ISO9001 CE

Manual

INSTRUCTION MANUAL

SVM-series

SERVO-MOTOR CONTROL SYSTEM
FULL AC.AUTOMATIC VOLTAGE REGUATOR

Please read this Operating Manual carefully before using

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SVM series high-precision full-automatic AC. voltage stabilizer

General

SVM series high-precision full-automatic AC voltage stabilizers is our leading product, it is composed of contact type voltage regulator, servomotor and automatic control circuit. When network voltage is unstable or when the load changes, the automatic control circuit would sample, amplify and send signal to drive the servomotor to adjust the position of carbon brush of contact type voltage regulator, regulate the output voltage of stabilizer to the rated value, and get stabilized voltage finally.

This series of voltage stabilizers possesses visible advantages such as elegant appearance, compact design, light weight, high efficiency, no distortion of output waveform, complete protection functions, long service, etc. In order to guarantee top quality, we adopt imported elements for key electronic components, and carry out strict quality inspection.

This series of voltage stabilizers is suitable for areas where power grid fluctuates frequently or changes greatly along the season, it can be widely applied to industry, scientific research, medical service, school, communication, household appliance, etc, it provides any loads with quality power supply to ensure normal running of electric equipment.

It is in accordance with the trade standard JB/T10089-2001.

Technical characteristics

1. Output capacity

When the network voltage is lower than 198V, the output capacity of voltage stabilizer would be reduced correspondingly; when the output voltage is 110V, its output capacity should not exceed 50% of rated capacity; the relationship between output capacity and input voltage is shown as in Fig.1.

2. Overload capacity

When input voltage of voltage stabilizer changes between 198V and 250V, its overload capacity is shown as in table 1 under emergency service.

(P--Output capacity; PC--Rated output capacity; U--Input voltage)

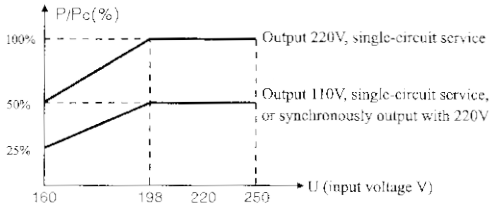


Fig.1

Overload ratio	Overload time not permitted (min)
20%	60
40%	30
60%	5

Table 1

3. Synchronously output of 220V and 110V: voltage stabilizers up to and including SVC-3000VA (single-phase) are able to output 220V and 110V at the same time.

4. Function of direct utility power supply: when the network voltage becomes stable, it is able to supply power with utility power directly, so that to reduce the power loss.

Products of SVM 2000VA (single-phase) and above have function of utility power;

Products of SVM 1.5kVA (three-phase) and above have function of utility power.

5. Overload or short-circuit protection: single-phase products up to and including 1500VA make use of fuse to protect against overload or short-circuit; and other specifications use circuit breaker to protect against overload or short-circuit.

6. Heat dissipation function of fan: the fan inside is controlled by temperature-control device, when the sampling temperature inside the equipment is ≥55℃, the fan would begin to work and dissipate the heat; otherwise, the fan would stop working.

7. Main technical parameters

Content / Item	Single-phase	Three-phase
Range of input voltage	160~250V or 70~130V	(Three-phase four-wire) line voltage 277~430V Phase voltage 160~250V
Output voltage	220V or 110V	(Three-phase four-wire) line voltage 380V Phase voltage 220V
Accuracy of voltage stabilization	≤ ± 4%	
Over-voltage protection value	Phase voltage 246 ± 4V	
Under-voltage protection value	Phase voltage 184 ± 4V	
	Usually, under-voltage protection is not provided, but it can be set at request.	
Frequency	50Hz	
Waveform distortion	No additional waveform distortion	
Load power factor	0.8	
Efficiency	≥90%	
Adjustable time	<1.5s (when input voltage has a change of 10%)	
Delay time	Long time delay: 5 ± 2min; short time delay: 5 ± 2s	
	Usually, under-voltage protection is not provided, but it can be set at request.	
Ingress protection of enclosure	IP20	
Insulation and thermal endurance class	Class B	
Electrical strength	No flashover or breakdown when at 2000V/min	
Insulation resistance	≥5MΩ	

Tip: for normal, all the exported stabilizer, without over voltage protection, Less voltage protection or delay function. if need all the above functions, pls tell our factory clearly when you order.

8. Normal service conditions

1)Ambient temperature: -5℃~+40℃;

2)Relative humidity: less than 95% (at 25℃);

3)Atmospheric pressure: 86-106kPa;

4)Working environment: indoor environments where are far away from chemical deposition, dirt, harmful corrosive medium, or flammable/explosive gas. Besides, the altitude is not higher than 1,000m.

