

机械式补偿稳压器说明书

DBW /SBW 5 Servomotor AC voltage stabilizer

Specification

We are the professional power source protection company, whom has been engaging in producing electric power stabilizer, illumination electricity saving cabinet, power source filter development, production, thunder and lightning surge protection as well as power source measuring instrument sales over a significant number of years. Company's aim is to provide users with the right solution that satisfies their needs and solves a number of power quality issues, wholeheartedly. Issues are the voltage undulation, the instantaneous surge, the harmonic interference and so on. Our company fulfilled all of above to allow users to have a secure and high quality power source. Simultaneously, provide users with developed technology, energy saving, equipment security and high tech products.

我们是专业的电源防护公司，长期从事电力稳压器、照明节电柜的生产，雷电浪涌防护与电源测试仪器的销售。公司的宗旨是：全心全意为用户解决电源使用中存在的——电压波动、浪涌、谐波干扰等诸多电源质量问题，让用户拥有一个安全优质的电源，同时提供技术先进、节约电能、保护设备的高科技产品。

The company is High and New Technology Achievement Transformation Enterprise in Shanghai. The company has also participated many times in the draft of the GB and DB code of stabilizer, thunder and lightning surge protector. The company comprises of a group of professional senior engineers and large quantities of electrical engineering technical personnel. The company has an office building in the centre of the city and industry standard workshop. The company is also well known for its strength in many products and also the market leader of the stabilizer industry.

公司系上海高新技术成果转化企业，曾多次参加稳压器与雷电浪涌防护器国标与部标的制定，拥有教授级高工及大批电气工程技术人员，拥有市中心办公楼及标准工业厂房。公司实力雄厚，多项产品在行业中一直处于领先地位。

The company has more than ten year history in voltage stabilizer's development and production. At present it is the one of the main voltage stabilizer manufactures. Our production equipments are excellent, and the craft technology is in the front of others. Products best sells to various cities and provinces in China and exported to various countries in Southeast Asia.

公司从事电力稳压器的开发、制造已有十多年历史，目前为电力稳压器产品主要生产厂商之一。生产设备精良，工艺技术领先。产品畅销全国各省市，并出口东南亚各国。

The company that ISO9001 (International Quality System Authentication Enterprise) certified is faithful enterprise who attaches importance to contract in Shanghai. With the whole-hearted devoting to the power source protection profession development, we obey the management idea--“will dare to climb without limits, forever”, the quality acme of perfection! Serve users as sincerely and comprehensively as we can! Believe that our sincerity can enable you to become our forever friends.

公司系 ISO9001 国际质量体系认证企业，全心致力于电源防护行业的发展，我们遵照“勇于攀登、永无止境”的经营理念，质量尽善尽美！服务至诚至周！相信我们的真诚会使您成为我们永远的朋友。

1. Product characteristics and using

产品特点与用途

DBW/SBW5 compensation Automatic Voltage Stabilizer is designed referring to international congener products. When input voltage fluctuated, it can output the voltage automatically and stably. Our product has many advantages as follows: high power capacity, high efficiency, wide input voltage range, high output voltage precision, smooth voltage regulation, broad load adaption, long continuous work life, no wave distortion, strong protection performance, little dimension, light weight, work reliability, easy operation, simple maintenance and so on.

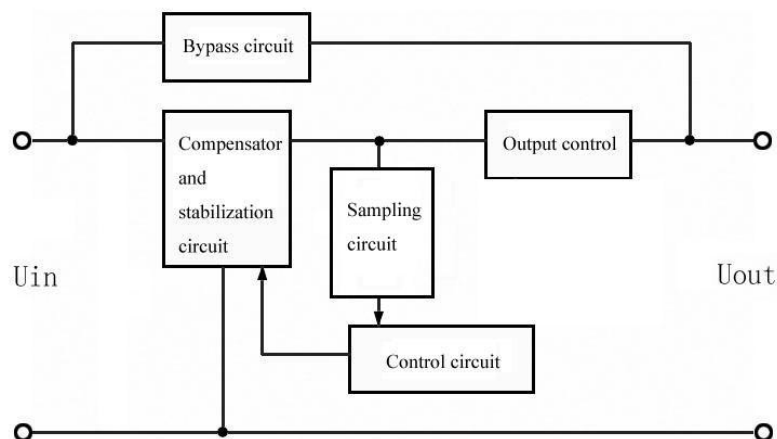
DBW/SBW5 补偿式交流稳压器，是我公司在参照国际同类产品，结合我国国情的基础上研制并生产的电力稳压器，当供电电压波动或负载变化造成电压不稳定时，它能自动保持输出电压的稳定。本产品具有容量大、效率高、稳压范围宽、稳压精度高、电压调节平稳、适用负载广泛、可长期连续工作、无波形畸变、保护功能强，以及体积小、重量轻、运行可靠、使用维护简单等特点。

This product is broadly used in industrial and mining enterprise, communications, broadcast television, traffic, national defense, construction, medical treatment, large-scale mechanical and electrical equipment of scientific research and culture departments, production assembly line, construction project equipment, broadcast television equipment, medical equipment, precision machine tool, electronic computer, precision instrument, elevator and so on.

