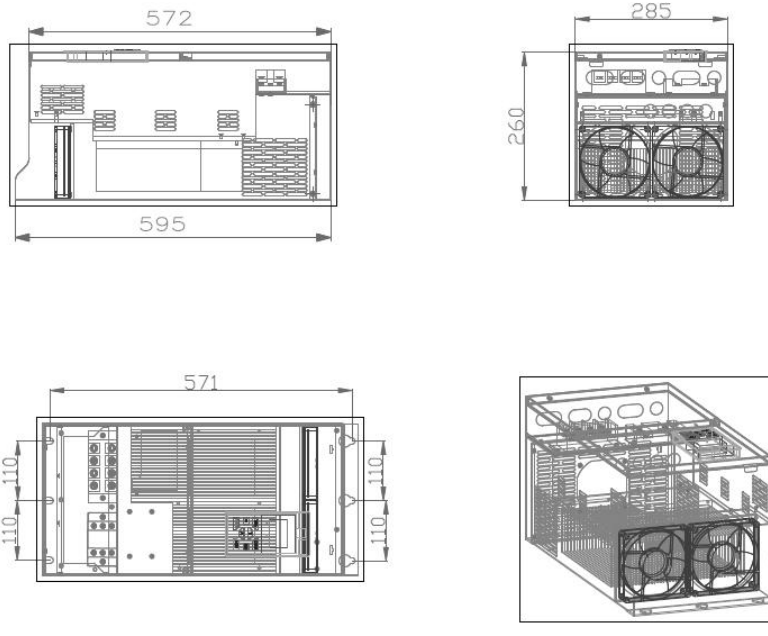


Figure 1-2 Drawing of Digital Power Supply Installation

1.6 Product Model and Recommended Lamp Tube Voltage

Input	Model	Power (kw)	Max Lamp Voltage (V)	Max Current (A)	Voltage Range (V)	Recommendation (V)
360-460V 3 phase	V5000E-4TA030A	3	550	10	400-550	500
360-460V 3 phase	V5000E-4T0030A	3	750	8	550-750	650
360-460V 3 phase	V5000E-4TA040A	4	550	10	400-550	500
360-460V 3 phase	V5000E-4T0040A	4	750	9	550-750	650
360-460V 3 phase	V5000E-4TA050A	5	550	11	450-550	500
360-460V 3 phase	V5000E-4T0050A	5	750	9.5	550-750	650
360-460V 3 phase	V5000E-4T1050A	5	1000	9	750-1000	850
360-460V 3 phase	V5000E-4TA060A	6	550	13	460-550	500
360-460V 3 phase	V5000E-4T0060A	6	750	11	550-750	650
360-460V 3 phase	V5000E-4T1060A	6	1000	10	750-1000	900
360-460V 3 phase	V5000E-4TA080B	8	550	16	500-550	520
360-460V 3 phase	V5000E-4T0080B	8	750	12	550-750	650
360-460V 3 phase	V5000E-4T1080B	8	1000	11	750-1000	900
360-460V 3 phase	V5000E-4T2080B	8	1200	10.5	1000-1200	1100
360-460V 3 phase	V5000E-4T0100B	10	750	15	550-750	650
360-460V 3 phase	V5000E-4T1100B	10	1000	11	750-1000	900
360-460V 3 phase	V5000E-4T2100B	10	1200	10.5	1000-1200	1100
360-460V 3 phase	V5000E-4T3100B	10	1600	12	1200-1600	1400
360-460V 3 phase	V5000E-4T1120D	12	1000	14	750-1000	900
360-460V 3 phase	V5000E-4T2120D	12	1200	14	1000-1200	1100
360-460V 3 phase	V5000E-4T3120D	12	1600	12	1200-1600	1400

Input	Model	Power (kw)	Max Lamp Voltage (V)	Max Current (A)	Voltage Range (V)	Recommendation (V)
360-460V 3 phase	V5000E-4T4120D	12	2000	10	1600-2000	1800
360-460V 3 phase	V5000E-4T2150D	15	1200	14	1000-1200	1100
360-460V 3 phase	V5000E-4T3150D	15	1600	12	1200-1600	1400
360-460V 3 phase	V5000E-4T4150D	15	2000	10	1600-2000	1800
360-460V 3 phase	V5000E-4T2170D	17	1200	15	1000-1200	1100
360-460V 3 phase	V5000E-4T3170D	17	1600	12.5	1200-1600	1400
360-460V 3 phase	V5000E-4T4170D	17	2000	10	1600-2000	1800
360-460V 3 phase	V5000E-4T5170D	17	2400	10	2000-2400	2200
360-460V 3 phase	V5000E-4T3200D	20	1600	15	1200-1600	1400
360-460V 3 phase	V5000E-4T4200D	20	2000	13	1600-2000	1800
360-460V 3 phase	V5000E-4T5200D	20	2400	10	2000-2400	2200
360-460V 3 phase	V5000E-4T6200D	20	2800	8.5	2400-2800	2600
360-460V 3 phase	V5000E-4T3220D	22	1600	16	1200-1600	1500
360-460V 3 phase	V5000E-4T4220D	22	2000	13	1600-2000	1800
360-460V 3 phase	V5000E-4T5220D	22	2400	10	2000-2400	2200
360-460V 3 phase	V5000E-4T6220D	22	2800	10	2400-2800	2500
360-460V 3 phase	V5000E-4T2250E	25	1200	25	1000-1200	1100
360-460V 3 phase	V5000E-4T4250E	25	2000	14	1600-2000	1900
360-460V 3 phase	V5000E-4T5250E	25	2400	12.5	2000-2400	2200
360-460V 3 phase	V5000E-4T6250E	25	2800	11	2400-2800	2600
360-460V 3 phase	V5000E-4T5300E	30	2400	15	2000-2400	2200
360-460V 3 phase	V5000E-4T6300E	30	2800	12	2400-2800	2650
360-460V 3 phase	V5000E-4T6320G	32	2800	12.5	2400-2800	2650
360-460V 3 phase	V5000E-4T6350G	35	2800	13.5A	2400-2800	2650

Input	Model	Power (kw)	Max Lamp Voltage (V)	Max Current (A)	Voltage Range (V)	Recommendation (V)
360-460V 3 phase	V5000E-4T6370G	37	2800	14	2400-2800	2650
360-460V 3 phase	V5000E-4T6400G	40	2800	15	2400-2800	2650
200-240V 3 phase	V5000E-2TA030A	3	550	7	400-600	500
200-240V 3 phase	V5000E-2TA040B	4	550	8	400-600	450
200-240V 3 phase	V5000E-2T0040B	4	750	8	450-750	550
200-240V 3 phase	V5000E-2TA050B	5	550	9	420-600	500
200-240V 3 phase	V5000E-2T0050B	5	750	9	550-750	600
200-240V 3 phase	V5000E-2T1050D	5	1000	8	700-1000	850
200-240V 3 phase	V5000E-2T0060D	6	750	10	500-750	650
200-240V 3 phase	V5000E-2T1060D	6	1000	8	700-1000	850
200-240V 3 phase	V5000E-2T1080D	8	1000	11	700-1000	850
200-240V 3 phase	V5000E-2T2080D	8	1250	10.5	900-1200	1100
200-240V 3 phase	V5000E-2T1100D	10	1000	13	850-1000	900
200-240V 3 phase	V5000E-2T2100D	10	1250	12	1000-1200	1050
200-240V 3 phase	V5000E-2T3100D	10	1600	8	1250-1600	1500
200-240V 3 phase	V5000E-2T1120D	12	1000	14	860-1000	950
200-240V 3 phase	V5000E-2T2120D	12	1250	13	1000-1200	1100
200-240V 3 phase	V5000E-2T3120D	12	1600	11	1200-1600	1450
200-240V 3 phase	V5000E-2T3150E	15	1600	11	1400-1600	1500
200-240V 3 phase	V5000E-2T3160E	16	1600	11	1200-1600	1550
200-240V 3 phase	V5000E-2T3180G	18	1600	12	1200-1600	1500

Chapter 2 Wiring

2.1 Wiring Precautions

(1) Ensure that a circuit breaker is connected between the UV electronic power supply and the power supply to avoid the accident expansion when the UV electronic power supply fails.

(2) To reduce electromagnetic interference, connect a surge absorber to the coil of the electromagnetic contactor, relay, and other devices in the circuit around the UV electronic power supply.

(3) Analog signal wiring should use a shielded wire of 0.3mm² or above. The shielding layer is connected to the ground terminal of the UV electronic power supply (keeping the shielding layer single-ended grounding), and the wiring length is less than 30 m.

(4) The wiring of the input and output circuits of the relay should choose twisted or shielded wires over 0.75 mm²

(5) The main circuit wiring must match the power level of the electronic power supply.

Recommended spec. of electrical appliances, as following

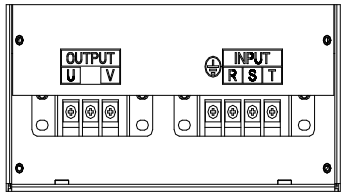
Electronic Power Supply Power Level	Input Voltage (V)	Input Current (A)	Wire Spec. (main circuit) (mm^2)	Air circuit Breaker (A)	Electromagnetic Contactor (A)
3KW	400	4.6	2.5	15	9
4KW	400	6.1	2.5	15	12
5KW	400	8.0	4	25	12
6KW	400	9.3	4	25	16

8KW	400	12.3	4	32	18
10KW	400	15	6	45	25
12KW	400	18.2	10	60	30
15KW	400	25.5	10	60	45
17KW	400	27.5	16	60	60
20KW	400	30.5	16	60	60
22KW	400	35	16	80	80
25KW	400	38.5	16	80	80
30KW	400	46	16	80	80

2.2 Electronic Power Supply Main Circuit Terminal Wiring

2.2.1 Applical Model：Above Model in Model List

Table 2-1 class I Terminal function of main circuit

Terminal Symbols	Terminal Name	Description	Terminal Diagram
R、S、T	Input	3 phase AC Power Supply	
U、V	High Voltage output	Conect to UV Lamp	
E	Group Terminal	Connect to Group Wire	

2.2.2 Description of terminal function

Table 2-2 Description of terminal function

Category	Terminal symbols	Terminal Function	Remark
380V AC input 220V AC input	R	three-phase power input R	three-phase 220/380V Power Supply
	S	three-phase power input S	
	T	three-phase power input T	
500V-2800V Output	U	500V-2800V High Voltage Output	Connect to UV Lamp
	/		
	V		

Category	Terminal symbols	Terminal Function	Remark
Ground	E	Ground	Connect to Ground Wire

- Wiring should be performed ten minutes after the digital panel indicator is off.
- Make sure that you have securely grounded the electronic power supply to prevent electric shock.
- Do not install power factor corrector and surge voltage absorber at the output.

