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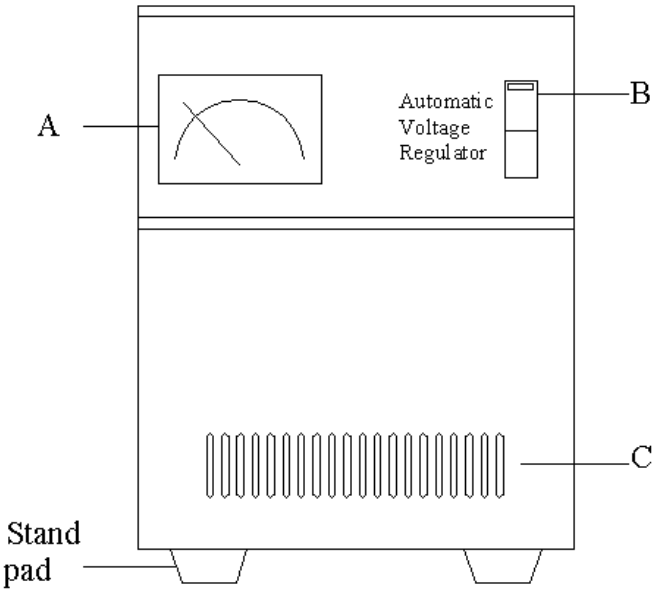
Ⅰ. About PS series AVR

PS series AVR is capable to supply safe and standard quality of power under various and different unstable power situation.

It can be applied to CNC machinery, SMT equipment, Auto-processing production, Computer and computer peripherals, OA equipment, PLC systems, Medical equipment, Production line, Communication equipment, Auto-cash machine, Audio/Video equipment, Lab instrument, Auto-testing equipment, safe guard system…etc.

❖Appearance drawings

Single phase : PS-103BS



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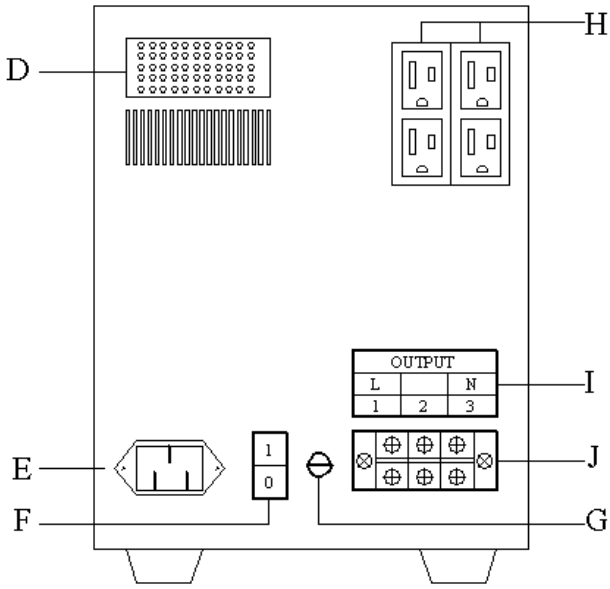
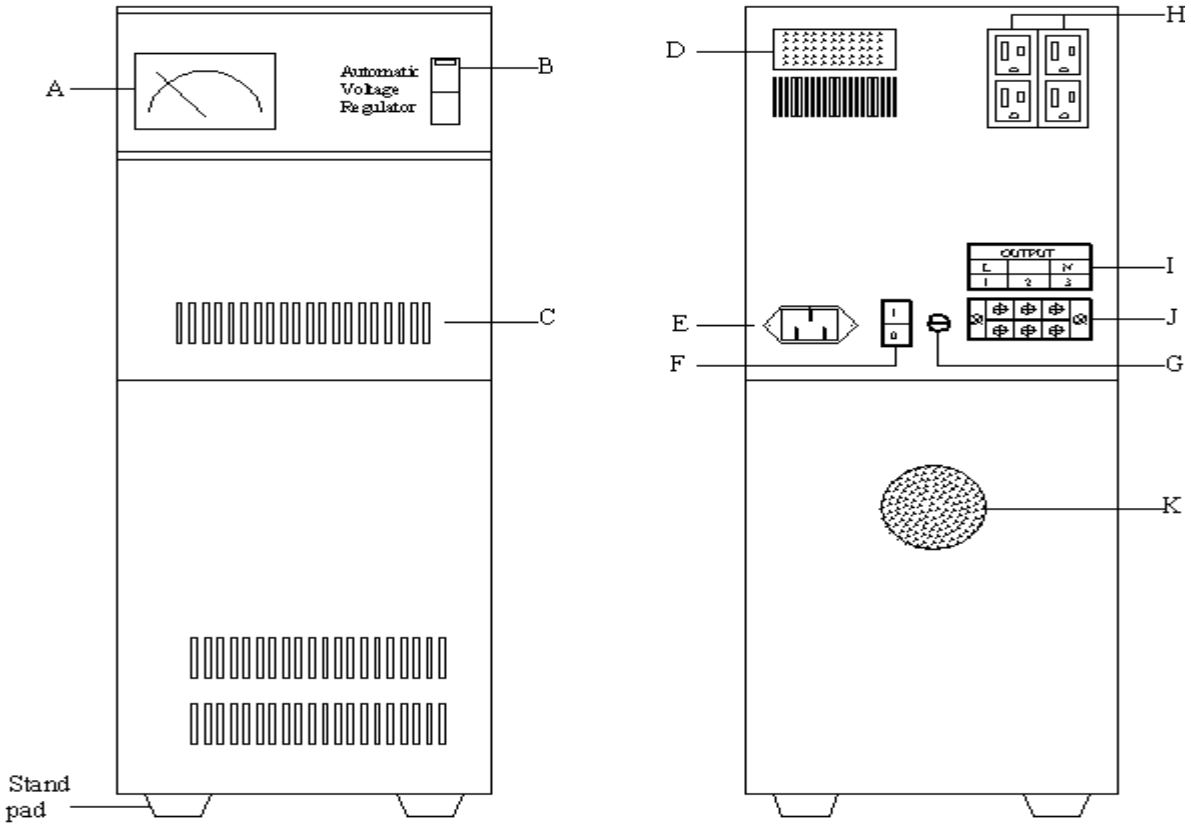


REAR

A	Output voltmeter
B	AC input main switch (with overload trip function)
C	Ventilation holes
D	Specifications label
E	Input power socket
F	Bypass switch
G	Ground
H	Output outlets
I	Cable connection instructions
J	Output cable connection terminal block