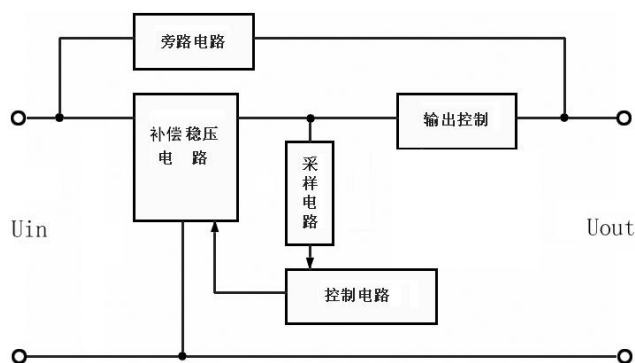
本产品已广泛应用于工矿企业、通信、广播电视、交通、国防、建筑、医疗、科研文化等部门的大型机电设备、生产流水线、建筑工程设备、广电、通信设备、医疗设备、精密机床、电子计算机、精密仪器、电梯等一切需要稳定电压的场所。

2、Circuit construction and working principle

电路结构与工作原理



DBW/SBW5 Compensation type AC voltage stabilizer functional block diagram



DBW/SBW5 补偿式交流稳压器功能框图

The DBW/SBW5 voltage stabilizer is the combination of the compensation voltage-stabilizer circuit, the control circuit, the sampling circuit, the output control and the bypass circuit. The compensation voltage-stabilization circuit, the control circuit and the sampling circuit have composed the automatic compensation constant voltage system.

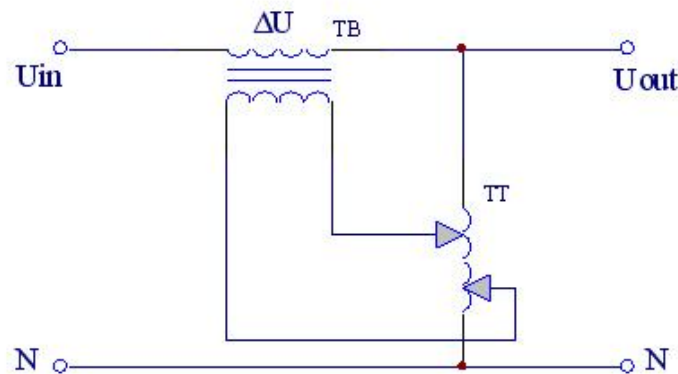
DBW/SBW5 型稳压器由补偿稳压电路、控制电路、采样电路、输出控制及旁路电路组成，补偿稳压电路、控制电路和采样电路组成了自动补偿稳压系统。

1) The compensation voltage-stabilization circuit 补偿稳压电路

The compensation voltage-stabilization circuit is the combination of compensation transformer TB and touch style voltage stabilizer transformer TT with the servo electrical servomotor and transmission system and so on. Its principle of automatic voltage stabilization compensation is as follows:

补偿稳压电路是由补偿变压器 TB、带有伺服电机及传动机构的接触式调压器 TT 等组成。其

自动补偿稳压原理如下：



Voltage stabilizer work schematic diagram
稳压器工作原理图

If the impedance voltage drop of the compensation stabilizer is neglected: $U_{out} = U_{in} \pm \Delta U$

不计补偿变压器的阻抗压降有： $U_{out} = U_{in} \pm \Delta U$

In the formula: U_{in} - phase input voltage of voltage stabilizer

式中 U_{in} —稳压器输入相电压；

U_{out} - phase output voltage of voltage stabilizer

U_{out} —稳压器输出相电压；

ΔU - mono-phase compensation voltage of voltage stabilizer

ΔU —稳压器一相补偿电压；

When input voltage U_{in} or loads changes, which result in the change of output voltage U_{out} , sampling circuit samples from the output of voltage stabilizer. And the controlling circuit compares the sample signal with reference voltage. Then send the controlling signal to control the servomotor on the voltage regulator with touch type. The servomotor is slowed down by reducer gear, and the chain drives the carbon brush to slice back and forth on the voltage regulator with touch type in order to regulating the output voltage of voltage regulator to compensate the voltage, so the voltage stabilizer realizes the output of stable voltage automatically.