2.3 Control Board Terminal Wiring

Table 2-3 Control Board Terminal

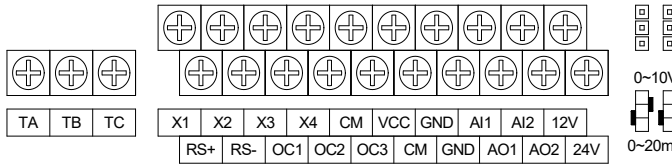


Table 2-4 Function of Control Board Terminal

Terminal	Symbol	Function	Remark
485 Communication	RS- RS+	RS 485 communication interface	Connect touch panel、 PLC
DC Auxiliary Power Supply	12 V	Provide +12V/100mA power supply to the outside	Analog input reference power supply
	VCC	Provide +5V/100mA power supply to the outside	
	GND	12V / VCC / AI / AO reference point	12V / VCC / AI / AO Common terminal
Analog Input	AI1/AI2	Voltage signal input	0~10V voltage input, Used for power given signals or other signals
Analog Output	AO1/AO2	Voltage, current signal output	0~10V(0-20mA) analog output

Terminal	Symbol	Function	Remark
Digital Input	X1-X4	4-way switch signal input	switch signal input，connecting CM to work
OC output	OC1-OC3	3-way open collector output	OC signal output, connecting CM to work
DC Auxiliary Power Supply	24V	Provide +24V/100mA power supply to the outside	
	CM	X1-X4 input、OC1-OC3 output reference point	X、OC、24V common terminal
Relay Output	TA	Normal TA-TC disconnection and TA-TB closure	Contact capacity：AC 250V/1A Close TA and TC after start-up
	TB		
	TC		

2.4 Power Supply Basic Wiring Diagram

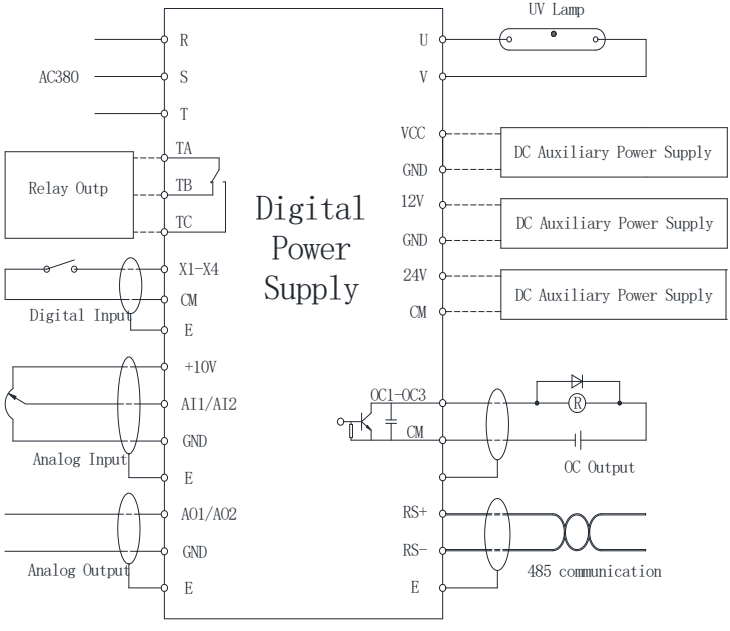


Table 2-5 Power Supply Basic Wiring Diagram

Chapter 3 Operation of Electronic Power Supply

3.1 Basic Functions of the Operation Panel

The operation panel is a standard configuration of the UV electronic power supply. The user can perform parameter setting, status monitoring, fault inquiry and other functions on the electronic power supply through the operation panel. Correspondingly, the operation panel can be divided into three working modes: state monitoring mode, internal parameter modification/query mode, and status parameter query mode.

3.1.1 Operation Panel Description

At the beginning of power on, the company's name "Shenzhen UWET Electric Technologies Co., Ltd" was displayed, along with the serial number of electronic power supply and power level "V5000-4T0060".

After 3 seconds, it was transferred to the status monitoring mode (operation panel is in a non-fault alarm state, if there was no key operation within 1 minute, it would return to the status monitoring mode).

The operation panel uses a 12864 dot matrix LCD to display abundant equipment status information. Under the condition monitoring, the machine model, running status, current given power, output voltage, output current, output power, command channel, power channel and other information can be switched and displayed. When the power channel is given to the panel, press ∧ or ∨ to increase or decrease the given power. Press SET to switch the menu to

parameter setting and ESC to switch to the monitoring parameter.

3.1.2 Keyboard function of operation panel

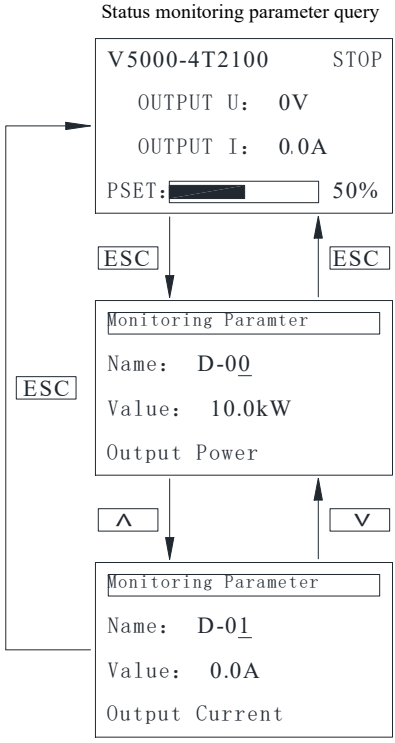
Table 3-1 Keyboard function of operation panel

Item		Description
Function	ESC	Return key. In the state monitoring mode, press the key, enter the state parameters, monitoring parameters query mode, you can view the running state parameters. In any other operating state, pressing this key alone will return to the previous state.
	SET	Setting. Confirm the current status or parameters (parameters are stored in the internal memory) and enter the next menu.
	∧	Data modification or increment. to modify function codes or state parameters.
	∨	Data modification reduction . Used to modify function code or state parameters.
	<<	Shift . Press ∧、∨ key to select the modified bits in any state where the data is modified by the keys. The modified bits flicker to display.
	STBY	Standby . Press this button in the running state, the machine standby,and press again , the machine resume normal operation.
	RUN	Running. After the self-check of the machine is completed, press this key to start lighting and running.
	STOP	Stop . Press this button in the running state, the machine turns off the light and ends running.

3.2 Operation Method of the Operation Panel

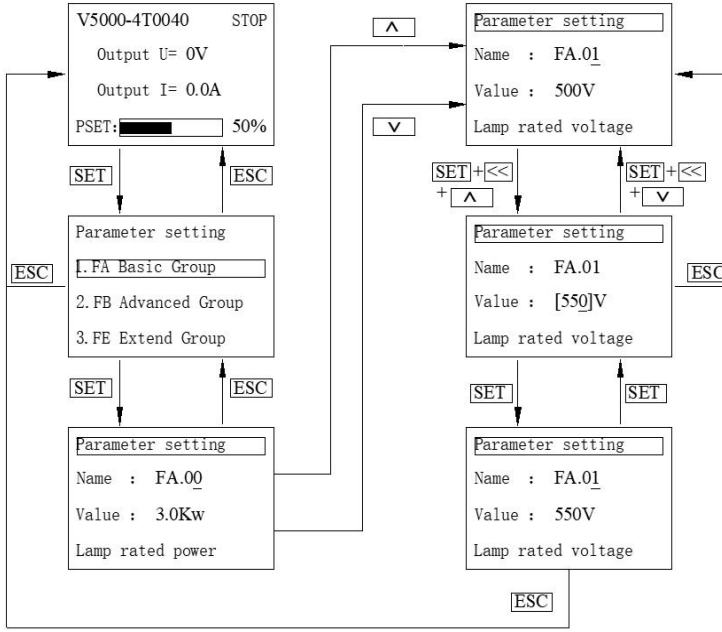
3.2.1 Status monitoring parameter query (example)

The status monitoring parameter query can query various status values of the current running of the electronic power supply, including: output power, output current, output voltage, module temperature, DC bus voltage, given power, fault code and fault record.



3.2.2 Parameter query and modification (example)

Chart 3-2 Parameter query and modification (example)



Chapter 4 Parameters of Function and Monitoring

Symbol description ： “★” means that the parameter cannot be changed during the running ； “▲” means that the parameter is not suggested to be modified in the running state；“◆”can be modified during the running.

4.1 Parameters of Function

4.1.1 FA Group Basic Parameter

code	Definition	description	Min. unit	Factory setting	Change
FA.00	Lamp rated power	1.0-specified model	1	Rated	▲
FA.01	Lamp rated Voltage	100V-specified model	1	Rated	▲
FA.02	Digital power setting	FA.05-100%	1	100	◆
FA.03	Lamp upper limit current	5.0A-specified model	0.1	Max.	▲
FA.04	Lamp lower limit current	1.5A-5A	0.1	2.0	▲
FA.05	Lamp lower limit power	2%-50%	1	10	▲

code	Definition	description	Min. unit	Factory setting	Change
FA.06	Control channel of Power supply	000**0**: Power Start Mode 0: Start Operating Panel 1:X1 terminal 2:RS485 Start 3: Extended Board Start 4：X2 terminal 5：X3 terminal 6：X4 terminal 00**0**0: Power given channel 0: Operation panel setting 1: AI1 channel 2: AI2 channel 3: RS485 given 4: multi-segment power (X terminal given) 5: extended board 6: Light intensity closed loop control 7: RS485 given power value 0**0**00: Delayed Standby 0: off 1: open 2: Transfer to standby after power is paused **0**000: standby signal channel 0: operation panel 1:X1 terminal 2: X2 terminal 3: X3 terminal 4: X4 terminal	0000	0100	★
FA.07	Reservation	Reservation	1	0	▲
FA.08	digital output setting	000**0**: Relay 00**0**0: OC1 0**0**00 : OC2 **0**000: OC3 0: lamp blower signal 1: fault alarm signal 2: System ready signal 3: Lighting preheating completion signal 4: Output power arrival signal 5: Lamp voltage arrival signal 6: Lamp current arrival signal 7: Power alarm signal 8: Signal during power operation 9: Extended function parameter	0000	7201	▲

code	Definition	description	Min. unit	Factory setting	Change
		FE.00 is determined			
FA.09	analog output setting	000**0**: Reservation 00**0**0: Reservations 0**0**00: AO1 output correspondence **0**000: AO2 output correspondence 0: Correspondence of Output Lamp Power Relation 1: Correspondence of output lamp Voltage 2: Correspondence of Output Lamp Current 3: Correspondence of lamp box temperature 4: PID output of lamp exhaust 5: Conveyor Belt Speed Control	0000	2100	★
FA.10	Functional switch selection	000**0**: Detection of the Missing phase of electricity supply 0: open 1: close 00**0**0:power supply temperature alarm 0: open 1: close 0**0**00: power supply cooling fan control 0: Running Start 1: Power-on and start **0**000:OC output level selection 0: All low levels are effective 1: All high levels are effective 2:001 (OC1 high level effective, other low level effective) 3:010 (OC2 high level effective, other low level effective) 4:011 (OC1,OC2 high level, OC3 low level) 5:100 (OC3 high level effective, other low level effective) 6:101 (OC1,OC3 high level, OC2 low level) 7:110 (OC2, OC3 high level, OC1 low level)	0000	0000	★