❖Appearance drawings

Single phase : PS-103CS

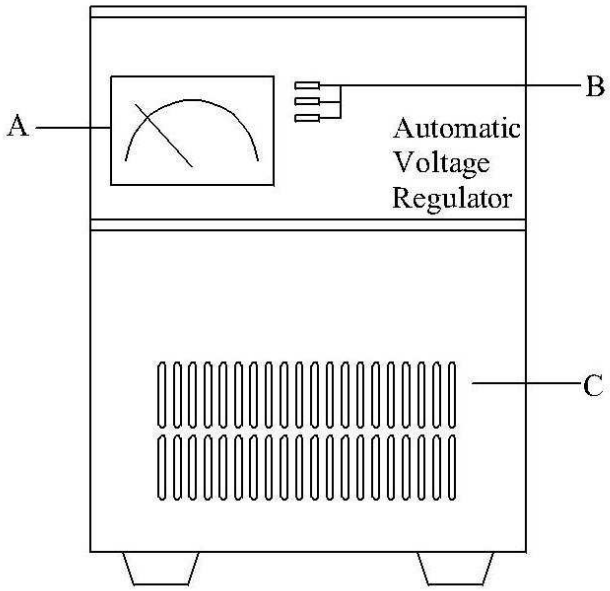


FRONT REAR

A	Output voltmeter
B	AC input main switch (with overload trip function)
C	Ventilation holes
D	Specifications label
E	Input power socket
F	Bypass switch
G	Ground
H	Output outlets
I	Cable connection instructions
J	Output cable connection terminal block
K	Cooling fan hole

❖Appearance drawings

Single phase : PS-103~PS-107, AS series ； PS-105~PS-110, BS series



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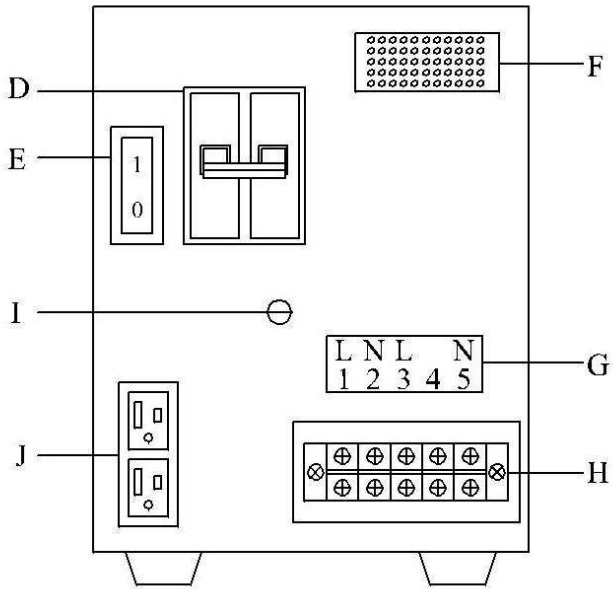
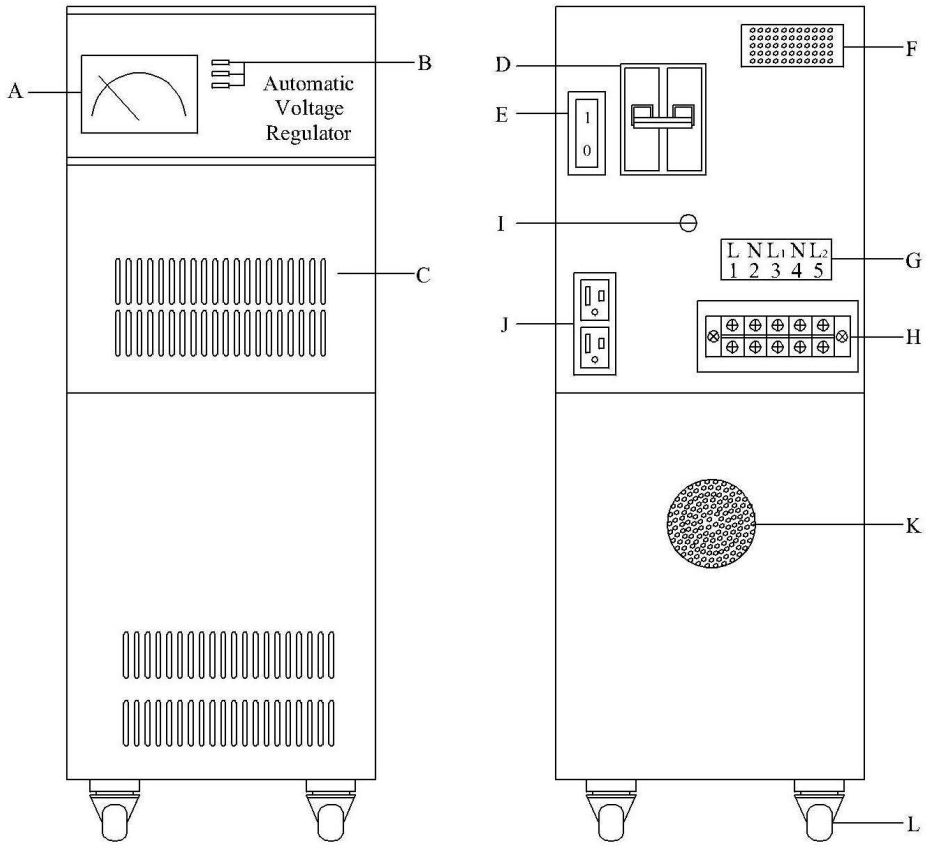


REAR

A	Output voltmeter
B	Output voltage indicator
C	Ventilation holes
D	AC input main switch
E	Bypass switch
F	Specifications label
G	Cable connection instructions
H	Terminals
I	Ground
J	Output sockets