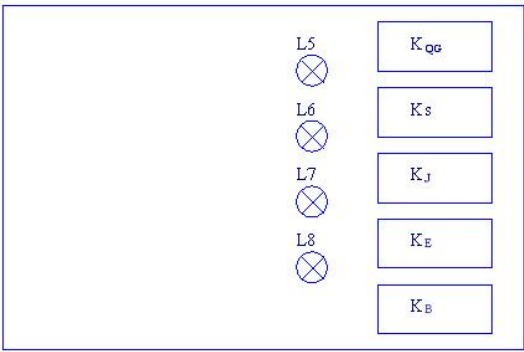
当输入电压 U_{in} 改变或负载变化而引起输出电压 U_{out} 变化时，采样电路从稳压器输出端采样，控制电路将采样信号与基准电压进行比较，给出控制信号，控制接触式调压器上的伺服电动机转动，经减速机构减速并由链条驱动碳刷在接触式调压器表面往复滑动，调节接触调压器的输出电压来改变补偿电压，实现自动保持输出电压稳定的功能。

2) The control circuit

控制电路

The control circuit is the combinations of step-up relay K_S , step-down relay K_J , over-voltage and under-voltage protection relay K_{QG} , time delay relay K_E , mechanical breakdown protection relay K_B and so on.

控制电路由升压继电器 K_S 、降压继电器 K_J 、过欠压保护继电器 K_{QG} 、延时继电器 K_E 、机械故障保护继电器 K_B 等组合而成。



Step-up relay K_S and relay K_J are Used to control the positive inversion of the servo motor (L6, L7 indicate separately the action of K_S and K_J) to regulate the compensation voltage in order to output voltage stably.

升压继电器 K_S 和降压继电器 K_J 用来控制伺服电动机的正反转 (L6、 L7 分别指示 K_S 、 K_J 是否动作)，通过调节补偿电压来稳定输出电压。 延时继电器 K_E 用于开机延时输出电压 (L8 指示其是否动作)。

When output voltage surpasses $\pm 10\%$ rated value, over-voltage and under-voltage protection relay K_{QG} acts (meanwhile L5 lights), voltage stabilizer cut off output voltage automatically. When servomotor or drive system works abnormally, mechanical breakdown protection relay K_B acts, voltage stabilizer automatically cut off output source automatically.

当输出电压超过额定值 $\pm 10\%$ 时，过欠压保护继电器 K_{QG} 动作 (此时 L5 点亮)，稳压器自动切断输出电源。 当伺服电机或传动机构工作不正常时，机械故障保护继电器 K_B 动作，稳压器自动切断输出电源。

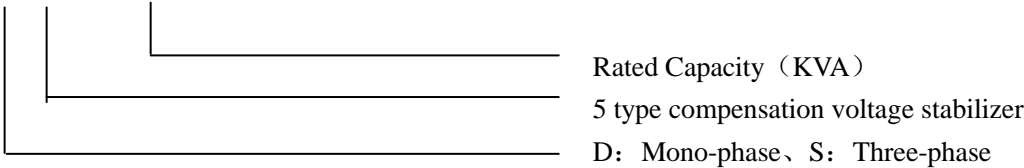
2. Model and technology index

型号规格与技术指标

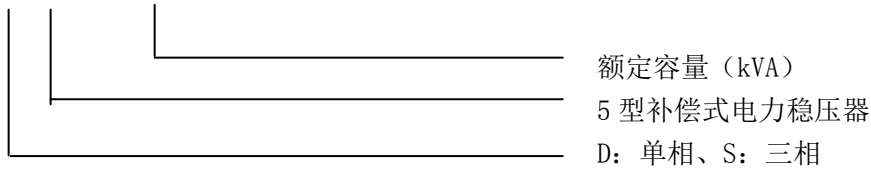
a) Model and technical parameter

型号命名

X BW5 — XXX



X BW5 — XXX



b) Main Technical Index

主要技术指标

Input voltage rage 输入电压范围	176~264V/304~456V	Efficiency 效率	≥ 98%
Output voltage 输出电压	220V/380 V ±(1~5)%, can be set 220V/380 V ± (1~5)%, 可设定	Insulation resistance 绝缘电阻	>2MΩ
Output voltage wave 输出电压波形	Sine wave 正弦波	Hi-pot 耐压强度	2000V/1min 能承受 2000V/1min

