

THREE PHASE COMPENSATE INDUSTRY VOLTAGE REGULATOR

INSTRUCTION MANUAL

High Output voltage	<ul style="list-style-type: none"> ·High input range ·The transmission system stuck. ·The controller fails to function 	<ul style="list-style-type: none"> ·Check the input voltage if it exceeds the rated input voltage range. ·check the controller by automatic method.
Low Output Voltage	<ul style="list-style-type: none"> ·Low input voltage ·The transmission system stuck. ·The controller fails to function 	<ul style="list-style-type: none"> ·Check the input voltage if it drops below the rated input voltage range. ·check the controller by automatic method.
The Current meter displays nothing	<ul style="list-style-type: none"> ·The load capacity too small, current can't be display. ·The phase current switch in "0" position. 	<ul style="list-style-type: none"> ·No problem. ·Turn the phase current switch to the correct position.
The Voltage meter displays nothing	<ul style="list-style-type: none"> ·The voltage switch in "0" position. ·No output Voltage 	<ul style="list-style-type: none"> · Turn the phase Voltage switch to the CA, BA, or BC position. ·Check the power switch if it trips. ·Check if the voltage meter burned.
The Cooling Fan doesn't work	<ul style="list-style-type: none"> ·The internal temperature below 55 °C ·The fan isn't well connected. ·The fan burned 	<ul style="list-style-type: none"> ·No problem ·Re-connect the fan cable firmly ·replace a fan.
There is sparks inside the regulator	<ul style="list-style-type: none"> ·The carbon brush doesn't contact the transformer surface well. 	<ul style="list-style-type: none"> ·Use #00polishing paper slightly polish the contact surface of the transformer. ·Check the components of the carbon brush, make sure the spring has enough stretch pressure.
Smoke from inside	<ul style="list-style-type: none"> ·Components burned 	<ul style="list-style-type: none"> ·Stop operation, contact service for help.

In case you can't shoot the troubles by following up the above mentioned measurements, contact the service center or the seller for further consultancy.

Maintenance



Caution:

Maintenance can start only after the voltage regulator is switched off.

■ Daily and regular maintenance

1. Check and cooling fan and the transmission devices regularly to make sure they work normally, check the input voltage and loading capacity if it exceeds the rated value.
2. Regular maintenance every three months:
 - 1) Carefully check main components especially the carbon brush, and the carbon brush contact surface of the transformer, remove dust.
 - 2) Check internal components and the cable connections, firmly tighten any loose connection.
 - 3) Replace damaged and diminishing carbon brush in time, replace damaged and malfunction components.

■ Trouble Shooting

In case you found some problem with the voltage regulator, follow the steps below to check and solve the common problems before contact the service center.

Phenomenon	Cause	Handle Method
The power switch trips	· Overload · High or low input voltage	· Reduce the load capacity. · Check the input voltage if within the normal input range of the voltage regulator.

PREFACE

Thanks very much for choosing KEBO Industrial Voltage regulatorsPDR series.

This instruction manual provides necessary information of installation, use and maintenance of the product. To ensure a proper installation as well as proper use of this product, please make sure to go through this instruction manual before any operation. In case you have any further questions, please feel free to contact our service center for further information.

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■ AC Power Supply

1. Apply this products to the electrical appliance whose output power capacity lower than the output power capacity of this unit.
2. Input AC electrical voltage fluctuation ranges within 260-430V.
3. Input AC mains frequency fluctuation ranges within $\pm 2\%$.
4. Voltage TDH<10%.
5. Phase voltage difference less than 5%.



Notice: in case special application is required, refer to the seller for advice.

Caution

■ Important notice

1. This product can only be installed and serviced by professional electricians who had previous training and knowledge about voltage regulators.
2. It is a must to switch off the voltage regulator and disconnect it from the AC mains when install and maintain it. prohibit operate when there is live electricity.
3. When the voltage regulator is working, to avoid electric shock, do no open the cabinet or move any connection cables.
4. The input and output cables must be well deployed, prohibit stepping on it to prevent damage to the cable and electrical leakage risk.
5. The voltage regulator must be grounded as instructions illustrated, no grounding may cause electrical shock to the human.
6. The grounding line must not be connected to any gas pipeline, water supply pipe or heating facilities, Electric leakage may cause public disaster.
7. Do not allow anything foreign object enter into the cabinet.
8. Do not put anything into the cabinet through the ventilation slot; direct contact may result in electric shock.
9. Do not step onto the regulator; do not put any heavy stuff onto it.
10. Place the voltage regulator at least 1 Meter away from the wall; keep the surroundings clear and well ventilated.
11. Prohibit washing the voltage regulator by using any corrosive cleaner or liquid.
12. Prohibit operating the voltage regulator with wet hands.
13. In case the voltage regulator not to be used for a long time period, switch off it, disconnect it from the AC mains and dismantle the connection cables.
14. Transportation Method: Forklifts, Cranes, Prohibition of inverted, Waterproof