code	Definition	description	Min. unit	Factory setting	Change
FA.11	parameter initialization	1: Standard initialization 2: Clear the fault record 3: Clear lamp working time	0	0	★
FA.12	RS485 communicati on setting	0000: Baud Rate Selection 0：1200 bps 1：2400 bps 2：4800 bps 3：9600 bps 4：19200 bps 0000: data format selection 0: No Check 1: odd check 2: Dual Check 0000:communication protocol 0: MODBUS 0000:communication failure handling 0: Keep the original state 1: stop	1	0003	★
FA.13	RS485 communicatio n Address.	0: Broadcasting 1-247: Slave address	1	1	★
FA.14	CAN communication setting	Reservation		0	★
FA.15	CAN Communicatio n Address	Reservation		0	★
FA.16	Long-term allowable current of lamp	1.0A-specified model	0.1	Max.	◆
FA.17	Panel lock	0：open 1：lock	1	0	◆
FA.18	Lamp control selection	0000: lamp type selection (H series) 0: High Voltage Mercury Lamp 1: Metal Halogen Lamps 0000: lamp preheating protection function 0: Close 1: Open 0000: maximum lamp preheating time 0：3min 1：5min 2：7min	1	1000	▲

code	Definition	description	Min. unit	Factory setting	Change
		3：10min 4：12min 5：15min 6：17min 7：20min **0**000: Lamp Control Mode 0：EPS Control Mode0 1: EPS Control Mode1 2: EPS Control Mode2			
FA.19	Light box temperature control	000**0**: PID type of lamp exhaust 0: Output Power Closed Loop 1.Lamp box temperature closed loop 2.Lamp voltage closed loop 00**0**0:lamp box temperature detection channel 0：AI1 1：AI2 2：RS485 3: Extended board 4:X1 temperature switch detection 5: X2 temperature switch detection 6: X3 temperature switch detection 7: X4 temperature switch detection 0**0**00: Given channel of lamp box temperature 0：AI1 1：AI2 2: Operation panel settings 3：RS485 4: Extended board **0**000: Lamp automatically maintains voltage (heat preservation) 0: Close 1: Open	0000	0230	▲

code	Definition	description	Min. unit	Factory setting	Change
FA.20	Light intensity control	000**0**: Light intensity feedback channel 0: AI1 1: AI2 2: RS485 3: Extended board 00**0**0: Light intensity given channel 0: Operation panel setting 1: AI1 2: AI2 3: RS485 4: Extended board	00	0032	▲
FA.21	Light box temperature digital given	30-500℃	1	70	◆
FA.22	Light intensity number given	10-5000mW	1	5000	◆
FA.23	Intelligent Voltage retention value	50%-80%	0.1	10	▲
FA.24	Delay time of standby	1-3000s	1	10	▲
FA.25	Delay time of Lamp exhaust	1-15min	1	3	▲
FA.26	Voltage arrival	100-4000V	1	600	▲
FA.27	Power arrival	0.5-30.0KW	0.1	1.8	▲
FA.28	Current arrival	3.0-50.0A	0.1	5.0	▲
FA.29	Lamp igniting time	6-60s	1	5	▲

4.1.2 FB Advanced Parameters

code	Definition	description	Min. unit	Factory setting	Change
FB.00	Lamp exhaust lower limit (%)	0-100%	1	0	◆
FB.01	Multi-segment power 1 value	FA.05-100%	1	20	▲
FB.02	Multi-segment power 2 value	FA.05-100%	1	50	▲
FB.03	Multi-segment power 3 value	FA.05-100%	1	100	▲
FB.04	Shutter control	000**0**: Open the Shutter to Position Detection Terminal 0000: Close the Shutter to position detection terminal 0: invalid 1：X1 2：X2 3：X3 4：X4 00**0**0: Shutter detection mode 0: All switches are tested 1. Normally-Open Single Switch Detection 2: Normally-Closed Single Switch Detection 3: Control Only 0**0**00: Manual shutter response mode 0: Manual shutter control is not allowed 1. Shutdown, delay exhaust , manual shutter switch in status of failure 2: Shutter can be manually controlled in any state.	1	0032	▲
FB.05	AO corresponding current upper limit	1.0-30.0A	0.1	30.0	▲
FB.06	AO corresponding voltage upper limit	100-4000V	1	3000	▲
FB.07	AO corresponding power upper limit	1-30.0KW	0.1	30.0	▲
FB.08	AI, AO corresponding light intensity value	100-5000mW	1	5000	▲
FB.09	AI, AO corresponding temperature value	100-500℃	1	150	▲

code	Definition	description	Min. unit	Factory setting	Change
FB.10	Lightbox temperature alarm value	10.0-300.0	0.1	80.0	▲
FB.11	Light box temperature control value P	1-1000	0.1	1.0	▲
FB.12	Light box temperature control value I	1-1000	0.1	1.0	▲
FB.13	Light intensity control value P	1-1000	0.1	1.0	▲
FB.14	Light intensity control value I	1-1000	0.1	1.0	▲
FB.15	Start value of the lamp voltage protection	0-100%	1	40	code
FB.16	Stop value of the lamp voltage protection	0-100%	1	60	▲
FB.17	Lamp exhaust 0V corresponding value	0-90%	1	60	◆
FB.18	Lamp exhaust 10V corresponding value	0-100%	1	95	◆
FB.19	Low Voltage Protection and Bus Protection	0000: Low Grid Voltage Protection selection 0: Close 1: Open 0000: bus voltage anomaly detection 0: Close 1: Open	1	11	◆
FB.20	Multi-segment power setting	0000: multi-segment power 0000 0：X1 1：X2 2：X3 3：X4	00	32	◆
FB.21	Shutter action timeout	0.1-60.0S	0.1	2.0	◆

code	Definition	description	Min. unit	Factory setting	Change
FB.22	Lamp timing and delayed power-off	000**0**: Enabled lamp timing function 0: Close 1: Open 00**0**0: Lamp life arrival 0: No Action 1: Alarm and Continue Operation 2: Alarm for next startup 0**0**00: Delayed power-off mode 0: Trip unit self-powered off and manually powered on, and the light-off signal is triggered. 1: X1 Trigger 2: x2 trigger 3: X3 Trigger 4: x4 trigger **0**000: Delayed power-off trigger switch type 0: Normal Closed type, Disconnect output and self-locking, Closed Trigger Power Off 1: Normal open type, closing output self-locking, disconnect triggers power off	0	0001	◆
FB.23	Lamp availability time	0.1-6000.0 H	0.1	1000.0	◆
FB.24	Delay the power-off time	0-120 Min If this parameter is less than the exhaust delay time, the shutdown power-off delay is calculated by the exhaust delay time, and after the exhaust is completed, output power-off signal; recommending to set this value slightly longer than the exhaust delay time to prevent the blower from being powered off before the blower is completely stopped.	1	15	◆
FB.25	Advanced fault function	000**0**: External Fault Input Function 0: invalid 1：X1 2：X2 3：X3 4：X4 00**0**0: Lightbox temperature protection 0: Close	1	0000	◆

code	Definition	description	Min. unit	Factory setting	Change
		1: Open 00**0**0: lightbox temperature sensor type 0: Temperature Transmitter 1: Normal Open Temperature Switch 2: Normal Closed Temperature Switch **0**000: External fault input type 0: Normal Open Fault Input 1: Normal Closed Fault Input			
FB.26	Lamp Excitation intensity	32-80	1	60	◆
FB.27	Factory password	00000-65535	1	0	◆
FB.28	Proxy password	00000-65535	1	0	◆
FB.29	Allowed running time	1-65535H	1	0	◆

4.1.3 FE Extended Parameters

Code	Definition	Description	Min. unit	Setting	Change
FE.00	Digital Terminal Expansion Function Selection	000**0**: Relay Extension Function Selection 00**0**0: OC1 extended function selection 0**0**00: OC2 extended function selection **0**000: OC3 extended function selection 0: No function 1.Delay power-off 2. Shutter Control 3. Communication Control	1	0000	◆

Code	Definition	Description	Min. unit	Setting	Change
FE.01	Delay time of Shutter closing	0-60000ms	1	0	◆
FE.02	Default shutter state	000**0**: Shutter Status During Shutdown 00**0**0: Shutter status During failure 0**0**00: Delay shutter state during exhaust 0: Default Shutter Closed 1: Default Shutter Open **0**000: Shutter trigger mode 0: Enter standby power trigger 1: Online Signal Triggering		0100	◆
FE.03	Pause power	FA.05-100%	1	50	◆
FE.04	Delay the time of pausing power	0-60000ms	1	0	◆
FE.05	RS power given, holding register	0-100%	1	100%	◆
FE.06	Given value of AO speed	0-100 0-100 corresponds to 0-10V analog output	1	50	◆
FE.07	Max. AO speed	0-300.0m/min setting the maximum of、AO output is 10V, and converting it into the current speed and display it on the interface.	0.1	10.0	◆
FE.08	AI1 input range	1-10V	0.1	10.0	◆
FE.09	AI2 input range	1-10V	0.1	10.0	◆
FE.10	AO1 output range	1-10V	0.1	10.0	◆
FE.11	AO2 output range	1-10V	0.1	10.0	◆
FE.12	Enabled Operating State Lower Limit	0-1	1	0	◆
FE.13	Running state lower limit power	FA.05-100%	1	60	◆
FE.14	Enabled operation setting function	000**0**: Enabled operation Terminal Selection 0: Invalid function 1:X1 2:X2 3:X3 4:X4 00**0**0: Type of enabled operation terminal	1	00	◆

Code	Definition	Description	Min. unit	Setting	Change
		0: normal open type 1: normal closed type			
FE.15	X terminal filtering time	10-6000ms	1	100	
FE.16	off value of voltage arrival	10-FA.01	1	50	
FE.17	enabled voltage arrival exhaust	0-1	1	0	
FE.18	Leakage protection	0-1 (Partial model supported)	1	0	
FE.19	Leakage detection sensitivity	2-3000ms	1	5	
FE.20	Intelligent Voltage Protection P	0-60000			
FE.21	Intelligent Voltage Protection I	0-60000			
FE.22	Intelligent Voltage Protection D	0-60000			
FE.39	Grid undervoltage value	Single-phase：200 three-phase：360			◆