c) Main protection function

主要保护功能

Over-voltage and under-voltage Protection 过、欠压保护	When output voltage exceeds ±10% rated voltage, Stabilizer cut off output source automatically. 当输出电压超出额定值±10%时，稳压器将自动切断输出电源。
Phase sequence protection 相序保护	When the sequence of three phase are incorrect, Stabilizer cut off output automatically 当三相输入电源相序不正确时，稳压器将自动切断输出电源。
Phase lack protection 缺相保护	If phase lacked, Stabilizer cut off output automatically 当三相输入电源出现缺相时，稳压器将自动切断输出电源。
Mechanical breakdown protection 机械故障保护	If servomotor or drive system happened to malfunction, Stabilizer cut off output automatically 当伺服电机或传动机构工作不正常时，稳压器自动切断输出电源。
Short-circuit protection 短路保护	If input short circuit, air switch cut off input automatically 当输出端出现短路时，空气开关自动切断输入电源。

d) Model
型号规格

Single-series 单相系列				
Model 型号规格	Rated capacity 额定容量	Rated current 额定电流	Outline dimension 外形尺寸	Cable model 电缆规格
	(KVA)	(A)	(width×thickness×height mm) (宽×厚×高 mm)	(mm ²)
DBW5-3	3	13	320×600×220	2×2
DBW5-5	5	22		2×2.5
DBW5-7	7	32		2×4
DBW5-10	10	45	550×700×1100	2×6
DBW5-15	15	68		2×16
DBW5-20	20	90		2×25
DBW5-30	30	136		2×35
DBW5-50	50	227	850×700×1550	2×70
DBW5-100	100	454	950×700×1800	Copper bar

Three-phase series 三相系列				
Model 型号规格	Rated capacity 额定容量	Rated current 额定电流	Outline dimension 外形尺寸	Cable model 电缆规格
	(KVA)	(A)	(width×thickness×height mm) (宽×厚×高 mm)	(mm ²)
SBW5-10	10	15	600×420×1150	3×2.5+1×1.5
SBW5-20	20	30		3×4+1×2.5
SBW5-30	30	46		3×10+1×6
SBW5-50	50	76	760×550×1350	3×16+1×6
SBW5-75	75	114	900×650×1500	3×35+1×10
SBW5-100	100	152		3×50+1×16
SBW5-150	150	228	1050×750×1800	3×70+1×25
SBW5-180	180	273		3×95+1×35
SBW5-225	225	342		3×150+1×35
SBW5-320	320	486	1200×850×2200	Copper bar 铜排连接
SBW5-400	400	608		
SBW5-500	500	760	1050×800×2200 (double cabinet, 双柜)	
SBW5-600	600	912		
SBW5-800	800	1215	1200×850×2200 (main cabinet, 主柜)	
SBW5-1000	1000	1519		

SBW5-1200	1200	1823	1050×850×2200 (assistant cabinet, 副柜)	
SBW5-1400	1400	2127	1500×1000×2200 (main cabinet, 主柜)	
SBW5-1600	1600	2430		
SBW5-1800	1800	2735	1050×1000×2200 (double assistant cabinets, 副柜)	

e) Usage conditions
使用条件

DBW/SBW5 voltage stabilizer should be used indoor, the normal service condition is:
DBW/SBW5 型稳压器应在室内使用，正常使用条件为：

- Ambient temperature: - 15℃~+45℃;
环境温度：-15℃~+45℃;
- The altitude does not surpass 1000 meters;
海拔高度不超过 1000 米;
- Relative humidity: ≤90%
相对湿度：≤90%
- The installation place is supposed to has no serious influence insulation gas, no dust, no flammable explosive, the corrosive medium and no serious vibration.
安装场所应无严重影响绝缘的气体、灰尘及易燃易爆和侵蚀性介质；应无严重的振动。
- If the circumstance doesn't conform to the above exploitation conditions, please consult with our company.
凡不符合上述使用条件的，应由使用单位和我公司进行协商。

3. Installation and wiring

安装接线

1) Open the packing and inspection

开箱检查

- (1) Whether there is any damage of the cabinet in the transportation process;
柜体在运输过程中有无损坏;
- (2) Whether all appendixes in cabinet are complete;
机柜内的附件是否齐全;
- (3) Whether compensator transformer, the touch type joystick transformer and other components are perfect;
补偿变压器、接触式调压器，其它元器件是否完好无损;
- (4) Whether fastener becomes less crowded and shifting, and the wiring terminal contacts good;
紧固件是否有松动、移位、接线端子是否接触良好;
- (5) Whether structure of voltage regulation system is reliable, if the carbon brush dislocates or is broken, please replace promptly.
调压系统传动结构的装置是否安全可靠，如有碳刷错位或者残缺断裂，应及时更换。

Note: After arrival, the cabinet is supposed to be placed in moist circumstance for long-term, in order to maintain its performance.