Working principle

1. Electric circuit diagram of voltage stabilizer (see Fig. 2~ Fig. 6)

2. Sampling control principle of voltage stabilizer (see Fig. 7)

(Note: following diagrams are only for reference, the products are subject to change due to improvement without further notice)

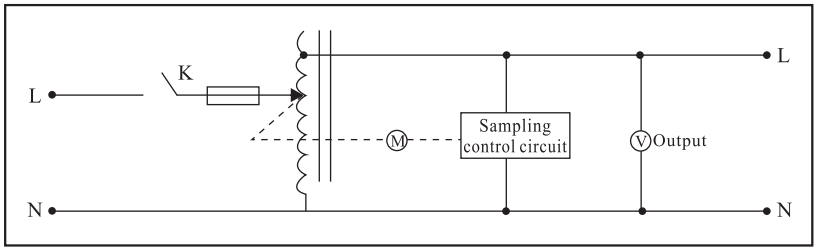


Fig. 2: Electric circuit diagram of single-phase products of SVM500VA~1500VA

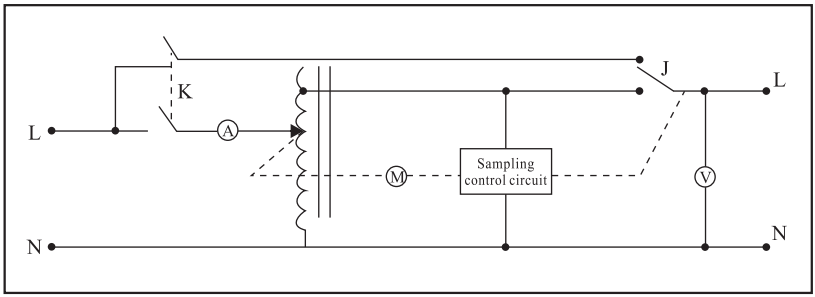


Fig. 3: Electric circuit diagram of single-phase products of SVM2000VA~3000VA

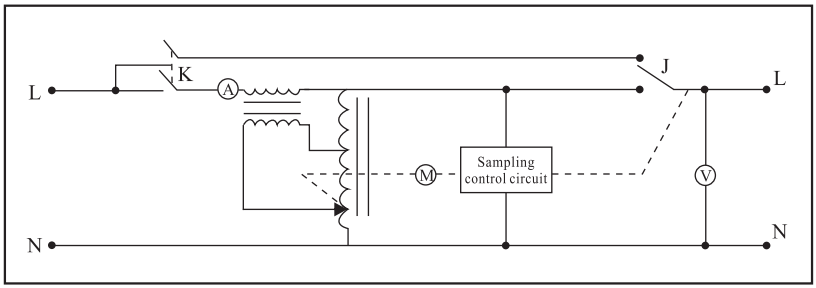


Fig. 4: Electric circuit diagram of single-phase products of SVM5kVA and above

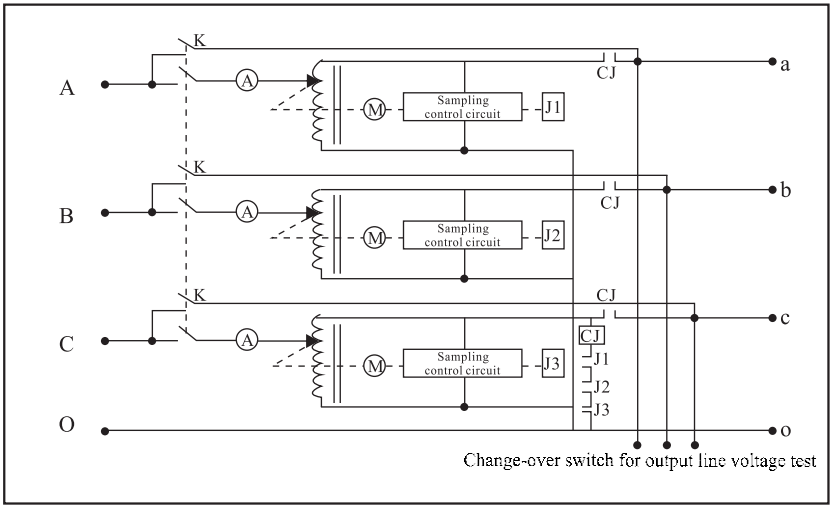