4.1.4 F F user parameters

Code	Definition	Description	Min. unit	Setting	Change
FF.00	Language	0：Simplified Chinese 1：English	1	0	◆
FF.01	Backlight properties	0：Delay shutdown when no operation 1：always-on 2：always-on during operation, delay the off during shutdown	1	0	◆
FF.02	Screen extinguishing time when no operation	0-300S	1	60	◆
FF.03	Version of Operation panel program	Factory program version			◆
FF.04	Version of Property sheet program	Factory program version			◆
FF.05	Read parameters to panel	0: No operation 1: Read the local parameters to the operation panel	1	0	★
FF.06	Write parameters to the machine	0: no operation 1: Write the operation panel parameters to this machine	1	0	★

FF.07	Indicator light brightness	0-5	1	5	◆
……					
FF.10	Permission level	0-1（enter visible agent password）	1	0	◆
FF.11	Top Level Display Toggle Pages	1-5	1	4	◆
FF.12	System information	0			

4.2 Table of Status Monitoring Parameter

Monitoring code	Content	Unit	Communication address (Hexadecimal)	Remark
D-00	Current output power of UV Power Supply	kW	D000(H)	10 times quantized Communication
D-01	Current output current	A	D001(H)	10 times quantized Communication
D-02	Current output voltage	V	D002(H)	
D-03	Max. Temp. Of Module	℃	D003(H)	10 times quantized Communication
D-04	Status of Power Supply		D004(H)	
D-05	Current fault code		D005(H)	
D-06	Current warning code		D006(H)	
D-07	Current input grid voltage	V	D007(H)	
D-08	Given power value	kW	D008(H)	10 times quantized Communication
D-09	DC bus voltage	V	D009(H)	
D-10	Current light intensity feedback value	mW	D00A(H)	
D-11	Current lightbox temperature value	℃	D00B(H)	10 times quantized Communication
D-12	Power supply running time	H	D00C(H)	
D-13	Power encryption run time	H	D00D(H)	
D-14	RS485 communication status		D00E(H)	
D-15	Light intensity target value	mW	D00F(H)	
D-16	Lightbox temperature target value	℃	D010(H)	10 times quantized Communication
D-17	Module temperature 1	℃	D011(H)	10 times quantized Communication
D-18	Module temperature 2	℃	D012(H)	10 times quantized Communication
D-19	Transformer temperature	℃	D013(H)	10 times quantized Communication
D-20	AI1 analog value	V	D014(H)	10 times quantized Communication
D-21	AI2 analog value	V	D015(H)	10 times quantized Communication

D-22	X1-X4 terminal status		D016(H)	
D-23	Digital output terminal status		D017(H)	
D-24	Last fault record		D018(H)	
D-25	Last two fault records		D019(H)	
D-26	Last three fault records		D01A(H)	
D-27	Last four fault records		D01B(H)	
D-28	Last five fault records		D01C(H)	
D-29	Program Version		D01D(H)	
D-30	AO1 output	%	D01E(H)	
D-31	AO2 output	%	D01F(H)	
D-32	IO status indication (BIT)		D020(H)	
D-33	Device using time	H	D021(H)	
D-34	Output Voltage	W	D022(H)	
D-35	Rated Power(W)	W	D023(H)	
D-36	Retention constant 0		D024(H)	
D-37	Shutter status		D025(H)	
D-38	Lamp running time	H	D026(H)	10 times quantized Communication
D-39	Lamp available remaining time	H	D027(H)	10 times quantized Communication

Chapter 5 Detailed Function Description

5.1 FA Basic Parameter Group

FA.00	lamp rated power Range setting： 1.0KW～specified model

Used to set the rated power of the selected lamp, for example:
the selected model V5000-4T0060, and equipped with lamp rated power is 5.6KW； this parameter should be set to 5.6KW

NOTE: If the Lamp rated power is not set correctly, the lamp may be damaged.

FA.01	Lamp rated Voltage Range setting： 100V～Specified Model

Used to set the selected Lamp rated Voltage. Setting the lamp voltage correctly will give full play to the best performance.
For example, the electrical parameter of a lamp is: 6KW, lamp voltage is 600 V; This parameter should be set to 600V.

Note: If lamps' parameters having errors, the machine can automatically correct 10% of the lamp voltage error. When the actual lamp voltage is higher than 10%, the machine will automatically protect. When the actual lamp voltage is less than 10%, the machine will limit the power output. If you want to give full play to the best performance, you can adjust the lamp to the rated power, monitor the output voltage of the machine, and reset the actual lamp voltage according to the output voltage value.

For example, the lamp rated voltage is 600V and the rated power is 6KW. due to the manufacturing error of the lamp, the actual lamp voltage is

640V, then the machine will automatically adjust to 640 V.

According to the rated nominal calculation, when the lamp works at 6KW, the working current should be 10A and the working voltage 600 V; Due to manufacturing errors, the actual working current is 9.375A and the working voltage is 640V.

FA.02 Digital power setting	Range Setting： 2～100%

Using the operation panel this parameter sets the power output ratio digitally in the control mode. this parameter works under the condition that FA.06 sets the power given channel as the given valid operation panel.

FA.03 Lamp upper-limit current	Range setting：5.0A～Specified Model

This parameter is the maximum output current when the lamp tube is preheated or the power is increased. When the value is increased, the lamp's current is large and the acceleration is fast. When this parameter is reduced, the lamp accelerates slowly and is softer. Adjust according to actual demands.

FA.04 Lamp lower-limit current	Range setting： 1.5～5

This parameter is to limit the minimum working current of the lamp. If the lamp is extinguished when the lamp is adjusted to the minimum power, the value can be appropriately increased. Adjust according to actual needs.

FA.05 Lamp Lower-limit Power	Range setting：2～50%

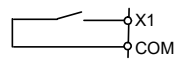
This parameter defines the minimum operating power ratio of the lamp. The lower-limit power parameter is to set the minimum output power of the machine (i.e.standby power). This parameter is related to lamp characteristics. When the given power is less than the standby power, the machine operates according to the

standby power, and when the given power is greater than the standby power, the machine outputs according to the given power. This parameter is specially set for energy-saving during intermittent production. When the machine is in standby output, the response time to return to the set power is 1 second.

For example, the equipment is 6KW, and when the standby power is set to 15%, the standby power is 900W. If the analog is given below 900W, the machine's actually outputs according to 900W. If the given power is greater than 900 W, the machine's outputs according to the given power.

NOTE: When the standby power setting is too small, the lamp will be extinguished in the standby state. because of different lamp characteristics, which can be adjusted according to actual conditions, generally 15%-20%.

FA.06 PSU control channel	Range setting： 0000～4276

Operation instruction	

This parameter divides a 4-bit parameter into groups.Each parameter corresponds to the following:

000**0**: Power start and stop mode

0: Operation panel startup

1: External terminal control X1

2: RS485 communication mode startup

3: Extended board

4: External terminal control X2

5: External terminal control X3

6: External terminal control X4

00**0**0: power given channel

0: Operation panel setting

The parameter is FA.02 or directly press the up and down button to adjust, but it should be noted that if the machine is currently in standby mode, after pressing the up and down keys, the given power will still change, but the power displayed by the progress bar is still standby power. Therefore, in standby mode, the given power should be based on the value of FA.02, and the progress bar shows the current effective power value.

1: External analog AI1

2: External analog AI2

3: Given 485 communication

4: Multi-segment power

This function is used for gear selection with the X terminal, and the gear control is matched with the value set by FB.01 – FB.03.

5: Extended board

6: Light intensity control

When this option is selected, the power supply is automatically adjusted according to the feedback value and target value of the light intensity sensor, and the correct light intensity sensor needs to be selected.

7: RS485 given power value (memory)

The machine backs up the given current power value to FE.05 and saves it. when RS485 is not refreshed or just power-on, the machine will copy the FE.05 parameter to the power register

0**0**00: delayed standby

0: Close

1: Open

This function is suitable for connecting sensor switch. It is necessary to set one of the X terminals to the standby sensor function. The delayed standby time can be set to FA.24. When this function is enabled, the X terminal is connected, the power supply immediately outputs the target power. When the X terminal is disconnected, the machine will output the minimum set power at the time set by FA.24

2.Turn to standby after power is suspended

When the 0**0**00 delayed standby function is set to 2, the on-line signal disappears, and the power immediately enters the pause power set by FE.03. after FE.05 delay, the power is switched to standby power. if the on-line signal arrives during the period, the power is switched to strong light.

0000: standby switch selection 0: operation panel

1：X1

2：X2

3：X3

4：X4

FA.07 Reservation	
FA.08 Digital output setting	Range setting： 0000～9999

This parameter defines the function programming of three OC terminals and one relay of this machine, and defines the contents represented by open-collector output terminals OC1, OC2, OC3 and relay output contacts.

The internal wiring diagram of the open-collector output terminal is shown in Figure 5-1. When the setting function is valid, the output is low level. When the function is invalid, the output is in a high-impedance state.

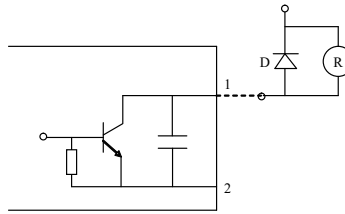


Figure 5-1 OC terminal internal circuit

Relay contact output: When the set output function is active, the normally open contact TA-TC is turned on, and the normally closed electric shock TA-TB is disconnected

000**0**：Relay

00**0**0：OC1

0**0**00：OC2

0000：OC3

0：Lamp Exhaust

When the power supply is in the running state, the lamp is lit up and the lamp voltage is detected to reach the appropriate voltage, the effective signal is output, and the invalid signal is output after the delay of FA.14 after shutdown.

1: Fault Alarm

When the external fault input signal of the digital power supply is valid and causes the digital power supply to stop, this port outputs a valid signal (low level), otherwise it outputs an invalid signal (high impedance)

2: The system is ready

After the power supply is powered on, various functions are automatically detected, and the port outputs a valid signal (low level) when it is normal, otherwise an invalid signal (high resistance) is output

3.Lamp Preheating Completion

When the lamp is started, the power supply will automatically light the lamp and preheat it with the current value set by fa.03. after the lamp voltage is increased to FA.01*0.6, the power supply thinks that the lamp preheating is completed, and the OC terminal will give signal of lamp tube preheating completion at this time.

4: Output Power Arrival

When the output power of the digital power supply is higher than the value set by FA.27, an effective signal (low level) is output; otherwise, an invalid signal (high resistance) is output.

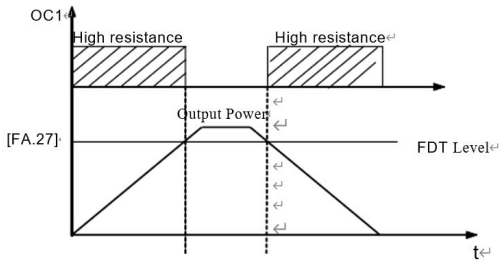


Chart 5-2

5: The Lamp Tube Pressure Reaches

When the digital power supply detects that the output voltage is higher than the set voltage value of FA.26, it outputsignal (low level), otherwise it outputs an invalid signal (high resistance)

6: The Output Current Reaches

When the digital power supply detects that the output voltage is higher than the voltage value set by FA.28, it outputs a valid signal (low level), otherwise it

outputs an invalid signal (high impedance)

7: Alarm

8: Power Is Running

When the digital power supply is running, it outputs a valid signal, and when it is stopped, it outputs an invalid signal.