注：到货后机柜不宜长期搁置潮湿处，以免影响其性能质量。

2) Positioning notice

就位须知

- (1) The voltage stabilizer installation location is supposed to be dry and ventilatory, and there is no strong vibration, no ash and no rain water seepage;
稳压器安装场地必须干燥通风、无强力振动、无灰沙、雨水渗透;
- (2) Positioning moves must be handled with care, forbid serious inclining, after positioning the cabinet domain stress is supposed to be even, cabinet is set in balance;
就位搬迁须小心轻放，严禁过分倾斜，就位后机柜地盘受力要均匀，柜体放置平衡;
- (3) The positioning place is supposed to have enough margin space, guarantees the cabinet ventilatory.
就位所在四周应有足够的空间余地，确保机柜的通风。

3) The insulation requests

绝缘要求

- (1) Short connect “the input” and “the output” terminal and draw out the test point;
短接“输入”与“输出”端子并引出测试点;
- (2) Test dielectric resistance of the test point to the earth (machine outer covering) with the 1000V ohmmeter, this value should be more than $2M\Omega$, if is less than $2M\Omega$, should inspect the reason, or dry cabinet with electric radiator, until the dielectric resistance achieves the standard value.
测试点对地（机外壳）用 1000V 兆欧表测试绝缘电阻，此值应大于 $2M\Omega$ ，如果小于 $2M\Omega$ 应检查原因，或用电热器烘干柜内潮气，直至绝缘电阻达到标准为止。

4) The fastener inspection

检查紧固

- (1) Inspect whether the main circuit wiring is reliable, the switch, the AC contactor wiring whether it has loosen, if it has, must screw tight.
检查主回路接线是否牢固可靠，闸刀开关、交流接触器的进出接线是否有松脱。如有松脱，必须拧紧;
- (2) Inspect whether the point connection of each electric appliance in the back of panel board is fastened reliably. If it has loosed, must screw tight.
检查面板背面各电器元件的接点连接是否牢固可靠。如有松动，必须拧紧;
- (3) Inspect control circuit board, whether each terminal's wiring has loosed, if it has loosed, must screw tight.
检查控制电路板，各端子接线是否有松动，如有松动，必须拧紧;
- (4) Inspect whether the servomotor on joystick transformer and the limit switch wiring are fastened reliably. if it has loosed, must screw tight.

检查调压器上的伺服电机、限位开关的接线是否可靠，如有松动，必须拧紧。

4. Wiring

接线

- (1) Voltage stabilizer below 100KVA: fetch in three-phase input wire from underneath cabinet, connected to terminal with label “input wiring A, B, C” in the cabinet.

100KVA 以下稳压器：输入电源三相导线由柜后下方引进，接至柜内标有“输入接线 A、B、C”字样的接线端子上；

- (2) Voltage stabilizer above 100KVA: connect three-phase input wire to copper bar terminal (there are A, B, C and input voltage label on the copper bar) relatively to the pole on air switch (or air breaker)

100KVA 以上稳压器：输入电源三相导线接至空气开关（或空气断路器）上桩头所对应的铜母排上（母排上标有输入电压及 A、B、C 字样）；

- (3) Cabinet protection grounding: grounding wire shall be connected to the pole in cabinet with label “grounding”, the grounding resistance is supposed to be less than 4Ω .

机壳保护接地：接地线应接至机柜内标有“接地线”的桩头上，接地线电阻应小于 4Ω 。

5. Debug and operation

调试与操作

- (1) No-load debug and operation

空载调试与操作

- a) By-pass function inspection

旁路功能检查

After wiring installation, let Voltage Stabilizer be in work condition with no load. Turn ‘Power grid/Stabilizer’ switch to “Power grid”. At the moment, output voltage meters have indication. Indicators of A, B and C of phases and power grid will lights.

稳压器安装接线完毕后，让其处于空载状态，将“市电/稳压”闸刀开关投到“市电”位置，这时，输出电压表应有指示，电网和 A、B、C 三相指示灯应点亮，表示旁路功能正常。

- b) Manual voltage regulation function inspection

手动调压功能检查

Turn ‘Power grid/Stabilizer’ witch to ‘Stabilizer’, turn ‘Manual/Automatic’ switch to “Manual”. Switch on air switch in cabinet, press start button, then press “Step-up” or “Step-down” button separately. Carbon brush moves along slide channel, output voltage increase or decrease at the moment.