Introduction

■ Introduction

PDR series compensate AC Voltage regulator is designed for industrial three phase voltage stabilizing. They adapt the most advance and popular modularization structure and compensate coil technology; they ensure the electrical appliances running properly by keeping and stable output voltage automatically whenever there is a voltage fluctuation of the AC mains power supply or a change capacity of the loading appliances. PDR series can be perfectly applied for use in mining industry, scientific research unit, and hospital, hotel, testing lab, home and office where there is constant voltage fluctuation in AC Mains power supply.

■ Features

■ Practical Design

Adapt compensate coil technology and structure, high capacity design, easy to operate and maintain, with input voltage range as 260-430V and output voltage precision as 380V±3%, adequate to satisfy your electrical appliance input voltage requirement.

■ Fast Response

Sensitive and fast response, able to make immediate voltage adjustment upon the real time sampling voltage signal, no waveform distortion, capable to withstand instantaneous overload.

■ Energy saving

Extreme low self power consumption at idle load and actual loading status enables continuous long time operation and constant stable voltage output. Save power and the environment.

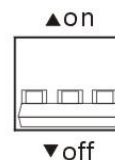
■ Safe

Strong protection design, high voltage protection and missing phase warning protection etc.

■ Specifications

Capacity :	IDR (5 ~ 100KVA)	PDR (6 ~ 150KVA)	Response time :	10V/S
Phase :	Single	Three phases	Isolation Grade	A
Input voltage :	220V±15%	380V±15%	Isolation resistance :	5MΩ
Output Voltage :	220V	380V	High-pot testing :	2000V/min
Output Current :	Refer to the product label		Wave form distortion :	≤0.1%
Output precision :	±2%		protection :	High voltage cut/warning
Frequency :	50Hz			

◆ **Note:** the above specifications are our standard specifications; actual specifications are subject to the information on the product label.



③ Power Switch, The main power switch of the voltage regulator, switch off the switcher to stop working, in case high voltage or high current occur, the switch will trip automatically.

④ Voltage adjustment rheostat, when the output voltage drops below the rated output voltage, adjust the output voltage by turning the rheostat clockwise, when the output voltage exceeds the rated output voltage, adjust the voltage by turning the rheostat in the anti-clockwise direction.



⑤ Output Current switcher, Turn this switch to display the phase current of AB,BC,CA, when the switch turn to "0" position, the voltage regulator displays no current value, but it works in the normal manner.(single phase products don't have such a switch).

⑥ Output voltage switch, Turn this switch to display the phase voltage of AB,BC,CA, when the switch turn to "0" position, the voltage regulator displays no voltage value, but it works in the normal manner.(single phase products don't have such a switch).

Operation

■ CAUTION

Before connect any loading to the voltage regulator, please following the steps as below:

1. Check and make sure the cable connections are correct.
2. Check and measure if the output voltage and current comply with the loading requirement.
3. Connect the voltage regulator to the AC mains, check and measure if the output current exceeds its rated value; adjust the voltage switchers to check if the output voltages of AB phase, BC phase, CA phase are balanced.
4. Once the above three steps are followed, connect the load to start work.

■ Illustration

Presentation of the front panel and their operation method.