❖Appearance drawings

Single phase : PS-105~PS-110, CS series

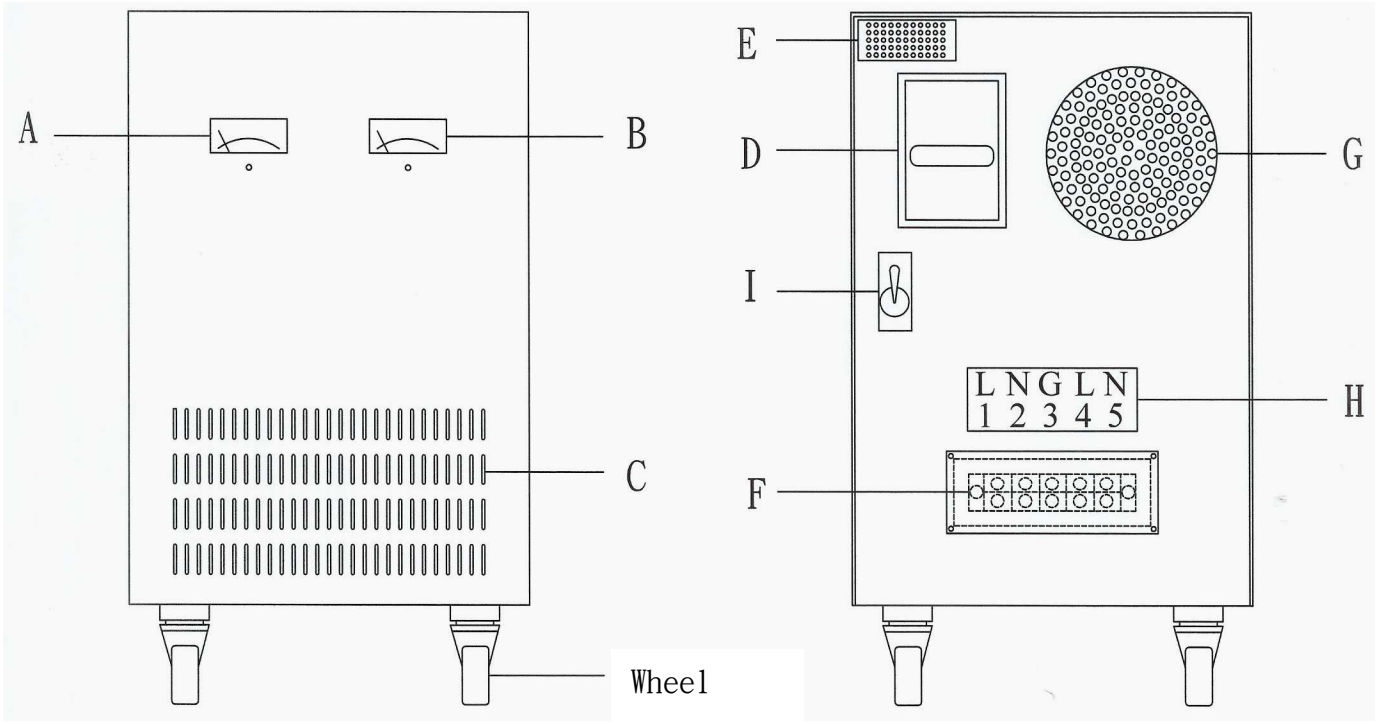


FRONT REAR

A	Output voltmeter
B	Output voltage indicator
C	Ventilation holes
D	AC input main switch
E	Bypass switch
F	Specifications label
G	Cable connection instructions
H	Terminal block
I	Ground
J	Output sockets
K	Cooling fan
L	Wheel

❖Appearance drawings

Single phase : PS-110, AS ； PS-115~PS-120, BS series



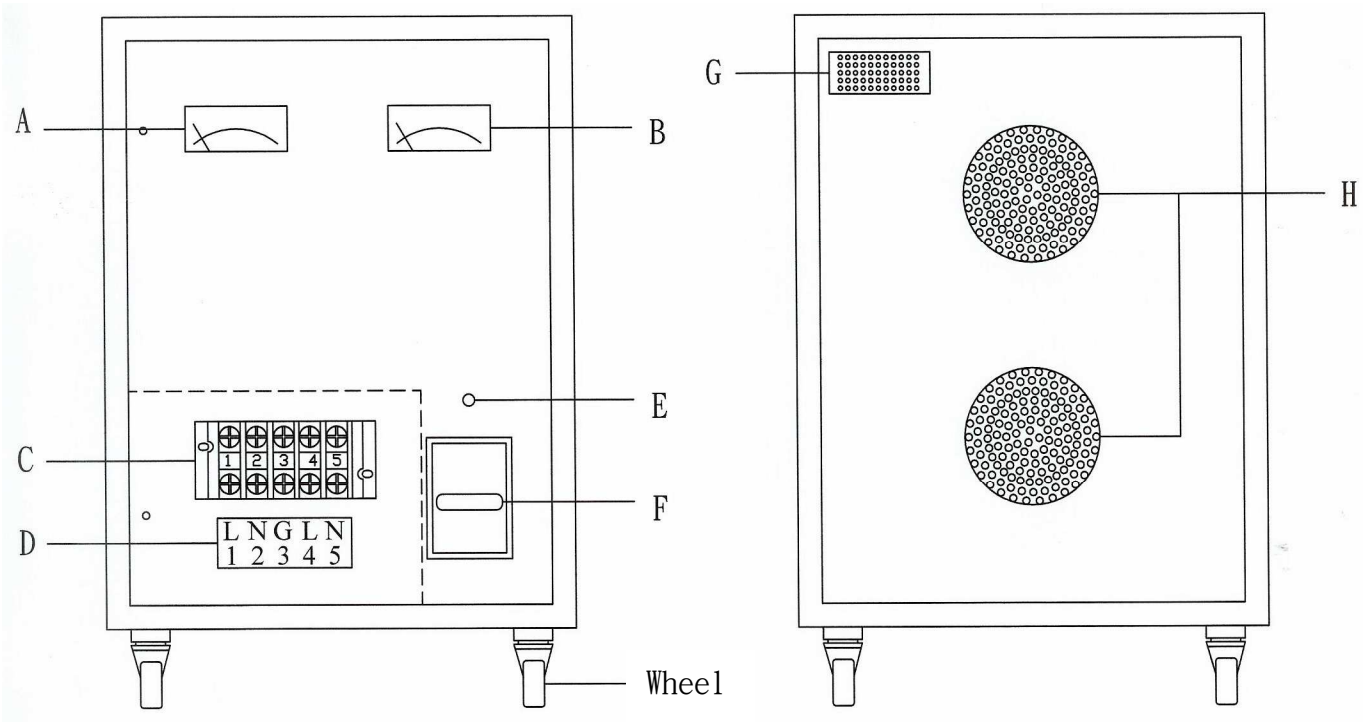
FRONT REAR

A	Output voltmeter
B	Output ammeter (or input voltmeter)
C	Ventilation holes
D	AC input main switch
E	Specifications label
F	Terminal block
G	Cooling fan hole
H	Cable connection instructions
I	Bypass switch

❖Appearance drawings

Single phase : PS-115~PS-130, AS ; PS-125~PS-150, BS

PS-115~PS-130, CS series



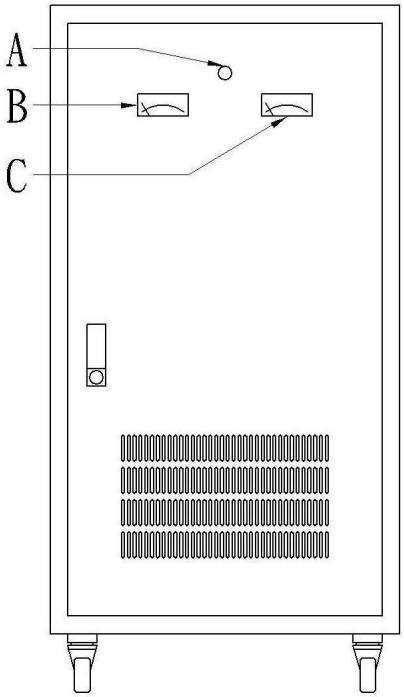
FRONT REAR

A	Output voltmeter
B	Output ammeter (or input voltmeter)
C	Terminal block
D	Cable connection instructions
E	Power indicator
F	AC input main switch
G	Specifications label
H	Cooling fan hole