将“市电/稳压”闸刀开关投到“稳压”，将“手动/自动”开关拨到“手动”，合上柜内空气开关，按启动按钮，再分别按升压和降压按钮，碳刷应在滑道上动作，输出电压应随着升高或降低。

- c) Automatic voltage regulation function inspection

自动稳压功能检查

Turn 'Power grid/ Stabilizer' switch to "Stabilizer"

将“市电/稳压”闸刀开关投到“稳压”。

- (1) Turn "Manual/Automatic" switch to "Manual" and press "Step-down" button to decrease output voltage to about 350V. Then transfer "Manual/Automatic" switch to "Automatic". The stabilizer regulates its output voltage to about 380V at the moment.

“手动/自动”开关拨到“手动”，按降压按钮，使输出线电压为 350V 左右，再将“手动/自动”开关拨到“自动”，此时输出电压应自动稳压在 380V 左右。

- (2) Turn "Manual/Automatic" switch to "Manual", press "Step-up" button to increase output voltage to about 400V. Then transfer "Manual/Automatic" switch to "Automatic". The Stabilizer regulates its output voltage to about 380V at the moment.

“手动/自动”开关拨到“手动”，按升压按钮，使输出线电压为 400V 左右，再将“手动/自动”开关拨到“自动”，此时输出电压应自动稳压在 380V 左右。

d) Over-voltage function inspection

过压保护功能检查

Turn "Manual/Automatic" switch to "Manual", press "Step-up" button to increase output voltage and exceed its setting value. In 5 minutes delay, Stabilizer shut off its output source. Over-voltage/Under-voltage indicator will light.

将“手动/自动”开关拨到“手动”，按升压按钮，使输出电压超过过压设定值，延时 5 秒左右后，稳压器自动切断输出电源，过欠压指示灯点亮。

e) Limit switch function inspection

限位开关功能检查

Turn "Manual/Automatic" switch to "Manual"

将“手动/自动”开关拨到“手动”。

- (1) Press "Step-down" button, make carbon brush board touch the limit switch on the top of slide channel. Servomotor power should be cut off at the moment. If press "step-down" button again, carbon brush doesn't move.

按降压按钮，使碳刷板碰到滑道上端限位开关，此时伺服电机电源应被切断，即再按降压按钮，碳刷不再动作。

- (2) Press "Step-up" button, make carbon brush board touch the limit switch at the bottom of slide channel. Servomotor power should be cut off at the moment. If press "step-up" button again, carbon brush doesn't move.

按升压按钮，使碳刷板碰到滑道下端限位开关，此时伺服电机电源应被切断，即再按升压按钮，碳刷不再动作。

Load debug and operation

负载调试与操作

After no-load debug, turn off input power. Connect load to output terminal of the Stabilizer. Turn

“Power grid/ Stabilizer” switch to “Stabilizer”, turn “Manual/Automatic” switch to “Automatic”, switch on the air switch in cabinet. Press start button, the Stabilizer works in automatic voltage regulation condition. At the moment, ammeter has indication.

空载试机完毕后，断开输入电源，将稳压器的输出端与用户的负载连接好，将“市电/稳压”闸刀开关投到“稳压”，将“手动/自动”开关拨到“自动”，合上柜内空气开关，按启动按钮，即进入带载自动稳压工作状态，此时，稳压器的电流表应有指示。

After all have been normal, increase load gradually to user's scheduled rated load. At the moment, view input and output voltage and current indicators. If Stabilizer operated with rated load, ammeter indication shouldn't exceed its rated value.

一切正常后，逐步增大负载，直至达到用户预定的额定负载。此时，观察稳压器输入输出电压及电流指示。稳压器带额定负载时，电流指示不应超过稳压器的额定电流。

After 20 minutes view, inspect each transformer whether there's peculiar smell, the temperature should be less than 80°C. View other control parameters, whether voltage regulation system is normal or not. If all is normal, debug and commissioning is finished.

观察 20 分钟后，检查各变压器是否有异味，温升应<80°C。观察其他控制指标，调压机构是否正常动作，一切正常则调试开通完毕。

Note:

注意:

- 1 **“Manual by-pass” operation is designed for the situation that: Stabilizer happens to malfunction but loads need continuing supply.**

