



Product Features

This product is an industrial grade intelligent contactless AC voltage regulator, which is divided into single-phase/three-phase types. It is mainly controlled by an isolation transformer, an SCR module, and a CPU core, achieving complete contactless control. The core control adopts the latest DSP calculation and measurement chip control, fast AC acquisition, effective value correction, zero crossing switching, and fast compensation voltage regulation technology. It combines intelligent instruments, fast voltage regulation, fault diagnosis isolation together, and is a perfect combination of SCR switch technology and transformer technology. The product has high voltage regulation accuracy, fast response speed, no mechanical wear, safety, and efficiency.

Advantage

The product has the characteristics of large capacity, high efficiency, no waveform distortion, fast response speed, and wide applicability to loads. It is also equipped with overvoltage/undervoltage/overcurrent protection functions, easy to use and install, and reliable to operate.

Application

Large scale electromechanical equipment, metal processing equipment, production lines, elevators, medical devices, embroidery and textile equipment, air conditioning, broadcasting and television, household appliances, and building lighting that require voltage stabilization are widely used in industries such as industry, transportation, postal and telecommunications, communication, national defense, railways, and scientific research.

Product Model

Product Model	ZHZBW	Rated Power(KVA)
D:Single Phase S:3 Phase	Intelligent Non-Contact AC Voltage Stabilizer	10:10 20:20 50:50 100:100 ... 1600:1600

Product Specifications

Model	Rated Power(KVA)
TPS-ZHZBW(D)	5、10、15、20、30、40、50
TPS-ZHZBW(S)	20、30、40、50、60、80、100、120、150、200、250、300、400、500、600、1000、1200、1600

Main Technical Parameters And Performance

Number of Phases	Single Phase	3 Phase
Input Voltage	187VAC~253VAC	323VAC~437VAC
Rated Output Voltage	220V	380V
Frequency	50/60HZ	
Precision	±(1-5)%, Adjustable	
Response Time	< 40ms	
Waveform Distortion	No additional waveform distortion (static)	
Efficiency	≥98%	
Anti-interference	Lightning arrester, EMI filter, LC filter (optional)	
Over/Undervoltage Protection	output voltage exceeds 10%, cut off the output or turn the bypass continuously	
LCD Display	Abnormal voltage and current	
Warning	LED display and sound and light alarm	
Interface	RS-232 interface(optional)	

Product Advantage

- CUP intelligent control, digital circuit, stable and reliable
- **LCD Display:** The intelligent instrument displays real-time effective values of voltage and current, with a clear, accurate, and user-friendly human-machine interface
- **3 Phase Division:** output voltage imbalance<1%, accuracy of each phase's output voltage remains unchanged, contactless, wear-resistant, and maintenance free
- **High Speed Response:** voltage stabilization response time<40ms, does not produce voltage changes affecting computer automation, equipment, and instruments
- **High Precision:** The output voltage accuracy of the product can be adjusted within ± (1-5)%, and the maximum voltage stabilization accuracy is ± 1%
- **Interface:** RS-232
- Strong anti-interference and purification ability, making the output power completely pure
- **Wide Applicability:** With a wide voltage regulation range, it can meet the needs of places and equipment with poor power grid quality and large voltage fluctuations
- **Protection Functions:** equipped with overload, overvoltage, undervoltage, short circuit and other fault display and protection functions, ensuring the safe operation of the voltage regulator and load
- **Prefabrication Function:** overcurrent protection limit can be adjusted arbitrarily
- **Strong Adaptability:** It has strong adaptability to the power grid and loads, and can reliably and continuously work normally in various harsh power grids and complex load situations
- **Output Voltage Waveform Distortion Free:** using current zero crossing switching technology, there is no interruption or surge current generated during the switching process, and the waveform is distortion free
- **Low Consumption:** minimal power loss, no-load loss<0.5%

Product Size and Weight



TPS-ZHZBW-D



TPS-ZHZBW-S

Model	Product Size W×L×H (mm)	Product Weight (KG)
TPS-ZHZBW-D-5KVA	280×530×300	
TPS-ZHZBW-D-10KVA	280×530×300	
TPS-ZHZBW-D-15KVA	280×530×300	
TPS-ZHZBW-D-20KVA	350×600×400	
TPS-ZHZBW-D-30KVA	350×600×400	
TPS-ZHZBW-D-40KVA	380×780×840	
TPS-ZHZBW-D-50KVA	380×780×840	
TPS-ZHZBW-S-20KVA	480×770×980	120
TPS-ZHZBW-S-30KVA	480×770×980	130
TPS-ZHZBW-S-40KVA	480×770×980	140
TPS-ZHZBW-S-50KVA	480×770×980	150
TPS-ZHZBW-S-60KVA	480×770×980	160
TPS-ZHZBW-S-80KVA	480×770×980	195

Model	Product Size W×L×H (mm)	Product Weight (KG)
TPS-ZHZBW-S-100KVA	520×770×1080	225
TPS-ZHZBW-S-120KVA	520×770×1080	255
TPS-ZHZBW-S-150KVA	520×770×1080	305
TPS-ZHZBW-S-200KVA	600×900×1420	390
TPS-ZHZBW-S-250KVA	600×900×1420	460
TPS-ZHZBW-S-300KVA	600×900×1420	500
TPS-ZHZBW-S-350KVA	600×1150×1600	570
TPS-ZHZBW-S-400KVA	600×1150×1600	650
TPS-ZHZBW-S-500KVA	600×1150×1600	770
TPS-ZHZBW-S-1000KVA	1500×1000×1950	
TPS-ZHZBW-S-1200KVA	1500×1300×1950	
TPS-ZHZBW-S-1600KVA	1500×1300×1950	