❖Appearance drawings

Single phase : PS-140~PS-175, AS ; PS-160~PS-1100, BS

PS-140~PS-150, CS series



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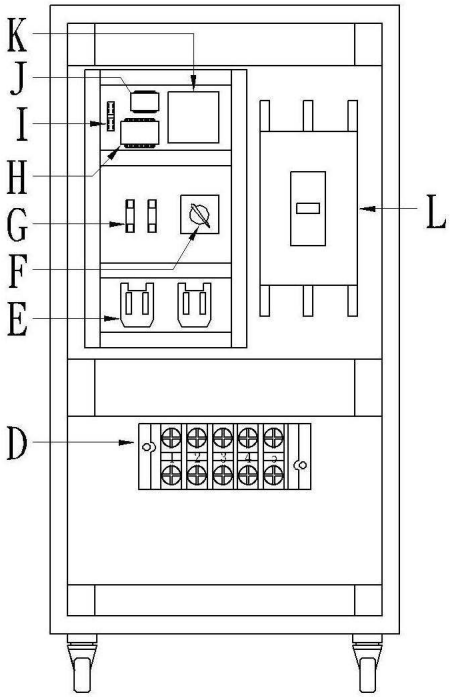
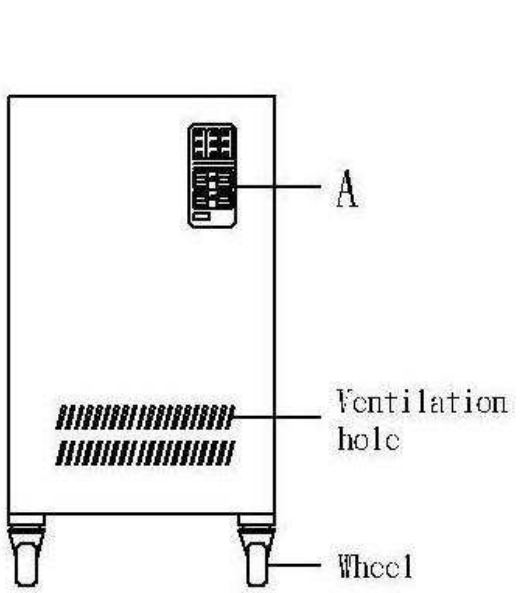


FRONT INNER SIDE

A	Power indicator
B	Output voltmeter
C	Output ammeter (or input voltmeter)
D	Terminal block
E	Power relay
F	Bypass switch
G	Overload protection fuse
H	Power transformer for PC board
I	Signal terminal block
J	Three phase feedback transformer
K	Main control board
L	AC input main switch

❖Appearance drawings

Three phase : PS-310~PS-360X2, N1, N2, N3
PS-310~PS-345X3, X4



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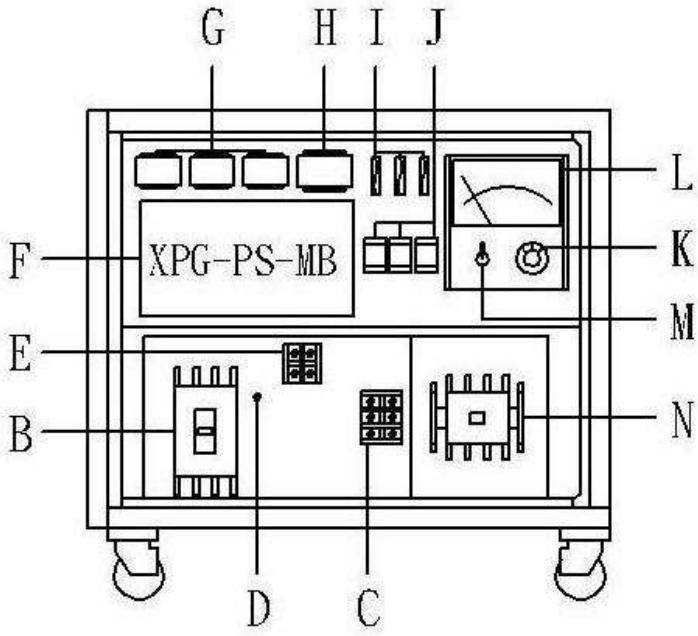
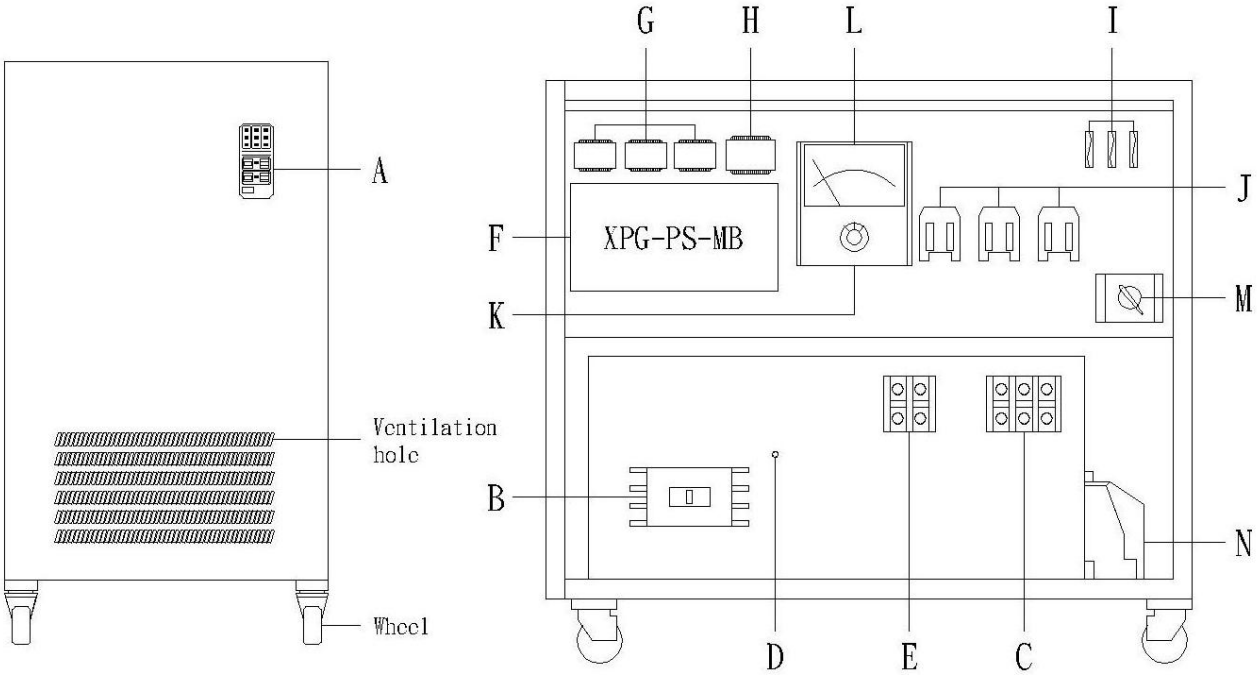