“手动旁路操作”主要用于自动稳压电路发生故障，而用户负载又需要继续供电的场合。

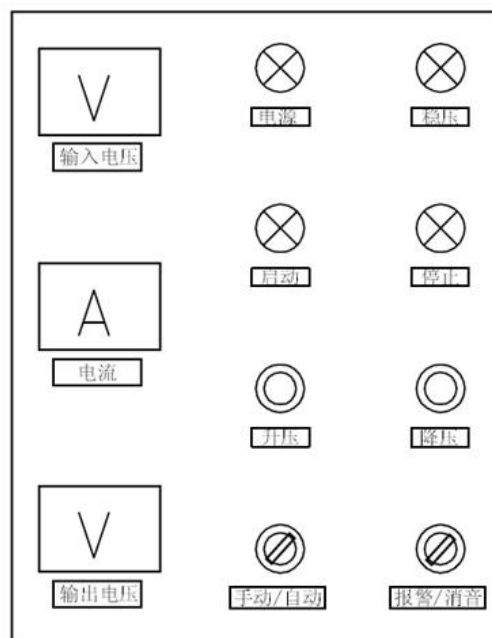
- 2 **If Stabilizer happens to malfunction protection, output power source will be cut off, customers should switch off air switch in cabinet first, and switch off breaker in the front of Stabilizer, Then take the ‘manual by-pass operation’, turn “Power grid/Stabilizer” switch to “Power grid”, switch on breaker in the front of ACR. At the moment, power grid supply load directly.**

正常运行中，如果稳压器出现了故障保护，输出电源被切断，用户应先将稳压器柜内的输入断路器关断，再将稳压器外的前端断路器关断，然后进行“手动旁路操作”，将稳压器内的“市电/稳压”闸刀开关投到“市电”，再合上稳压器外的前端断路器，此时负载直接由市电供电。

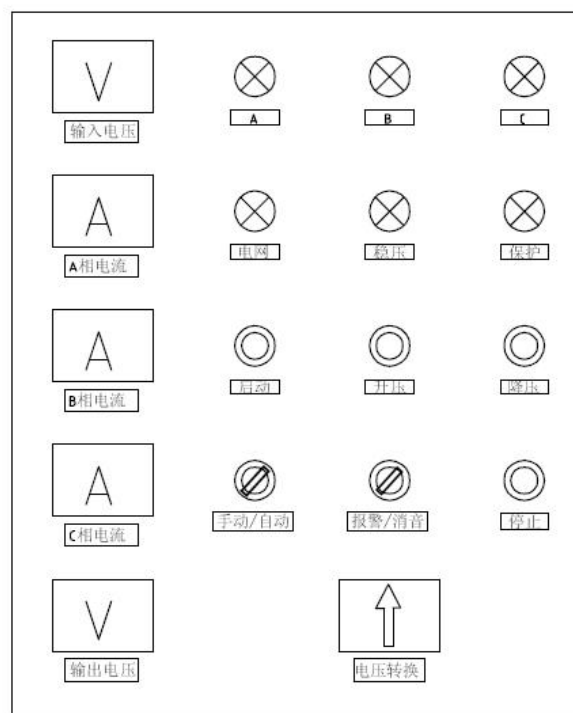
- 3 **When Stabilizer is working normally with load, if customer wants to take ‘Manual by-pass operation’, firstly press stop button, then switch off the input breaker in cabinet. Lately switch off breaker in the front of Stabilizer. Then turn “Power grid/Stabilizer” switch to “Power grid”, then switch on breaker in the front of Stabilizer. At the moment, power grid feed load directly.**

稳压器正常带负载运行中，如果用户要进行“手动旁路操作”，应先按稳压器的停止按钮，然后将稳压器柜内的输入断路器关断，再将稳压器外的前端断路器关断，然后将稳压器内的“市电/稳压”闸刀开关投到“市电”，再合上稳压器外的前端断路器，此时负载直