9: Extended parameter FE.00 confirmed

FA.09 Analog output setting	*Range setting： 0000～9999*

000**0**: Reserved

00**0**0: Reserved

0**0**00: AO1 output analog corresponding

0000: AO2 output analog corresponding

0: Output power

When this function is selected, the 0-10V (0-20mA) analog quantity corresponds to the power output value of 0-FB.07.

1: Output voltage

When this function is selected, the 0-10V (0-20mA) analog quantity corresponds to the voltage output value of 0-FB.06.

2: Output current

When this function is selected, the 0-10V (0-20mA) analog quantity corresponds to the current output value of 0-FB.05.

3: Lightbox temperature

When this function is selected, the 0-10V (0-20mA) analog quantity corresponds to the light box temperature value of 0-FB.09.

4: Lamp exhaust PID output

When this function is selected, the analog quantity (0-10V/0-20mA) is automatically adjusted to control the inverter's exhaust.

5: Conveyor speed control

For simple open-loop conveyor speed control, the output value of the selected terminal can be determined by setting the parameter value of FE.06.

FA.10 Function switch selection	Range setting： 0000～9999

000**0**: three-phase input phase-loss detection protection

0: On

1: off

00**0**0: machine temperature alarm protection 0: On

1: off

0**0**00: fan control

0: The cooling fan is running after the digital power supply startup.

The fan stops running after shutdown, and the fan runs automatically when the detected temperature is above 40 degrees.

1: The cooling fan runs immediately after the digital power is turned on. Independent of the digital power running status.

0000: OC output status

0: All low level valid

1: all high level valid

2:001 (OC1 active high level, other active low level)

3:010 (OC2 active high level, other active low level)

4:011 (OC1 and OC2 are active high level, OC3 is active low level)

5:100 (OC3 active high level, other active low level)

6:101 (OC1 and OC3 are active high level and OC2 is active low level)

7:110 (OC2 and OC3 are active high level, OC1 is active low level)

FA.11 Parameter initialization	Range setting： 0～2

1: Restore factory settings

2: Clear fault records

FA.12	RS485Communication setting	Range setting： 0000～9999

000**0**： Baud Rate Selection

0: 1200 bps

1: 2400 bps

2: 4800 bps

3: 9600 bps

4: 19200 bps

00**0**0: Data Format Selection

0: no inspection

1: odd inspection

2: Even inspection

0**0**00 : Communication Protocol

0: MODBUS

0000: Communication failure processing

0: keep the original state

1: stop

FA.13	RS485 communication address	Range setting： 0～247

0: Broadcasting

1-247: Slave Address

When RS485 communication address is 0, it is broadcast mode, and the device will respond to all commands with correct parameter address, but will not reply to

any parameters.

FA.14 CAN Communication setting

For setting baud rate value in CANOPEN mode, it is necessary to cooperate with CANOPEN communication board. For specific settings, please refer to our company's "Operation Instructions for CANOPEN Communication Board".

FA.15 CAN Communication Address

1-247 is COB-ID value in CANOPEN mode. It needs to be used with CANOPEN communication board. Please refer to our " Instructions for CANOPEN Communication Board" for specific settings.

FA.16 Long-term allowable current Range setting：lower limit-upper

This parameter limits the long-term current allowed by the machine. When the lamp current exceeds this value for 10 minutes, the machine will stop outputting and report the fault code 13, and the power supply will be in an alarm state within 10 minutes.

FA.17 Panel lock Range setting： 0～1

0: Open the operation panel control, at this time the operation panel can change the parameters.

1: Lock the operation panel control. The operation panel cannot change parameters other than FA.17 in this state.

FA.18 Lamp Control Selection Range setting： 0000～1711

000**0**: Lamp type selection (V series does not have this function, the setting is invalid)

0: high pressure mercury lamp

1: metal halogen lamp

00**0**0: lamp preheat protection function

0: off

1: open

0**0**00: the longest time for lamp preheating:

0：3min

1：5min

2：7min

3：10min

4：12min

5：15min

6：17min

7：20min

0000: power supply control mode

0: Power supply control mode 0

This mode is the default control mode of the machine. If there is no special requirement, please use this mode.

1: power supply control mode 1

In this mode, when the adjusted lamp attenuation causes the lamp voltage to drop, the machine no longer replenishes the current to balance the power, but reduces the power to keep the machine running for a long time.

FA.19 Lightbox temp. control	Range setting： 0000～1472

000**0**: Lamp Exhaust PID Type:

0: closed loop output power

When this function is used, the lamp exhaust frequency is proportionally output

according to the output power and the lamp rated power, wherein the initial frequency of the exhaust is FB.17*FA.00 and the maximum output corresponding to the exhaust is FB.18*FA.00

1: Lightbox temperature control

When using this function, an external temperature sensor is required, and the lamp is exhausted according to the actual temperature detection for temperature closed-loop control.

2: Lamp voltage control

When this function is used, the lamp exhaust frequency is proportionally output according to the output power and the lamp rated power, wherein the initial frequency of the exhaust is FB.17*FA.01 and the maximum output corresponding to the exhaust is FB.18*FA.01

000: lightbox temperature detection channel

0：AI1

1：AI2

2：RS485

3: Extended board

4: X1 temperature switch detection

5: X2 temperature switch detection

6: X3 temperature switch detection

7: X4 temperature switch detection

00: given lightbox temperature channel

0: AI1

1: AI2

2: Digital setting

3: RS485

4. Extended board

0000: Automatic pressure keeping

0: off

1: open

When the automatic voltage holding function is turned on, it is used with the functions of automatic voltage stabilization start value (FB.15) and automatic voltage stabilization stop value (FB.15), and the voltage fluctuates between FB.15-FB.16

FA.20 Light intensity control	Setting range: 00～

000**0**: light intensity feedback channel

0: Analog AI1

1: Analog AI2

2: RS485

3: board

00**0**0: given light intensity channel:

0: number setting

1: analog AI1;

2: analog AI2;

3: RS485;

4: Board

This function is effective when FA.06 sets the given power channel to light intensity control. The light intensity target value is selected by **0**000, and the actual light intensity detection channel is selected by 0**0**00.

FA.21 Light box temperature digital setting	Setting range: 30～300℃

Light box temperature target value, valid when the light box temperature control type is light box temperature closed loop

FA.22 Light intensity digital setting	Setting range: 30～

Lamp output light intensity target value

FA.23 Reserve

FA.24 Standby delay time	Setting range: 0～

Set the time when the X terminal standby switch control is activated. The time unit is seconds

FA.25 Lamp exhaust delay time	Setting range: 1～100min

When the OC terminal is set as the lamp ventilation signal, the ventilation will be automatically activated after the power supply is turned on, and the ventilation signal will be turned off after a delay of the set time after the light is turned off. The unit of time is minutes

FA.26 Voltage arrival	Setting range:

When the output voltage is higher than this value, OC signal output

FA.27 Power arrival	Setting range: 1.0～

When the output power is higher than this value, the OC signal output

FA.28 Current arrival	Setting range: 1.0～20A

When the output current is higher than this value, OC signal output

FA.29 Lamp excitation time	Setting range:

This parameter is the excitation time when the lamp starts. When the lamp cannot

be activated normally within this time, the power supply will stop outputting and give an alarm. The time unit is seconds.

5.2 FB Advanced Parameter Group

FB.00 Lamp exhaust lower limit	Range setting： 0～100%

The exhaust lower limit power is the lower limit frequency of the inverter running. This value can be set by the inverter or set by machine. Setting 0, it is invalid. If setting non-zero value, it corresponds to the percentage of 10V. FA.09 is effective when setting the PID output of lamp exhaust. For example, if set to 10%, the selected terminal minimum output is 1V.

FB.01- FB.03 Multi-segment power	Range setting：20～100

This value is classifying control power, which is a percentage. Two X terminals are selected as the gears by FB.20, and four states of 00, 01, 10, and 11 are combined; respectively, 00 corresponds to standby power, 01 outputs corresponding to FB.01, and 10 outputs corresponding to FB.02,11 When the output corresponds to FB.03

FB.04 Shutter Control	Range setting：

000**0**: Shutter open detection terminal

00**0**0: Shutter closed detection terminals

0: invalid

1: X1

2: X2

3: X3

4: X4

00**0**0: Shutter detection mode

0: Open and closing all tested

1: Normally open single switch detection

2: Normally closed single switch detection

3: Control only, not detecting the shutter's step

0000: Manual shutter response

0: Manual shutter control is not allowed

1: stop, delay exhaust, fault status can manually switch shutter

2: The shutter can be controlled manually at any time.

FB.05 AO corresponded upper limit current Range setting：1～30A

This parameter is AO output reference value. When setting 20A, AO outputs 10V corresponding to output current is 20A.

FB.06 AO corresponded upper limit voltage	Range setting：100～4000V

This parameter is the AO output reference value. When the value is set to 2000V, the corresponding output voltage is 2000V when the AO outputs 10V.

FB.07 AO corresponded upper limit power	Range setting：10～100

This parameter is AO output reference value. When setting 50W, AO output 10V corresponding to 50% output power

FB.08 AI, AO corresponding light intensity value	Setting range: 100～5000mW

This parameter is the conversion ratio. When it is set to 2000mW, if the voltage collected by AI is 10V, it means that the light intensity value at this time is 2000mW, and the converted value is displayed on D-10

FB.09 AI、AO corresponded temp.	Setting range：100～300℃

This parameter is the conversion ratio. When it is set to 200°C, if the voltage collected by AI is 10V, it means that the temperature value at this time is 200°C, and the converted value is displayed on D-11

FB.10 Light box temperature alarm value

When the light box temperature alarm function is turned on, it is detected that the light box temperature exceeds this value and the fault signal is output

FB.11 Lampbox temp. control Value P

When the parameter is controlled by the lampbox temp., the PID controls the adjusted value P.

FB.12 Lampbox temp. control Value I

When the parameter is controlled by the lampbox temp., the PID controls the adjusted value I.

FB.13 Light intensity Control Value P

When the parameter is controlled by the light intensity, the PID controls the adjusted value P.

FB.14 Light intensity closed Control Value I

When the parameter is controlled by the light intensity, the PID controls the adjusted value I

FB.15 Start-up value of lamp holding pressure	Setting range: 20%-80%

This parameter works when FA.19 **0**000 are selected 1.

FB.16 Closing Lamp Voltage Holding	Setting range：30%-100%

This parameter works when FA.19 0000 are selected 1.