RIGHT INNER SIDE

A	Display panel
B	AC input main switch
C	Output cable connection terminal block
D	Ground
E	Neutral (X type w/o this device)
F	Main control board
G	Three phase feedback transformer
H	Power transformer for PC board
I	Overload protection fuse
J	Power relay (some models don't have)
K	Three phase output voltage selector
L	Output voltmeter
M	Bypass switch
N	Output magnetic contactor

❖Appearance drawings

Three phase : PS-375~PS-3150X2~X4, N2, N3
PS-360X3, X4, PS-375~PS-3100N1

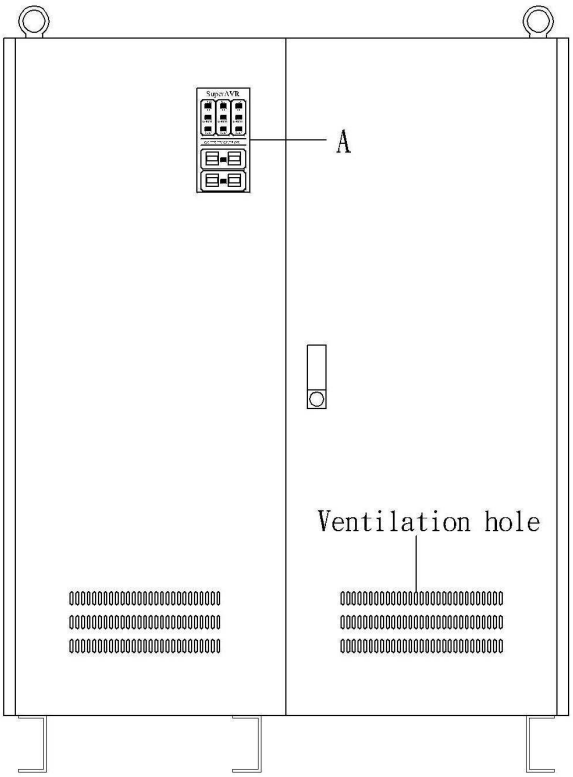


FRONT RIGHT INNER SIDE

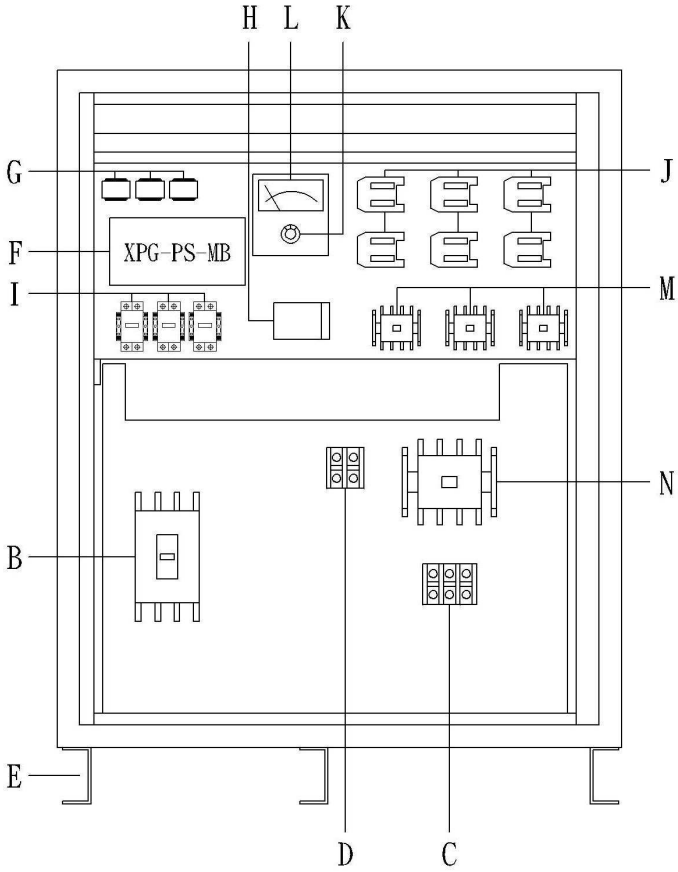
A	Display panel
B	AC input main switch
C	Output cable connection terminal block
D	Ground
E	Neutral (X type w/o this device)
F	Main control board
G	Three phase feedback transformer
H	Power transformer for PC board
I	Overload protection fuse
J	Power relay
K	Three phase output voltage selector
L	Output voltmeter
M	Bypass switch
N	Output magnetic contactor

❖Appearance drawings

Three phase : PS-3180~PS-3200X2~X4, N2, N3



FRONT



RIGHT INNER SIDE

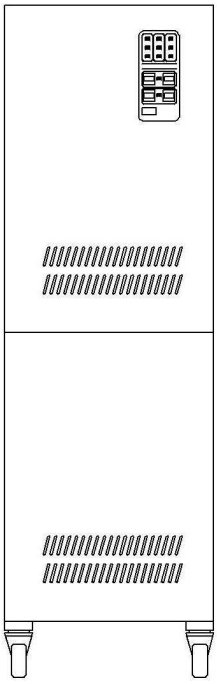
A	Display panel
B	AC input main switch
C	Output cable connection terminal block
D	Neutral (X type w/o this device)
E	Base
F	Main control board
G	Three phase feedback transformer
H	DC Power supply
I	Mini breaker
J	Power relay
K	Three phase output voltage selector
L	Output voltmeter
M	Bypass switch
N	Output magnetic contactor

❖Appearance drawings

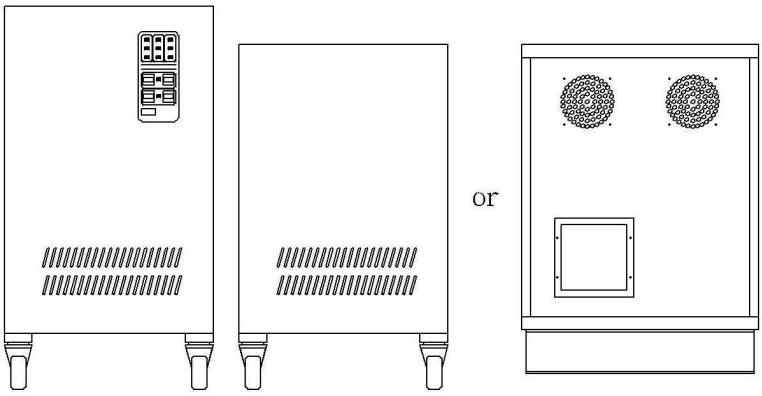
Three phase

※ The appearance of Models of all Y series are designed in a upper case and a lower case combined together, its dimension is roughly two times big of the same X series capacity.

Capacities begin from PS-360Y and below are all designed upper-lower cases combined. Capacities begin from PS-375Y2 are designed with two separate cases.