Fig. 5: Electric circuit diagram of three-phase products of SVC1.5kVA~9kVA

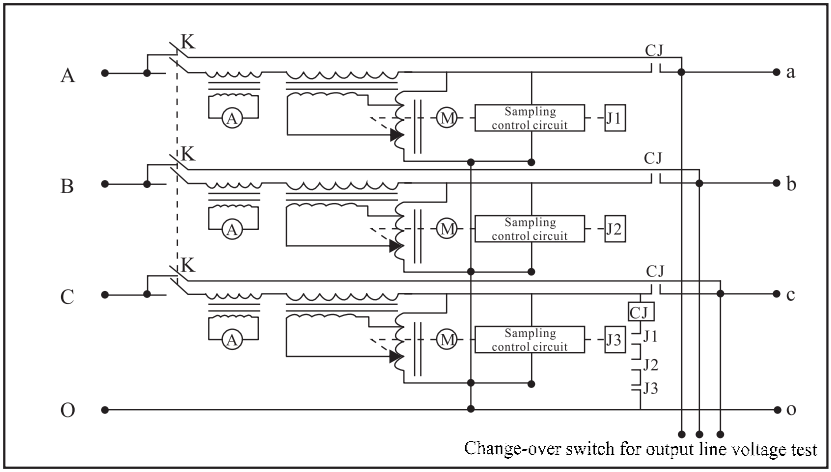


Fig. 6: Electric circuit diagram of three-phase products of SVC15kVA and above

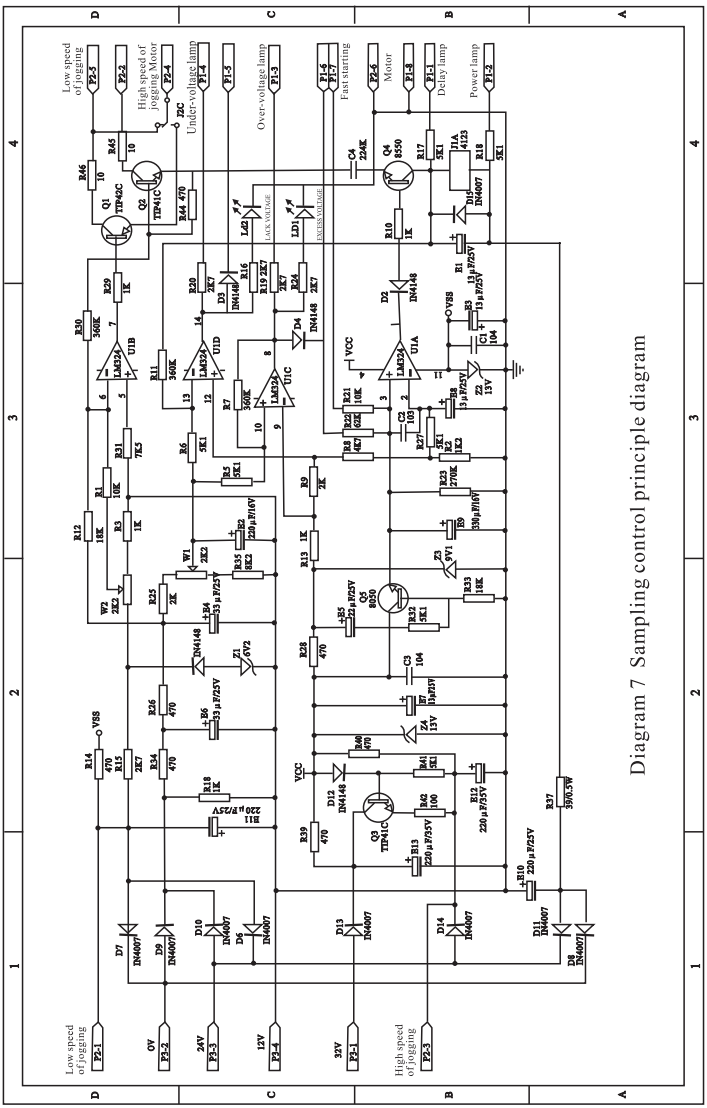


Diagram 7 Sampling control principle diagram

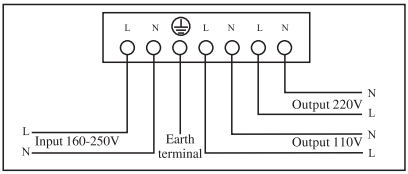


Fig.8: Wiring diagram of single-phase products of SVM 2000VA~3000VA

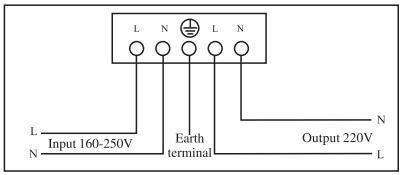


Fig.9: Wiring diagram of single-phase products of SVM 5kVA and above

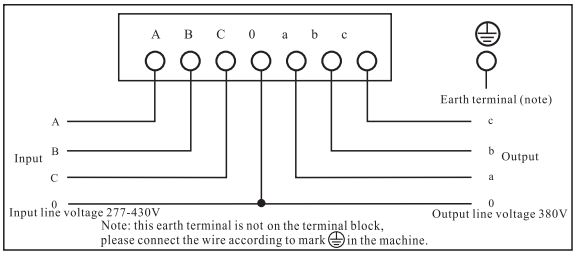
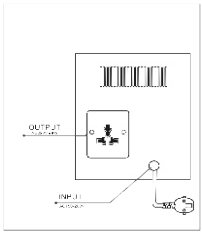


Fig.10: Wiring diagram of three-phase products of SVM 1.5kVA and above.