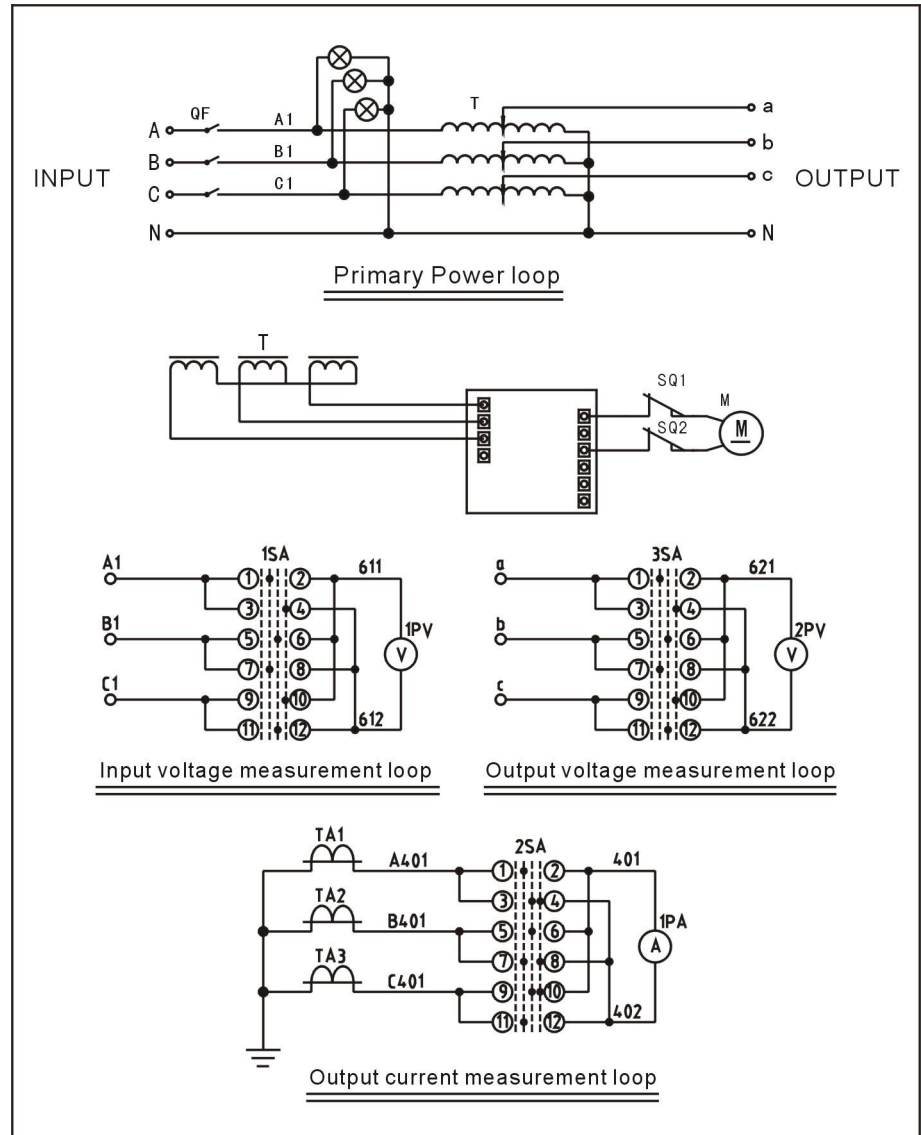


① Indication light: in three phases models, it indicate the phase as A, B, C.