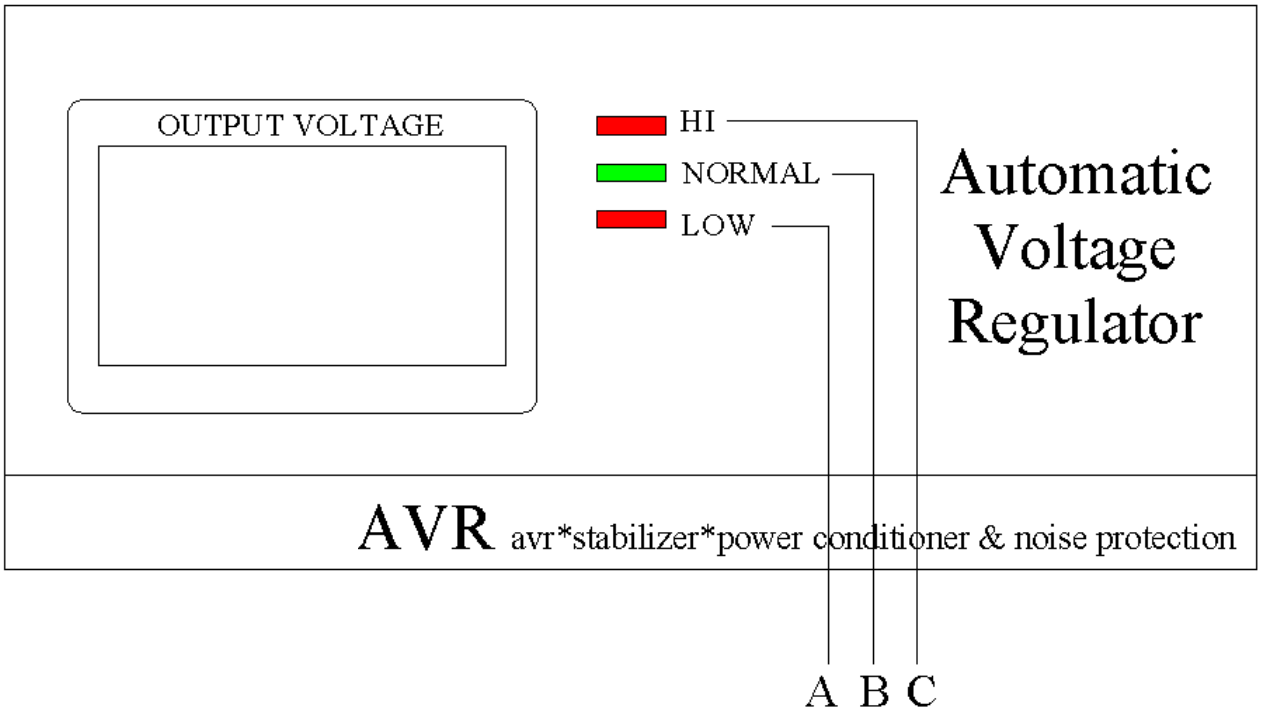
Upper-lower combined design



Separate cabinets design

❖Light indicators and push buttons

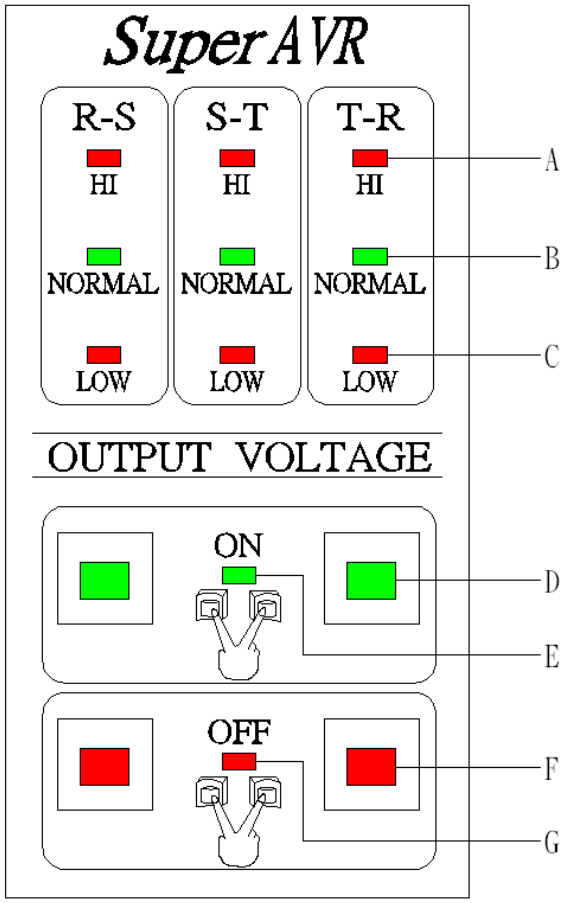
Single phase : PS-103 ~ PS-107, AS series
PS-105 ~ PS-110, BS series
PS-105 ~ PS-110, CS series



A	Output voltage low, increased voltage indicator (Red)
B	Output voltage normal indicator (Green)
C	Output voltage high, decreased voltage indicator (Red)

❖Light indicators and push buttons

Three phase



A	Three phase output voltage high, decreased voltage indicator (Red)
B	Three phase output voltage normal indicator (Green)
C	Three phase output voltage low, increased voltage indicator (Red)
D	AC output ON push button (Green)
E	AC output ON indicator (Green)
F	AC output OFF push button (Red)
G	AC output OFF indicator (Red)

Ⅱ. Caution

1. Please read this manual thoroughly before starting to operate the AVR.

2. Irrelevant person is not recommended to operate the AVR.

3. All users are requested to operate the AVR in accordance with local government's rule or international regulations.

4. Please not to exceed the AVR's nominal capacity. (KVA)

5. Please contact us or our agent for help if you are not familiar with the installation, adjustment or operation.

※ Special Instructions

AVR is of electrical product, in consideration of your safety, be sure to be on the alert for the mark of 「Danger」, 「Warning」when transport, install or operate the AVR. It is the most safe way if you follow the rules.