SVM 500V–1000V

Operation instruction

1. Before operating, please make sure that the voltage of power network is within the input voltage range permitted by this equipment, then carry out wiring according to the symbols on the front and back panels carefully and do not make mistake, make sure firm grounding. (Input wiring of single-phase voltage stabilizers up to and including 1500VA is the power line, and output is the socket; please refer to Fig. 8 ~ Fig.10 for wiring of other voltage stabilizers).
2. Turn on the power switch of the voltage stabilizer, the output voltmeter of single-phase voltage stabilizer should indicate at 220V; rotate the output voltage change-over switch of three-phase voltage stabilizer, voltmeter should indicate at 380V, and check if there is phase failure; only when the voltage stabilizer is in normal condition that you could turn on the power switch of electrical equipment.
3. When single-phase voltage stabilizer outputs 220V and 110V at the same time, load current should not exceed the rated value; When three-phase voltage stabilizer outputs three-phase 380V and single-phase 220V at the same time, the current sum of each phase of load should not exceed the rated value of each phase, and three-phase load should be in balance.
4. When the network voltage is lower than 198V (it takes phase voltage as the reference for three-phase), please use after reducing the power according to Fig.1: curve of output capacity.
5. When it is inductive loads (such as air-conditioner and refrigerator), as the starting current of inductive load is very heavy, please choose voltage stabilizer whose output capacity is 3-5 times of load power. For other capacitive and impactive loads, please leave enough allowance for output capacity of voltage stabilizer.
7. After using, please turn off the power switch of electrical equipment first, then turn off the power switch of voltage stabilizer, don't use the power switch of voltage stabilizer instead of the power switch of electrical equipment.
8. When the power grid come across failure (include loss of phase) or the input voltage is too high, please turn off the power switch of voltage stabilizer and electrical equipment in time.

SVM series high-precision full-automatic AC. voltage stabilizer

Notices

1. Please place the voltage stabilizer in a dry and draughty indoor environment (keep out of reach of children) where is far away from chemical deposition, dirt, harmful corrosive medium, flammable/explosive gas, or direct sunshine or rain;
2. The earth terminal must be firm and reliable to ensure safety.
3. The voltage stabilizer would produce little heat when it works normally, don't cover it with any articles, otherwise, it would be damaged for poor heat dissipation.
4. External voltage fluctuation would lead to automatic voltage regulation of stabilizer, it is normal if there is friction sound caused by gears.
5. Choose suitable sectional area for input and output conductors according to the power of voltage stabilizer, try to reduce power consumption of the line, usually, we choose 5A/mm^2 for copper wire, and reduce half for aluminum wire.
6. When the network voltage is normal, please use the utility power, at this time, the voltage stabilizer does not have self power loss. Open the circuit breaker of "voltage stabilizer", then close the circuit breaker of "utility power". (Note: circuit breakers of "voltage stabilizer" and "utility power" cannot be closed synchronously).
7. After using, please turn off the power switch of electrical equipment first, then turn off the power switch of voltage stabilizer, don't use the power switch of voltage stabilizer instead of the power switch of electrical equipment.
8. When the voltage stabilizer has been electrified, it is forbidden to open the case to make adjustment randomly, otherwise, the operator may get an electric shock.
9. In case that the frequency of generating power grid is unstable, and emergency electricity is necessary, user could use the function of direct utility power supply, to protect the voltage stabilizer against damage due to unstable frequency;
10. When the equipment has been used for a long time, it is necessary to clear away the dust in the machine regularly by professional electric worker, to keep it clean between carbon brush and grinding surface of coil,and adjust the contact pressure between them to get a fine contact, to protect against flash over; if the carbon brush is worn seriously, please change it in time, to prevent the equipment being damaged; (note: maintenance and parts change of voltage stabilizer should be carried out under condition of power off).
11. If the voltage stabilizer works abnormally, user should cut off the power supply immediately and send it to the designated place for maintenance.
12. If the safety parts for maintenance or change were not provided by us, we would not be responsible for any possible safety quality problems.

Attachments

One copy of operating manual, one copy of certificate of conformity, one copy of warranty card.

Ultra-low voltage
Input voltage: 80-260V（100-260V、120-260V、140-260V）
Output voltage: 220/110V± 3%