FB.17 Corresponding Value of 0V lamp exhaust	Setting range: 0%-90%

This parameter is the percentage of power or tube voltage relative to the rated value. FA.09 sets the lamp exhaust PID output. It is valid when FA.19 0000 setting to 0 or 2. When the parameter is smaller than this parameter, the corresponding AO output the lower limit which set by FB.00

FB.18 Corresponding value of 10V lamp exhaust	Setting range：0～100%

This parameter is the percentage of power or tube voltage relative to rated value. FA.09 sets PID output of lamp exhaust and FA.19 sets to 0 or 2. When the parameter is larger than this, the corresponding AO output is 10V.

FB.19 Low Voltage and Bus voltage Protection	Setting range：0000～0011

000**0**: Voltage Protection in Low Power Grid

0: close

1: open

When the grid voltage is too low, the machine can not operate normally. the grid voltage is lower than the undervoltage value of FE.39, the output undervoltage fault occurs.

00**0**0: bus voltage anomaly detection

0: close

1: open

Bus voltage anomaly detection is only carried out at the beginning of power-on. If detected the fault, it may cause internal damage of the machine, please do not light the lamp. power off for one minute, power-on again. If the fault still exists, please contact our after-sales department to solve.

FB.20 Multisegment Power setting	Setting range：0000～0032

000**0**: Multi-segment Power 000**0**.

00**0**0: Multi-segment power 00**0**0.

0:X1 terminal

1:X2 terminal

2:X3 terminal

3:X4 terminal

FB.21 Shutter operation timeout	Setting range：0.1-60.0S

When the shutter detection mode set by FB.04 is not 3, if the shutter does not operate smoothly within the time-out period, the output fault will occur.

FB.22Lamp timing and delayed power off	Setting range：0000~1421

000**0**: enabled lamp timing function

0: close

1: open

00**0**0: lamp life's over

0: No action

1: Alarm and continue operation

2: alarm Next startup

0**0**00: Delayed power off mode

0: Release self-power off and manually power on, light off signal trigger

1:X1 trigger

2:X2 trigger

3:X3 trigger

4:X4 trigger

0000: type of trigger switch for delayed power off

0: Normal closed type, disconnect output self-locking, close trigger and power off 1: Normal open, closed output self-locking, disconnection trigger and power off

FB.23 Lamp life availability	Setting range：0.1~6000.0H

Lamp timing is on, this parameter is used to judge whether the lamp life over or not.

FB.24 Delayed power off time	Setting range：

After the delayed power-off function is enabled, the set digital terminal will release the self-locking signal or output the tripping signal of the release after the time set by this parameter passes after the power-off is triggered. If this parameter is less than the exhaust delay time, the power-off delay is calculated by the exhaust delay time, and after the exhaust is completed, a power-off signal is output; it is recommended to set this value slightly greater than the exhaust delay time to prevent the fan from powering off before it stops completely .

FB.25 Advanced Fault Function	Setting range：0000~1213

000**0**: External Fault Input Function

0：Invalid 1：X1

2：X2

2：X3

3：X4

When the corresponding X-terminal input is valid, the machine lights out and outputs faults, which can be used to monitor whether the exhausted frequency converter has faults etc.

00**0**0: lightbox temperature protection function 0: close

1: open

0**0**00: lightbox temperature sensor type

0: Temperature Transmitter

1: Normally Open Temperature Switch

2: Normally Closed Temperature Switch

0000: external fault input type

0: Frequently open fault input

1: Normally Closed Fault Input

FB.26 Lamp excitation intensity	Setting range：32-80

This value is the excitation intensity of lamp startup. The greater the value, the smaller the intensity. It is not recommended that the customers modify it casually. The manufacturer has matched the better condition. Please operate under the guidance of the manufacturer.

FB.27 Factory Password Reservation

FB.28 Proxy password	Setting range：00000～65535

This parameter is used by the agent to set the password protection, and its effective range is 00000~65535. When the password setting is valid, the running time limit of the digital power supply can be set, that is, FB.29 is valid and can be set. If you want to modify the password First of all, you should enter the current

password correctly, and then you can change it. Enter the correct and valid password and press SET to confirm and save the set password.

FB.29 Allowable running time　Setting range：0～65535H

The allowable run time can only be changed when the proxy password is entered. When the machine runs longer than the allowable run time, the machine is locked and it is not allowed to continue running.

5.3 FE Extended Parameter Group

FE.00 Digital terminal digital function selection Range setting：0000～3333

000**0**: Relay Extension Function Selection

00**0**0: OC1 Extended Function Selection

0**0**00: OC2 Extended Function Selection

0000: OC3 Extended Function Selection

FE.01 Shutter closing delayed time Range setting：0～60000MS

When the on-line signal disappears, the shutter closes after delayed time.

FE. 02 Default shutter status Range setting：0000～1111

000**0**: shutter status during shutdown

00**0**0: shutter status in case of failure

0**0**00: shutter state during delayed exhaust

0: Default shutter closure

1: Default shutter open

0000: shutter trigger mode

0: Enter Standby Power Trigger

1: On-line signal triggering

FE.03 Pause power Range setting：FA.05～

When the 0**0**00 of FA.06 is set to 2, the on-line signal will be transferred to the pause power after it disappears, and the pause power will be set by this parameter.

FE.04	Power delayed time	Range setting：0~60000MS

After the on-line signal disappears, transferred to the suspension power after the time set by this parameter.

FE.05 RS Given Power Holding Register Value	Range setting：0~100%

When the 0000 power given channel of FA.06 is set to 7, this parameter is used to backup power given value.

FE.06	Given AO Speed Value	Range setting：0~100

0-100 corresponds to 0-10V analog output for simple conveyor speed control

FE.07	AO Max. speed	Range setting：0~300.0M/min

Used to set the maximum conveyor speed when AO output 10V. Used to convert the current speed to display in the interface.

FE.08	AI1 Input range	Range setting：1~10V

When the external signal is not 0~10V input, this parameter can be adjusted to make the input correspondence to 0~10V input.

FE.09	*AI2 Input range*	*Range setting：1~10V*

FE.10	*AO1 output range*	*Range setting：1~10V*

When the external device is not 0~10V input, this parameter can be adjusted to make the input correspondence to 0~10V input.

FE.11 AO1 output range	Range setting：

FE.08~FE.11 is used to set the corresponding relationship of analog input and output when it is not standard analog 0-10V

FE.12 Running status lower limit	Range setting：0~1

In order to make the power of the device not less than a certain value in operation, this parameter can be set to 1 to enable this function. If this parameter is set to 1 and FE. 13 is set to 60, the lower limit of operation is still 60% when the given power is less than 60%. The standby power is independent of this parameter.

FE.13 Lower limit power while running	Range setting：FA.05~100%

The lower limit power value in operation state setting to FE. 12 is valid.

FE.14 Function setting while running	Range setting：0000~001

After running, only when the enabled signal is valid, can normally light the lamp. Otherwise, the machine will report No. 25 malfunction, indicating that there is no operation enabling signal. After lighting, if the enabling signal fails, the machine will stop immediately and report No. 25 malfunction. This function can be used to detect whether the conveyor is working or not.

000**0**: Operating Enabled Terminal Selection

0: Function Invalid

1:X1

2:X2

3:X3

4:X4

000: Running enabled terminal type

0: normal open type

1: normal closed type

FE.39 Undervoltage Value of Power Grid	Range setting：160~400V

When the grid voltage is below this value, the machine will no longer operate and the output power grid is low voltage fault.

5.4 FF User Parameter Group

User parameter group is used to set operation panel to display related parameters.

FF.00 Language	*Range setting：0~1*

0: Simplified Chinese

1: English

FF.01 Backlight property	Range setting：

0: delayed shutdown while no operation

1: Always-on

2: Always-on while running, delayed shutdown while stop

FF.02 No Operational Screen Extinguishing Time	Range setting：0~300S

Closing Backlight while delayed operating panel

FF.03 Operational Panel Program Version	*Range setting：Read Only*

FF.04 Operational Panel Property Table Version	Range setting：Read only

FF.03 and FF.04 are used to view the version number of the operation panel program and the version number of the parameter table.

FF.05 Read parameters to panel	Range setting：0~1

0: no operation

1: Copy the parameters of the machine into the operation panel

FF.06 Write parameters to machine	Range setting：0~1

0: no operation

1: Copy the parameters in the operation panel to the machine

When using parameter copy function, it is necessary to ensure that the model number and program version number of the two machines are identical (monitoring parameter group D-29), otherwise they cannot be copied successfully.

FF.07 Indicator light brightness	Range setting：0~20

Setting the brightness of the operation panel indicator, the smaller the value, the higher the brightness.

FF.10 Permission level	Range setting：0~1

This parameter can be displayed only after entering the agent's password. When this parameter is set to 1, the user can not change the parameters. Only after entering the agent's password (FB.28), the parameters can be changed.

FF.11 Top-level Display Pages Switching	Range setting：0~5

It is used to switch the page number of switching parameters by pressing << in the monitoring state. If this parameter is set to 2, pressing the << key on the top display page can only switch to the display page of output voltage and output current and the display of given power and output power page, other pages will be hidden.

FF.12 System Information

Chapter 6 Communication Protocol

This machine adopts standard MODBUS protocol and supports 03 (H) to read multiple hold registers and 06 (H) to write two function codes to a single register. The physical layer adopts standard RS485 bus. The definition of V5000E series machine communication is compatible with V3000 series machine. The original V3000 control program can be used directly. When reading D0 monitoring parameter group, some parameter addresses have been adjusted.

6.1Protocol Specification

Application layer protocol: MODBUS-RTU.

Physical layer: RS485

Special Provisions: In this application, additional constraints added to the starting conditions of data frames stipulate that the starting interval of each data frame is longer than 3.5byte transmission cycle (standard), but the minimum interval time should not be less than 0.5 ms.

6.2 Data Format

ADU							
Address	Function Code	Data 1	……	……	Data n	CRC Low	CRC High
	PDU						

Data structure: MODBUS-RTU standard format

The address and function code each occupy one byte, the High of 16-bit data is at the front, and the Low at the back.

Maximum capacity of per data frame.

256 bytes (ADU) containing the address and CRC verification code.

6.3 Standard General Function Codes

In PDU data area, besides the function code occupying one byte, the number of bytes occupied by each data has general rules:

1.Number of registers: 2 bytes, counted in words (16 bits)

2.Number of bytes (number of queries or writes to registers): 1 byte, unit counted in bytes (8 bits)

3.Subfunction code: 2bytes

4.Abnormal Response: Exception Code 1 byte

PDU	
80H+ Function code	Exception code（01～08）

03 Read holding registers (multiple)

1）Query

Function Code	1 Byte	03H
Initial Address	2 Bytes	0～FFH
No. Of Register N	2 Bytes	1～7DH（1～125）

2）Response

Function Code	1 Byte	03H
Bytes	1 Bytes	2*N （ N is reading the No. of Register）
Value of Register	N*2 bytes	

N：Query the number of registers in the data

06 Writing to a single register

1）Query

Function code	1 Byte	06H
Register Address	2 Bytes	0 ~ 0FFFFH
Register Value	2 Bytes	0 ~ 0FFFFH

2）Response

Same as query data.