! Danger	Will possibly get hurt if misuse the AVR
⚠ Warning	Will possibly burn the AVR or damage the load side equipment if misuse the AVR

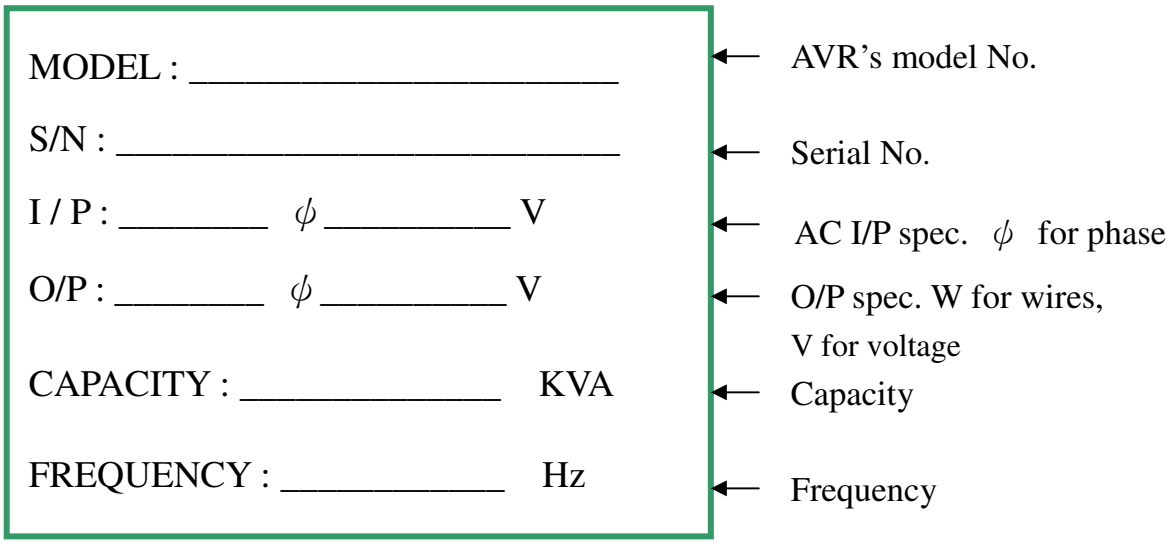
❖Product inspect

All of our AVR products are severely tested before the shipment, customers are recommended to carefully inspect the followings after unpacking the AVR :

1. firstly, please check the model no. and make sure it is the right model, the right capacity.

2. secondly, please check if there is any damages caused during transportation, if there is, then do not connect to AC power, call or contact for service.

3.1 The label :



3.2 The models of single phase:

Model No.	PS-103 AS/BS/CS	PS-105 AS/BS/CS	PS-107 AS/BS/CS	PS-110 AS/BS/CS	PS-115 AS/BS/CS	PS-120 AS/BS/CS	PS-130 AS/BS/CS
Capacity	3KVA	5KVA	7.5KVA	10KVA	15KVA	20KVA	30KVA
Model No.	PS-140 AS/BS/CS	PS-150 AS/BS/CS	PS-160 AS/BS	PS-175 AS/BS	PS-1100 BS		
Capacity	40KVA	50KVA	60KVA	75KVA	100KVA		
Voltage	AS : 1 ϕ 2W 100V or 110V or 115V or 120V（Same input, output） BS : 1 ϕ 2W 200V or 220V or 230V or 240V（Same input, output） CS : 1 ϕ 2W or 1 ϕ 3W, 110V or 220V（Input/output different） （CS TYPE are all with isolation transformer）						

3.3 The models of three phase:

Model No.	PS-310 X/Y/N	PS-315 X/Y/N	PS-320 X/Y/N	PS-330 X/Y/N	PS-345 X/Y/N	PS-360 X/Y/N	PS-375 X/Y/N
Capacity	10KVA	15KVA	20KVA	30KVA	45KVA	60KVA	75KVA
Model No.	PS-3100 X/Y/N	PS-3120 X/Y/N	PS-3150 X/Y/N	PS-3180 X/Y/N	PS-3200 X/Y/N		
Capacity	100KVA	120KVA	150KVA	180KVA	200KVA		
Voltage	X2 : 3 ϕ 3W 200V or 220V X3 : 3 ϕ 3W 380V or 400V X4 : 3 ϕ 3W 415V or 440V N1 : 3 ϕ 4W 110/190V or 127/220V N2 : 3 ϕ 4W 220/380V or 230/400V (indicate phase voltage) N3 : 3 ϕ 4W 220/380V or 230/400V (indicate line voltage) Y : I/P : 3 ϕ 3W 380V, O/P : 3 ϕ 3W 220V （AVR with transformer） Y2 : I/P : 3 ϕ 3W 220V or 380V, O/P : 3 ϕ 4W 110/190V or 220/380V (AVR with transformer)						

※ 〝EX〞 means other special specification.

❖Special instructions（Danger）

! Danger
◇ Not to power on while cable assembling, inspect neither any parts on the PCB nor any signals while the AVR is at work. ◇ Users are not recommended to modify any inside circuits or parts. ◇ Please be sure to correctly and actually ground your AVR. ◇ For safety consideration, all cable assembling must be done under power off. ◇ Not to wrongly connect the input and output terminal.

❖Special instructions（Warning）

⚠ Warning
◇ Be sure to double-check the AC power is exactly same as the AVR's nominal input voltage. ◇ All of the semi-conductors in the PCB are very easy to get disturbed or damaged by static electricity, therefore users are not recommended to touch the PCBs.. ◇ Terminals are recommended to use the O type. ◇ All cables used in the AVR mush meet the electrician rules, and all the screws must be screwed up tight. ◇ The output of each AVR is limited only one set of output terminal, please add a panel if multiple terminals are needed.

Ⅲ. Installation and cable connection

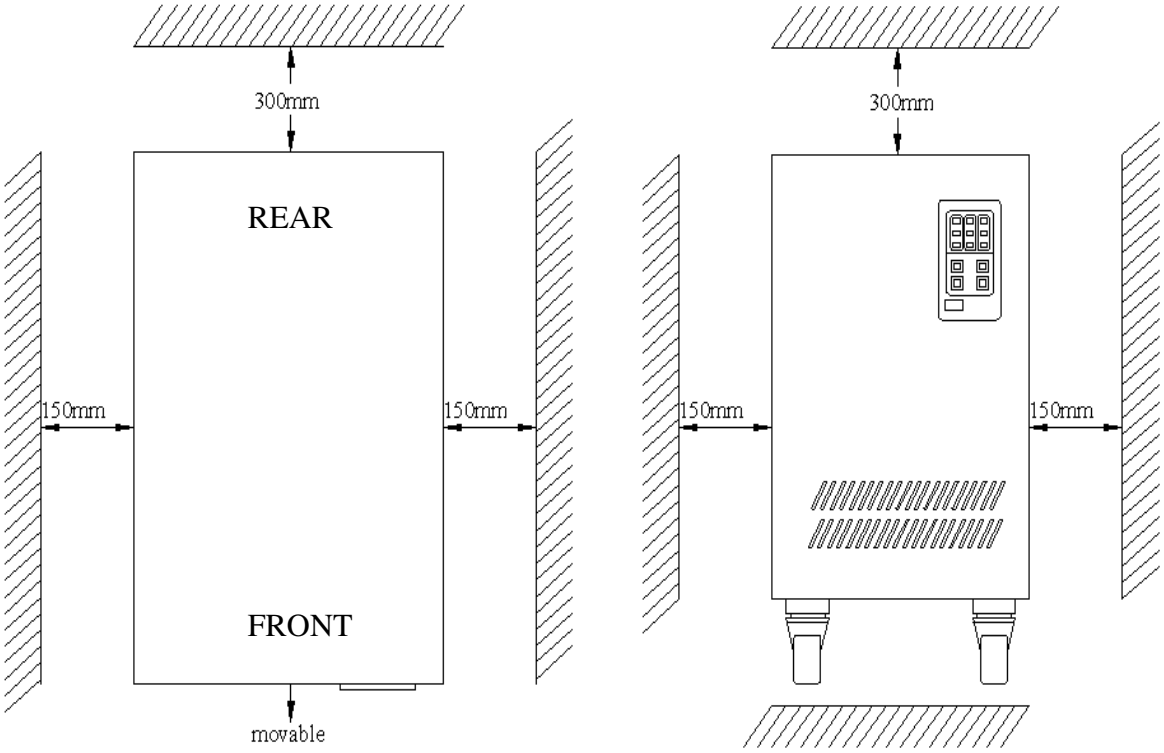
The operation environment and cable connection plays very important role to the function of PS series AVR. It will cause very direct and critical effect to the PS series AVR's MTBF. Therefore it is essential to follow the instructions of installation and cable connection.