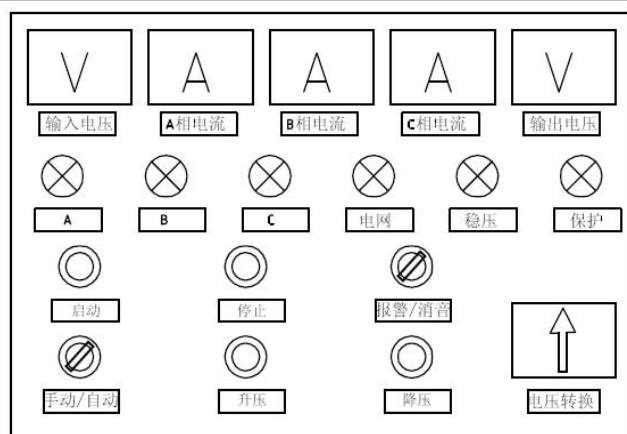
接由市电供电。



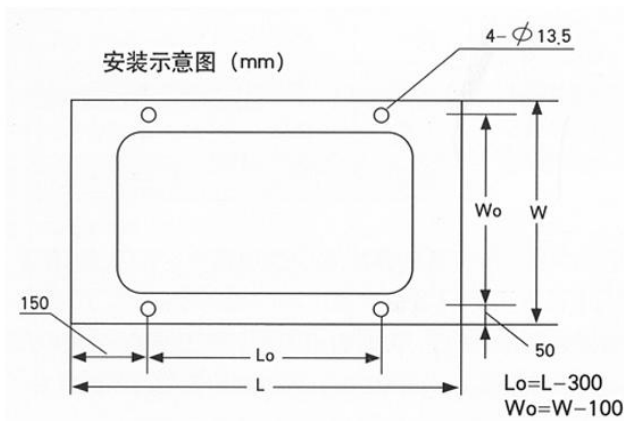
单相稳压器面板图



三相100kVA以下稳压器面板图



三相150kVA以上稳压器面板图



6. Daily maintenance and malfunctions exclusions

日常维护及故障排除

1) Daily maintenance

日常维护

Inspect the work condition of voltage stabilizer in usage on scheduled time. Inspect whether the temperature rise of the compensator and joystick transformers is normal or not, whether load exceeds rated range, whether voltage regulation system and drive system (containing chain and decelerate box) is normal, whether carbon

brushes become loosed, and they are on a same line and flat and well contacted. Any abnormality above is not permitted. Once be found, it should be corrected in time. If there's still any question, please don't hesitate to get in touch with manufacture.

在使用过程中要定期巡视稳压器的工作状态，检查补偿变压器和调压变压器的温升是否正常，负载是否超过规定范围，调压系统与传动机构（包括链条、减速箱）工作是否正常，碳刷是否有松动，碳刷是否在一个平面、一条直线上，接触是否良好，以上问题都不允许存在，一旦发现后必须及时解决，碰到疑问应及时联系厂方，以免损坏设备。

Monthly maintenance is recommended. Maintenance item:

建议每个月对稳压器做一次维护，维护内容包括：

A Clean dusty inside cabinet。

清除稳压器部件的灰尘和污垢；

B Inspect whether electrical components are damaged or not. If they're damaged, replace them in time.

检查电器元件是否有损坏，如有损坏，必须及时更换；

C Whether decelerator of voltage regulation system and chain drive construction works normally. And keep them lubricating and correct the tightness of chain. Replace damaged or severely worn carbon brushes. Keep dry-joystick transformer coil with tetreoxide and cotton as a new one. If there's any burnt point, polish it with size-0 sandpaper in time.

调压系统减速器，链条传动机构工作是否正常，应保持润滑，校正链条的松紧程度；更换已损坏或磨损量大的碳刷片，用四氧化碳与棉花擦干净调压线圈碳刷接触面，使之光滑如新，如有灼伤点，应用 0 号细砂纸及时打光 ；

D Make the record

做好维护记录。

2) Simple malfunction exclusions

简单故障排除

Malfunctions 故障现象	Causes 可能原因	Treatment 处理方法
Can't start 不能启动	1 input power phase order is wrong 2 stop button SB2 is not reset 1、输入电源相序错 2、停止按钮 SB2 未复位	1 exchange any two input wire 2 reset the stop button SB2 1、调换任意两根输入电源线 2、复位停止按钮 SB2
Can't regulate voltage by manual 不能手动调压	1 Limit switches KH1,KH2 don't work 2 step-up button SB3 or step-down button SB4 doesn't work 3 Wiring connection of servomotor is not so good 4 The driving chain falls off or disconnected 1、限位开关 KH1、KH2 失灵 2、升、降压按钮 SB3、SB4 失灵 3、伺服电机电源线接线不良 4、传动链条脱落或断开	1 replace 2 replace 3 connect power source wire 5 repair chain 1、更换 2、更换 3、接好电源线 4、修复链条
Can't stabilize voltage automatically 不能自动稳压	1 control board has no power 2 sampling transformer is damaged 3 step-up or t-down relay K_S 、 K_J in control board is damaged. 1、控制板没电源 2、采样变压器坏 3、控制板上升、降压继电器 K_S 、 K_J 损坏	1 inspect control board power source wire 2 replace 3 replace 1、检查控制板电源线 2、更换 3、更换

Order product caution

定货需知

■ When ordering, customers should tell the model, the capacity, the rated output voltage, the input voltage range of variation, the stabilized voltage precision, the position of input power source and so on.

定货时应说明型号、容量、额定输出电压、输入电压变化范围、稳压精度、电源输入位置等。

■ If customer has any special request, we can design and produce the stabilizer according to the user request.

如有特殊要求，可按用户要求设计生产。