Exception code

When the system detects that the slave address of the communication is correct and the function code is correct, but the data does not meet the requirements of MODBUS-RTU, the error code with the error address of 8000 (H) will be replied.

Exception Code	
Code	Meaning
01	Illegal address
02	CRC Check Error
03	Illegal parameters
04	The command in the current state is invalid
05	Read parameters only, refuse to write
06	Write parameters only and refuse to read
07	No permission
08	Unknown error

6.4 Communication Parameter Address Definition Table

Register's Meaning	Register Address Space (Hexadecimal）	Reading and writing property	Parameter Description
Operating command	1000(H)	Writing	1: Start 2: Stop
Power reference	1001(H)	Reading & Writing	power reference, 0-100 integer indicates relative power rating
Forced Exhaust	1002(H)	Writing	Stop status is valid 1: Start 2: Stop
Forced shutter	1003(H)	Writing	Stop status is valid 1: Start 2: Stop
Timing Clearance	1004(H)	Writing	1：Current lamp timing, running time of lamp less than 1 hour is invalid
Temperature detection	1005(H)	Writing	Using for current LightBox Temperature Writing While PID exhaust Control
Target Temperature	1006(H)	Writing	Using for current target Temperature Writing While PID exhaust Control
Light Intensity Detection	1007(H)	Writing	Current Light Intensity Detection Value Writing While Light Intensity Closed-Loop Control
Current intensity target	1008(H)	Writing	Current intensity target value writing while light intensity closed-loop control
Power reference	1009(H)	Writing	Power reference, keeping power-off

Channel enable A	100A(H)	Writing	Channel 1-16 communication enable		
Channel Enable B	100B(H)	Writing	Channel 17-20 communication enable		
Terminal Control	4000(H)	Writing	Relay 1：pull-in 0 disconnected		
Terminal Control	4001(H)		OC1 1：valid 0：invalid		
Terminal Control	4002(H)		OC2 1：valid 0：invalid		
Terminal Control	4003(H)		OC3 1：valid 0：invalid		
Power status	D004(H) 2000(H) 3000(H)	Reading	D004(H) return	2000(H)return	3000(H)Bitwise return
			1: running 2: Excitation 3: stop 4:malfunction 5: Delay	1: Run (including excitation) 2: stop (including delay) 3: malfunction	1: Stop 2: Excitation 4: Running 8: Malfunction 16: delay
Monitoring parameters	D000(H)-D027(H)	Reading	Corresponding state monitoring parameter table		
Fault information	D005(H) 5000(H)	Reading	Return 0 is no fault, other values are fault codes		

ATTENTION:

1.For details on the monitoring parameter address, please refer to "4.2 Status Monitoring Parameter Table";

2.The “power status” and “fault information” data shown in the above table have been integrated into the D0 monitoring parameter group. For the V3000 series machines, addresses of 2000 (H) and 5000 (H) are reserved. Users are advised to use the monitoring parameter group to read.

3.Fault information reading return value of 0 indicates no fault, and the fault returning code shown in the table of "6.3 Fault Phenomenon and Processing" when there is a fault.

6.5 Example

1.Start 1 # Digital Power Supply Operation

Host request:

Slave Address	Function Code	Register Start Address		Register Data		CRC Check	
		High	Low	High	Low	Low	High
01	06	10	00	00	01	4C	CA

Slave Reply: The digital power supply runs and returns the same data as the host request

2.Given power (0-100%) if rated power is 6KW and given power is 3KW, the given percentage is 50%.

Host request:

Slave Address	Function Code	Register Start Address		Register Data		CRC Check	
		High	Low	High	Low	Low	High
01	06	10	01	00	32	5D	1F

Slave Reply: The digital power supply runs and returns the same data as the host requests.

3.Read the Current Operation State of Digital Power Supply

Host request:

Slave Address	Function Code	Register Start Address		Number of Data		CRC Check	
		High	Low	High	Low	Low	High
01	03	20	00	00	01	8F	CA

Slave Reply：

Slave Address	Function Code	Read bytes	Data of First Register		CRC Check	
			High	Low	Low	High
01	03	02	00	01	79	84

4. Monitor the current output power of the digital power supply (read the value of a single register)

Host request:

Slave Address	Function Code	Register Start Address		Number of Register		CRC Check	
		High	Low	High	Low	Low	High
01	03	d0	00	00	01	BC	CA

Slave response: (power is 6 KW reserved one decimal)

Slave Address	Function Code	Read Bytes	Data of First Register		CRC Check	
			High	Low	Low	High
01	03	02	00	3C	B8	55

5.Monitor the current output power, voltage and current of digital power supply (read multiple register values)

Host request:

Slave Address	Function Code	Register Start Address		Number of Register		CRC Check	
		High	Low	High	Low	Low	High
01	03	d0	00	00	03	3D	0B

Slave Reply:

Slave Address	Function Code	Reading Bytes	The Data of the First Register		The Data of the Second Register		The Data of the Third Register		CRC Check	
01	03	06	High	Low	High	Low	High	Low	Low	High
			00	06	02	BC	00	0A	E9	2E

6.When RS485 master station equipment sends startup command to digital power supply with slave station number 1, but CRC is wrong, digital power supply replies abnormal code, and replies mechanism of other abnormal code is similar.

Host request:

Slave Address	Function Code	Register Start Address		Data of Register		CRC Check	
		High	Low	High	Low	Low	High
01	06	10	00	00	01	4B	CA

Slave Reply：Reply exception code

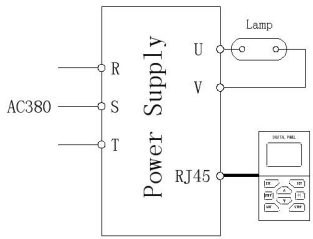
Slave Address	Function ode	Register Start Address		Register Data		CRC Check	
		High	Low	High	Low	Low	High
01	06	80	00	00	02	21	CB

Chapter 7 Quick Application and Troubleshooting

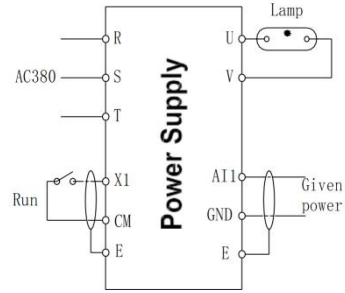
This chapter provides users with two examples of fast use, based on V5000-4T1060, matching lamp is high-voltage mercury lamp, rated voltage 900V, to achieve 10%-100% stepless dimming, as follows:

7.1 Simple Application

This example is to provide users with a simple way to use, or provide operation panel to control for manufacturers.



6-1 Simple Wiring Diagram of Operation Panel



6-2 Simple Wiring Diagram of Extern Terminal

Example 1. Controlling Power Supply Via Operation Panel

Under the factory default parameters:

1. Electrical connection: R, S, T are connected to three-phase 380V AC power supply, UV terminal is connected to the lamp as shown in Figure 6-1.

2. Lighting operation: press RUN to light, press STOP to turn off the light, press STBY to standby

3. Power adjustment: Press FA.02 under the initial interface.

to adjust the power or directly set the parameter

Example 2: Controlling Power Supply via External Terminal

1. Electrical connection: R, S, T are connected to three-phase 380V AC power supply, UV terminal is connected to the lamp as shown in Figure 6-2.
2. Lighting operation: close X1 and start lighting signal, give AI1 external analog to adjust power Power adjustment: change the external analog value of AI1 to adjust the power
3. Power adjustment: change the external analog value of AI1 to adjust the power

No.	Function code	Parameter Description	Setting Value	Setting value selected items
1	FA.00	Lamp rated power	6.0	Set the lamp rated power to 6.0KW
2	FA.01	Lamp rated voltage	900	Set the lamp rated voltage to 900V
3	FA.06	PSU control channel	0011	External terminal X1 is activated and AI1 adjusts power

7.2 High-end Applications

This example is to provide users with communication control , as follows: Example, RS485 communication control

7.2.1 Electrical connection

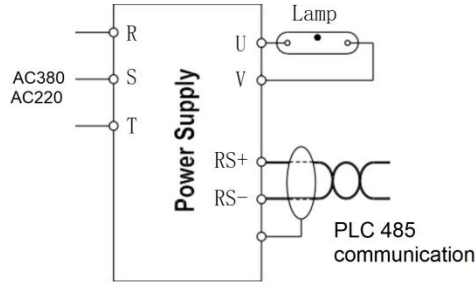


Figure 6-3 Wiring Diagram of User Communication Application

1.Electrical connection: R, S, T are connected to three-phase 380V AC power supply, and the UV terminal as shown in Figure 6-3.

2.Lighting operation: send lighting instructions to light

3.Power adjustment: transmission data of power

(In the communication control mode, you can also select the external node to control the start and stop, refer to the simple application parameters and wiring.)

7.2.2Parameter Settings

NO.	Function Code	Parameter Instruction	Setting Value	Setting Value Selected Items
1	FA.00	Lamp Rated Power	6.0	Set the lamp rated power to 6.0KW
2	FA.01	Lamp Rated Voltage	900	Set the lamp rated voltage to 900V
3	FA.06	Power Supply Control Channel	0022	RS485 lighting and adjusting power

4	FA.12	Communication Setting	0003	MODBUS baud rate is 9600, no verification
5	FA.13	Local Address	1	Slave Address 1

7.2.3 PLC Programming

Referring to the PLC routines provided by our company's website, the company's website will provide the PLC paradigm procedures of Mitsubishi, Siemens, Delta, Credit and other companies, or contact manufacturers for technical support and communication.

7.2.4Lighting and Adjusting Output Power

1.To send a light-up instruction is to light a lamp.

2.Transmitting target power is changing output power

7.3 Fault Phenomena and Handling

This series have abundant function of fault alarm and warning. Fault alarm refers to the failure of the equipment and the failure of the machine. After the alarm occurs, the machine blockades the output, the fault indicator light of the operation panel is on, and the fault code and fault description are displayed.

The warning is that the current working state of the machine is beyond the normal working range, reminding users that there may be a fault in the machine. After the warning occurs, the machine continues to run, the warning code is displayed alternately in the operation panel, and the fault indicator flashes. When the machine returns to its normal state, the warning is automatically cancelled. Generally speaking, the warning of the lamp during the excitation stage or switching from low power to full power accompanied by short overcurrent is a

normal phenomenon.