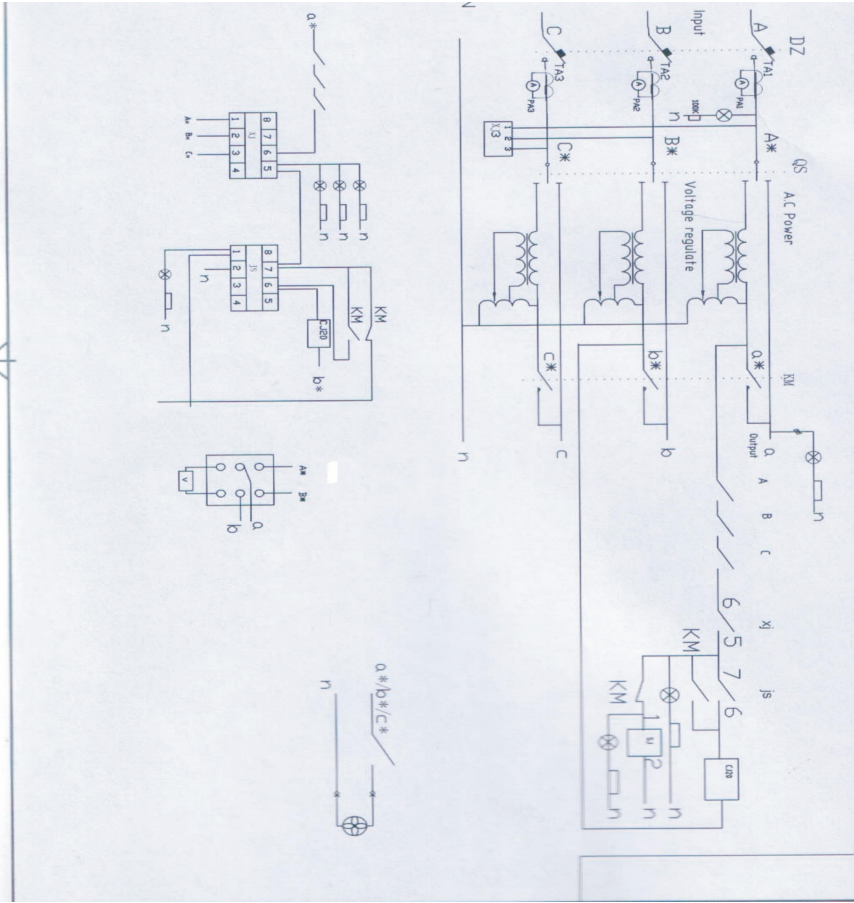


② Voltage and Current meters, indicate the voltage

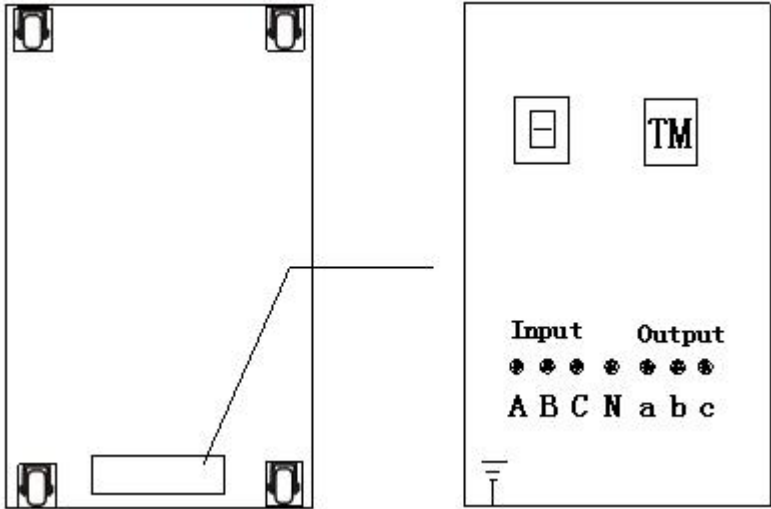
and current.



■ Electrical Principle of Three phase 20 ~ 150KVA Voltage regulator.



Connection illustration for Three phase models



◆Note: the above illustration is for reference only, please refer to the actual mark on the voltage regulator for connection.

Cable Connections

■ Caution

Please refer to the following notes before connect the voltage regulator to the electricity network and connect it to any load:

- Only previously trained capable electrician personnel are allowed to install and test the unit.
- The installation and maintenance of the voltage regulator can only be conducted when the electricity is switched off, it is strictly prohibited to operate when the unit is electricity live.
- Prohibit overload.
- Prohibit reverse or wrong connection, marks on the terminals should be strictly followed, grounding must be connected.
- The voltage regulator should be switch on only when the load is disconnected or switched off, make sure to switch off the load before switch on the voltage regulator.

■ Connection method

- ① Firstly, make sure the AC mains voltage match the input voltage range of the voltage regulator, it should be within the range of 260–430V, make sure the loading capacity connected to the voltage regulator doesn't exceed the rated output power capacity.
- ② choose proper cable, it is recommended to use 2.5A/mm² copper wire to connect the voltage regulators.
- ③ According to the connection marks, the input power cable should be connected to the input terminal, output cable should be connected to the output terminal as marked, neutral line should be connected to the neutral terminal, and grounding should be connected to the grounding terminal as well. Refer to the following illustration.

Operation Environment

■ the operation of this item is subject to the environment conditions as below:

1. This item is for indoor use only.
2. No water drop, no steam, no oil dust.
3. No corrosive, explosive, inflammable gas or liquid materials.
4. No floating dust or metal dust.
5. Firm and flat base.
6. Altitude not higher than 1000M.in case it is used above 1000m altitude, the loading capacity should be reduced accordingly. (Note, the loading capability of this item reduces while the altitude height increase)
7. Well ventilated.
8. Environment temperature:
Highest Temperature: +40℃ ; Highest Monthly Average Temperature: +30℃ ;
Highest yearly Average temperature: +20℃ ; Lowest temperature: 0℃ ;
9. Relative Humidity: 15% to 90% non-condensing.
10. Wave form of the power voltage: sine wave (THD≤4%).
11. Instant peak voltage of the Electricity network: Vp-p≤2000V, no lightning.
12. No allowed to connect in parallel.
13. Enough space around the stabilizer should be kept to ensure heat elimination.