Ordering Instructions

Selection Method: $S = P S / \cos \Phi$

S--Actual Required Voltage Regulator Capacity

P--Load Power

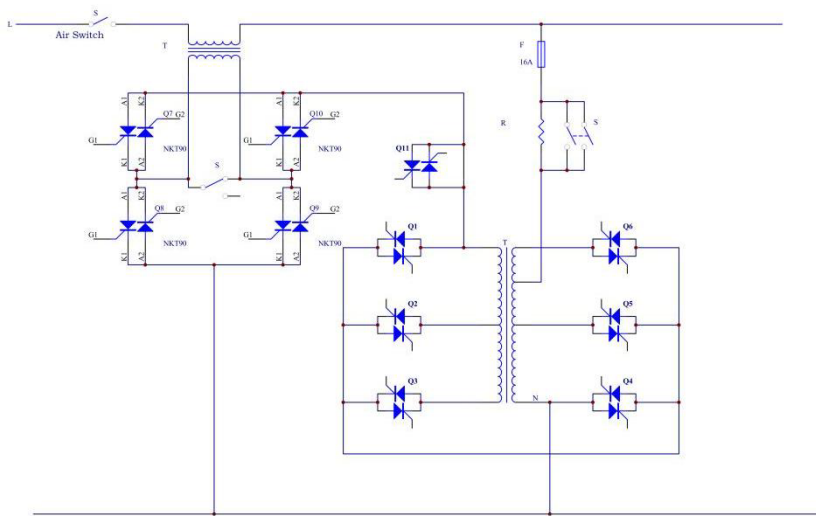
S--Safety Factor

$\cos \Phi$ --Load Power Factor

Power factor and safety factor:

- Pure resistive load: power factor of 1 (such as resistance wire, electric furnace, etc.), safety factor: 1.1~1.5
- Inductive load: Power factor is generally 0.6~0.8 (such as elevators, air conditioners, and electric motor equipment), safety factor: 1.5~3
- Capacitive load: The power factor is generally 0.6~0.8 (such as in microcomputer rooms, broadcasting and television, etc.), and the safety factor is 1.5~2
- Comprehensive load: The power factor is generally 0.6~0.7 (such as the comprehensive load of factories, hotels, and household appliances), and the safety factor is 1.5~2.5
- Principle for selecting safety factor reference: In inductive capacitive load environments, the starting current of the load can cause impact on the voltage regulator during selection. To ensure the safe operation of the product, the safety factor must be carefully selected during selection

Ordering Instructions



Note:

This diagram is a single-phase principle block diagram, and the three-phase principle block diagram consists of three single-phase principle block diagrams

Normal Working Conditions And Installation Conditions

- The upper limit of the ambient air temperature around the installation environment is +40°C, and the average temperature value within 24 hours does not exceed +35°C. The lower limit of the ambient air temperature is -5°C.
- The altitude of the installation location shall not exceed 1000m (when it is greater than 1000m, it must be used with reduced capacity).
- The maximum temperature is +40°C, and the relative humidity of the air does not exceed +50%. Higher relative humidity is allowed at lower temperatures. For example, when reaching 90% at 20°C, special measures should be taken for occasional condensation caused by temperature changes.
- Outdoor use should have good ventilation and no obvious pollution, corrosive gases, dust, combustibles, or combustible gases. Horizontal installation, without significant shaking or impact vibration
- The output terminals between voltage regulators cannot be used in parallel.

Technical Performance Comparison			
TECHNICAL INDEX	ZHZBW(S/D)Contactless compensating AC voltage regulator	SJW(SBW)Compensation type column AC voltage regulator (servo mechanical type)	Inductive voltage regulator
Working principle	The fast switching of the thyristor module (SCR) is controlled by microcomputer intelligent detection output instructions, and the output voltage is maintained stable through transformer frequency synchronization, phase locking, and sine wave superposition compensation. Fast response speed, no carbon brush, no electric shock, no machinery, no sparks, three-phase tap changer	By relying on the movement of the carbon brush holder on the voltage regulating transformer, the secondary winding voltage of the compensating transformer is changed to maintain the stability of the output voltage. There are carbon brushes, electric shock, and mechanical transmission.	By changing the phase angle between the stator and rotor, the relative voltage between the input and output can be altered
Response Speed	Fast: The time to stabilize to the rated voltage value is $\leq 40\text{ms}$, which can suppress instantaneous input high and low surge voltages and effectively protect precision equipment in real time	Slow (3-5) seconds: Motor adjustment (mechanical)	Slow (3-5) seconds:Belonging to hysteresis voltage regulation, it cannot suppress instantaneous input high and low surge voltages, making it difficult to protect precision equipment
Parameter Setting	The buttons on the display panel can set various parameters	Cannot be set	Cannot be set
3-phase unbalance	Conventional products are 3-phase tap changers with automatic three-phase voltage balancing function	The conventional method is 3-phase unified adjustment, which does not have the function of automatic balancing of three-phase voltage	The conventional method is 3-phase unified adjustment, which does not have the function of automatic balancing of three-phase voltage
Protect Response Time	20ms protection after abnormal situation occurs	Protection time $\geq 10\text{s}$ after abnormal situation occurs	Conventional products do not have
Leakage magnetic interference	no	no	have (fixed/rotor magnetic leakage)
Power grid pollution	no	no	There is a surge voltage feedback to the power grid, which increases with the increase of power
Maintenance Cycle	Maintenance-free	Regular maintenance	Regular maintenance