The malfunction alarm code table is as follows:

Malfunction Code	Malfunction Description	Possible Causes	Solutions
1	Output Short Circuit	1.Output Short Circuit	1. Check lamp line.
		2. Module failure	2.Seeking Manufacturer's Service
2	Fault of Temperature Sensor	1.Poor contact of temperature sensor signal line	1.Inspection of socket wiring
		2.Temperature sensor damage	2.Seeking Manufacturer's Service
3	Current Detection Fault	1. Current detector or circuit damage	Seeking Manufacturer's Service
		2. Auxiliary power fault	
4	Module Fault	1. Input phase missing	1.Check Input voltage
		2. Output Short Circuit	2.Check lamp line
		3. Machine Module Fault	3.Seeking Manufacturer's Service
5	Input Phase Missing	1.False disconnection of power input terminal	Inspect Input power supply
		2.Input electricity supply shortage	
6	Output Leakage	1.Lamp wire insulation damage	Part of model support
		2.Lamp damaged	Check lamps and cables
7	Excessive Temperature	1.Air-duct Blockage	1.Cleaning air-duct or improving ventilation conditions
		2.Ambient temperature is too high	2.Improving ventilation conditions

Malfunction Code	Malfunction Description	Possible Causes	Solutions
			and reducing carrier frequency
		3.cooling fan is broken	3.Replacement of Cooling Fan
8	Module Fault	1.Output Short Circuit	1.Check Lamp Line
		2.Module failure	2.Seeking Manufacturer's Service
9	Abnormal Start-Up	1. Lamp overheating	1.Whether the startup interval is too short or not?
		2.Lamp lead length disconnection	2.Lamp lead length disconnection
10	Drive Overload	1、Input voltage is too low	1.Check the input voltage and increase the cable diameter
		2、 Lamp Voltage is too low	2.Change the lamp
		3、 Ambient Temperature is too high	3.Improve ventilation conditions and reduce carrier frequency
		4、 Cooling fan can not work	
11	Overvoltage Protection	1.Lamp overheating due to ventilation failure	1. Check exhaust
		2.Lamp lead length disconnection	2.Lamp lead length disconnection
		3. Rate lamp voltage setting is wrong	3、Reset lamp voltage
12	Reservation		
13	Overcurrent Protection	1.Over-exhaust	1. Adjust the exhaust
		2. Abnormal lamp	2. Change the lamp

Malfunction Code	Malfunction Description	Possible Causes	Solutions
14	EEPROM Storage Error	Power supply running time arrives	Seeking Manufacturer's Service
15	Low Grid Voltage	That the grid voltage is lower than the set value of FE.39 lasts for 6 seconds.	Check grip voltage or FE.39 parameter
16	Shutter fault	Abnormal shutter switch	Check shutter's operation
17	Excessive temp. of lamp box	Poor heat dissipation of the lamp or malfunction of the temp. sensor	1.Increase the exhaust
			2.Reducing Operating Power
			3.Replacement of Temp. Sensor
18	External Input Faults	Fault input by X terminal	Check the corresponding fault output of equipment
19	Lamp Run time Reached	The lamp running time has reached the set lamp running time	Replace Lamp and Reset Lamp Run Time
20	Communication Timeout	communication does not respond,given the power or start-stop controlled by the communication	Check the communication line
21	Bus Voltage Anomaly	Self-check Anomal	Power off for three minutes, Power on again. If the faulty code still exist, please seek manufacturer's service
22	Allowable Running Time arrival		Seeking Manufacturer's Service

Malfunction Code	Malfunction Description	Possible Causes	Solutions
23	Power- off trigger	Delayed power-off function triggered	Machine will be power-off
24	Preheating overtime, lamp voltage is too low.	Preheating is not completed within the prescribed time	1.Replacement of matched voltage lamp
			2.Extending lamp preheating time
			3.Seeking Manufacturer's Service

The fault warning code is represented by a byte, as shown in the following table

Binary Bits	BIT7-BIT4	BIT3	BIT2	BIT1	BIT0
Warning Function	Reservation	Arrival of allowable running time	Arrival of lamp running time	1：over current	The machine temperature is too high

Common warning code table:

Code	Meaning
01	01 The internal temperature of the machine is too high, the fan is damaged or the ambient temperature is too high.
02	Over-current, the current exceeds the long-term allowable current, and the excitation state warning 02 is generally normal.
03	01Warning、02 Warning
04	Arrival of Lamp running time
05	04 Warning、01 Warning

06	04 Warning、02 Warning
07	04 Warning、02 Warning、01 Warning
08	Arrival of allowable running time, please contact the agent.

When the temperature of the machine module is over 70 degrees Celsius, the machine temperature is too high to take effect. At this time, the BIT0 of the warning code is 1, and when the temperature is below 69 degrees Celsius, the warning is canceled.

When the output current is greater than the long-term allowable current value defined by FA.16, the over-current warning occurs and warning code BIT1 is 1, the warning will be canceled when the output current is less than FA.16-0.2A.

That is, when the warning code is 01, the machine temperature is too high and the output current is too high when the code is 02. If the two warnings exist simultaneously, the warning code is 03.

Common alarm solutions are as follows:

1. The machine reports 05 failure

Solution: Detect both of the following

a. Whether the three-phase input voltage is normal

b. Abnormal power failure

2. The machine reports 01 failure

Solution: If 01 is reported start instantaneously, the problem is that the output is short-circuited

3. The machine reports 09 failure

Resolution: There are several scenarios for this situation

a. First check whether the lamp is connected correctly;

b. If the lamp is connected correctly, confirm whether the lamp has cooled

down;

4. The machine reports 11 failure

Solution: If the machine has 11 alarms, there are two situations

a. It is indicated that the lamp working voltage is higher than 1.1 times the rated voltage of lamp set in power supply, and it is necessary to increase the lamp rated voltage (FA.01)

b. If the lamp goes out at the moment of standby, it should be that the lower limit current of the lamp is set too low to cause the lamp to extinguish, and the value in FA.04 should be appropriately increased

5. The lamp is lit, but the power cannot be adjusted

Solution: This situation first checks whether the given power is effectively delivered to the power supply (see the given power level); If the given power is normal, it is necessary to confirm whether the lamp exhaust is on or too large, if it is too large, it is necessary to reduce the exhaust air or turn on the exhaust after the lamp is lit.

6. 13 faults are reported during power supply operation

Solution: 13 faults for power supply overcurrent protection, when the power supply output current continuously exceeds the value set by FA.16 for more than 10 minutes, the power supply will stop the output to prevent excessive current from burning the power supply. It is recommended to check the equal voltage and replace the matching lamp.

Chapter 8 Maintenance and Care

Affected by many factors such as ambient temperature, humidity, dust, vibration and aging of power supply components, the power supply has hidden troubles. In order to ensure long-term and stable operation of the power supply, the power supply must be regularly maintained.

If the power supply is transported over long distances, check whether the components are intact and the screws are tight before using. During normal using, regularly clean the dust inside of the power supply and check if the screws are loose etc.

- ATTENTION: The inspection must be carried out by a professional technician and the electricity of the power supply should be cut off.

8.1 Daily Inspection and Maintenance

Through daily inspection and maintenance, you can find all kinds of abnormal conditions in time, find out the cause of the abnormality in time, eliminate the hidden troubles early, ensure the normal operation of the equipment, and extend the service life of the power supply. Please refer to the table below for daily inspection and maintenance.

Chart of Inspection and Maintenance

Inspected object	Inspection Cycle		Inspected contents	Discrimination standard
	Anytime	Regular		
Operating environment	√		1.Temp., humidity 2.Dust, moisture 3.Gas	1.The power cover should be opened when the temp. is over 40 °C, the humidity is below 90%, no frost 2.No odor, no flammable, explosive gas
Cooling system		√	1.Installation environment 2.Fan of power supply	1.The installation environment is well ventilated and the air duct is non-blocking. 2.The fan runs normally without abnormal noise
Power supply	√		1.Vibration, temperature rise 2.Noise 3.Wires and terminals	1.Smooth vibration, normal air outlet temperature 2.No abnormal noise, no odor 3.The fastening screws are not loose
Lamp	√		1.Vibration, temperature rise 2.Noise	1.Smooth operation and normal temperature 2.No abnormalities, uneven noise
Input and output parameters	√		1.Input voltage 2.Output current	1.The input voltage is within the specified range. 2.The output current is below the rated value

ATTENTION:

- The power supply has been tested for electrical insulation before leaving the factory, and the user does not have to perform the high-voltage insulation testing.
- If the power supply must be tested for insulation, all input and output terminals (R, S, T, U, V) must be connected reliably. It is strictly forbidden to test the insulation of a single terminal. Please use a 500V megger for testing.
- The control loop can't be measured by megaohmmeter.

8.2Inspection and Replacement of Consumable Parts

Some components in the electronic power supply will wear out or degrade during using. To ensure stable and reliable operation of the power supply, preventive maintenance of the power supply and replacement of parts if necessary.

8.2.1Filter Capacitor

The pulsating current of the main circuit affects the performance of the aluminum electrolytic filter capacitor. The degree of influence is related to the ambient temperature and the operating conditions. The power supply used under normal conditions should be replaced with the electrolytic capacitor every 4 to 5 years.

When the electrolyte of the electrolytic capacitor leaks, the safety valve pops out or the capacitor body expands, it should be replaced immediately.

8.2.2Cooling fan

The life of all cooling fans inside the electronic power supply is about 15,000 hours (that is, the power supply is used continuously for about two years). If the fan has abnormal sound or vibration, it should be replaced immediately.

8.3 Storage

After bought if the electronic power supply is temporarily not used or stored for a long time, the following items should be noted:

（1） The storage environment should meet the following table:

Environmental characteristics	Requirements	Remark
Ambient temp.	－20℃～60℃	Long-term storage temp. is not over 30℃, so as to avoid deterioration of capacitor characteristics, avoid condensation and freezing due to sudden temperature changes.
Relative humidity	20～90％	Plastic film sealing and desiccant can be used
Storage environment	No direct sunlight, no dust, no corrosive, flammable gas, no oil, steam, gas, dripping, vibration, less salt	

（2) If the electronic power supply is not used for a long time, it should be powered once every half year to restore the characteristics of the filter capacitor and check other functions of the power supply. When power is on, the voltage should be gradually increased by an auto-transformer, and the power-on time should be over half an hour.

ATTENTION: If the power supply is not used for a long time, the internal filter capacitor characteristics will decrease.

8 .4 Warranty

The company will provide repair services based on the following conditions:

(1) If the malfunction or damage occurs under normal use, the company provides free repair or replacement during the warranty period (within 18 months from the date of purchase). If it is over 18 months, reasonable repair fee will be charged.

(2) Even within the warranty period, certain maintenance cost should be charged for the failure caused by the following reasons:

① Failure caused by improper operation and not follow the operating manual or exceed the standard specifications.

② Failure caused by self-repair and modification without permission.

③ Failure due to poor storage.

④ Faults caused when power supply is used for abnormal functions.

⑤ Machine damage caused by fire, salt erosion, gas corrosion, earthquakes, storms, floods, lightning, voltage abnormalities or other force majeure.

⑥ Even if the warranty period is exceeded, the company also provides lifetime paid repair service.