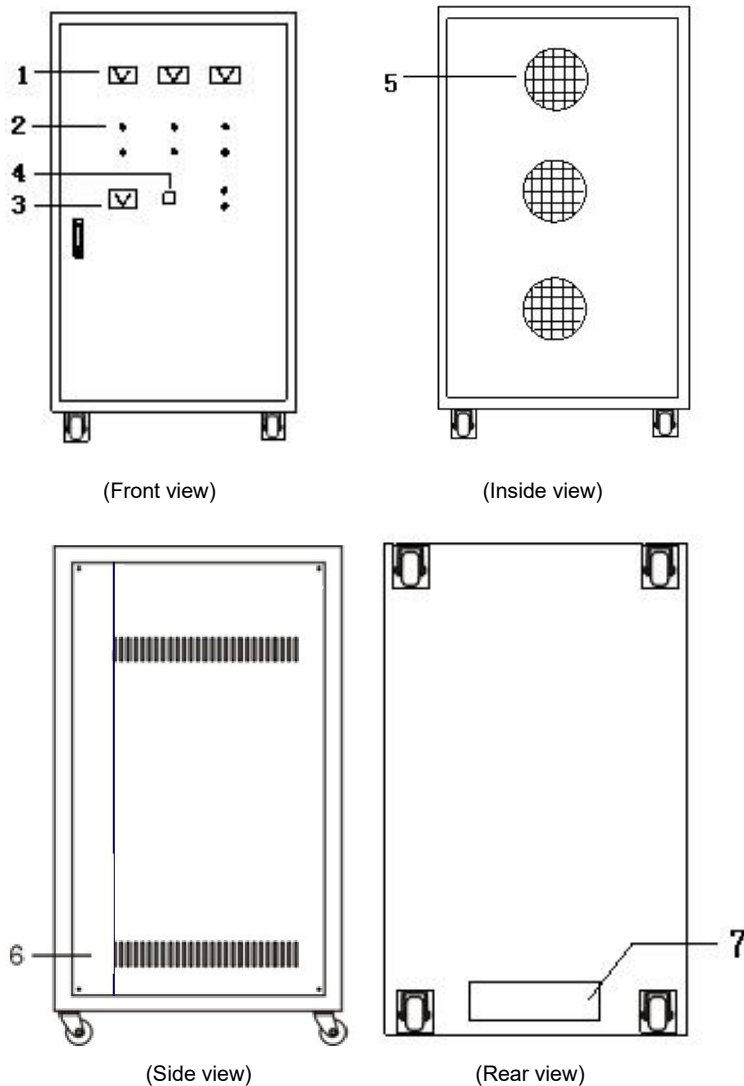
■ Storage environment:

The stabilizer should be store in a dry, well ventilated, and corrosive gas free environment with temperature range 0 ~ 40℃ and relative humidity less than 80%.

■ Transportation:

The stabilizer should be well packed to avoid any direct exposure to rain, snow. Handle with care to avoid overwhelming shaking and crash.

■ Three phase models



Introduction:1. Output digital voltage meter 2. Power indicator
3. output digital voltage meter 4.Change-over switch
5. Ventilating fan 6. Vents 7. Input and output holes

Regulator parameters				
Model	Machine size	Weight	Package Size	Gross weight
30KVA	380*500*710(mm)	120kg	420*540*760(mm)	100kg
40KVA	380*500*710 (mm)	160kg	420*540*760 (mm)	170kg
50KVA	460*600*815(mm)	180kg	500*640*865(mm)	200kg
60KVA	500*1100*800(mm)	220kg	530*1130*850(mm)	245 kg
70KVA	500*1100*800(mm)	230kg	530*1130*850(mm)	255kg
80KVA	500*1100*850(mm)	250kg	530*1130*900(mm)	280kg
90KVA	550*1150*900(mm)	300kg	580*1180*950(mm)	330kg
100KVA	600*1200*1100(mm)	350kg	630*1230*1150(mm)	380kg
120KVA	750*1400*1150(mm)	380kg	780*1430*1180(mm)	410kg
150KVA	750*1400*1150(mm)	410kg	780*1430*1200(mm)	440kg
200KVA	800*1500*1200(mm)	450kg	830*1530*1250(mm)	480kg
250KVA	800*1600*1200(mm)	480kg	830*1630*1250(mm)	510kg
300KVA	900*1800*1300(mm)	550kg	930*1830*1350(mm)	580kg