❖Requirement of operation environment :

The operation environment plays a vital role for an AVR, both the function and the endurance of AVR will all be easily affected if the environment does not meet its requirement listed below :

- Ambient temperature : 0℃ ~ 45℃.
- Keep off the rain and the humid place.
- Keep off the oil and the salt.
- Keep off dust, fluff and metal dust.
- Avoid installing on a vibratory machine.
- If AVR is installed inside a machine or a panel cabinet, the ventilation is very important, the best is to add cooling fan.
- Do not place anything on top of the AVR（some of the AVRs are ventilated on top holes）

To install PS series AVR, please confirm the environmental requirement as per the drawing in the below :



TOP VIEW FRONT VIEW

❖Cable connection

1. The installation standard varies with the different models, different capacities as well as the different voltage, please refer to the appropriate installation standard provided in this manual to install your AVR and put attention to the right cables used for installation.

2. Please use a separate AC input breaker for AVR and a closer distance to the AC power is recommended.

3. Be sure to check the right polarity while connecting cables to terminals, no matter the AVR is single phase or three phase（for polarity reference, please refer to Enclosure A on P.22）.

4. The utmost importance to install a three phase AVR is to make sure of the right phase sequence.

5. For safety consideration, it is strictly forbidden to install with AC power 〝ON〞 status.

6. Cable assembling must be completely in accordance with the electrician rules.

7. Be sure to notice the correct cabling label marked on the terminal when installing the single phase AVR.

8. For three phase AVR cabling, please connect the AC input to the primary of the MCCB and connect the output to the output terminal, the Neutral and the Ground are also clearly marked with sticker, please connect them in accordance with the regulation.

9. For Grounding information, please refer to Enclosure B. (P. 22).

Enclosure A : Polarity reference

1. Line : Line to Line, for 3 phase 3 wires or 3 phase 4 wires, there are voltages of 190V, 200V, 208V, 220V, 230V, 380V, 440V, 480V…etc.

2. Neutral : Neutral to Line, there are voltages of 110V, 115V, 120V, 127V, 132V, 220V, 254V, 277V…etc. There is still minor voltage of 0.5V ~ 2.0V for Neutral to Ground. (For 3 phase 3 wires, there is no Neutral)

3. Ground : to connect earth or the ground in the panel cabinet.
   - ※ if there is >5V discrepancy for Neutral to Ground or some other special requirement for installation, please refer to a qualified electrician to find the best solution and safely grounded.
   - ※ the normal voltage types for 3 phase 4 wires are : 110/190V, 115/200V, 120/208V, 127/220V, 132/230V, 220/380V, 254/440V, 277/480V.
   - ※ the normal voltage types for 3 phase 3 wires are : 190V, 200V, 208V, 220V, 230V, 380V, 440V, 480V.
   - ※ the normal voltage types for single phase 2 wires are : 110V, 115V, 120V, 127V, 132V, 220V, 240V, 277V.

4. Line's labeling : they are L,L1,L2 for single phase. And for 3 phase, they are R,S,T,U,V,W.

5. Neutral's labeling : both single phase and three phase all are labeled as "N".

6. Ground's labeling : labeled as "G" or "E", or the symbol of "  ".

Enclosure B : The Grounding

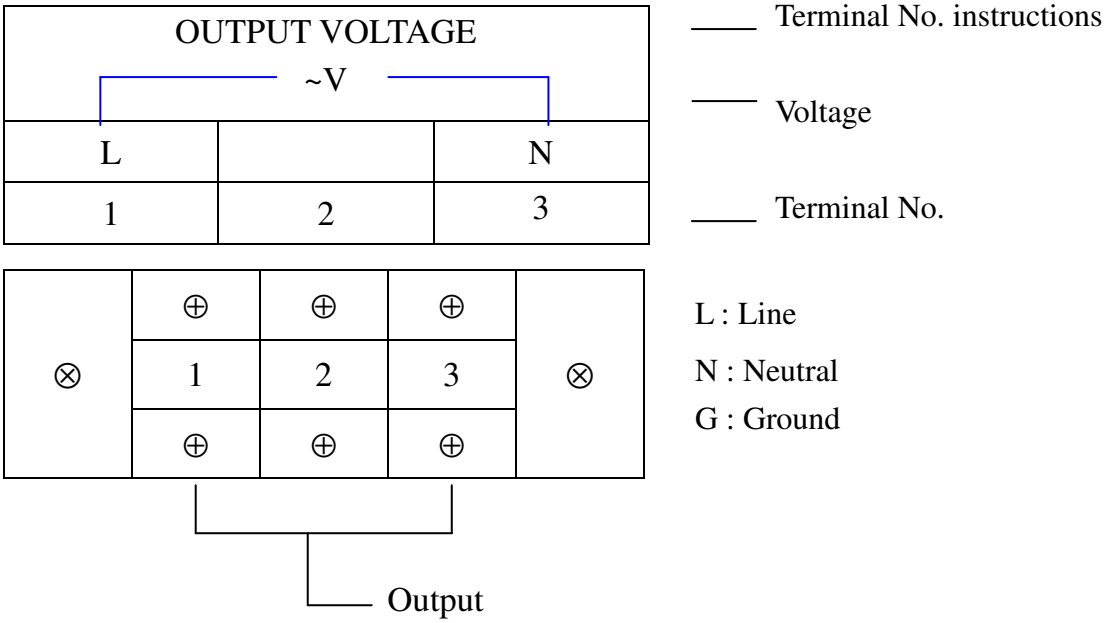
1. A well-grounded system can not just provide safety but also prevent your AC power from interfering and above all is to keep your equipment working normally.

2. The ground cable must at least use 8AWG or the same diameter cable as it is of the AVR.

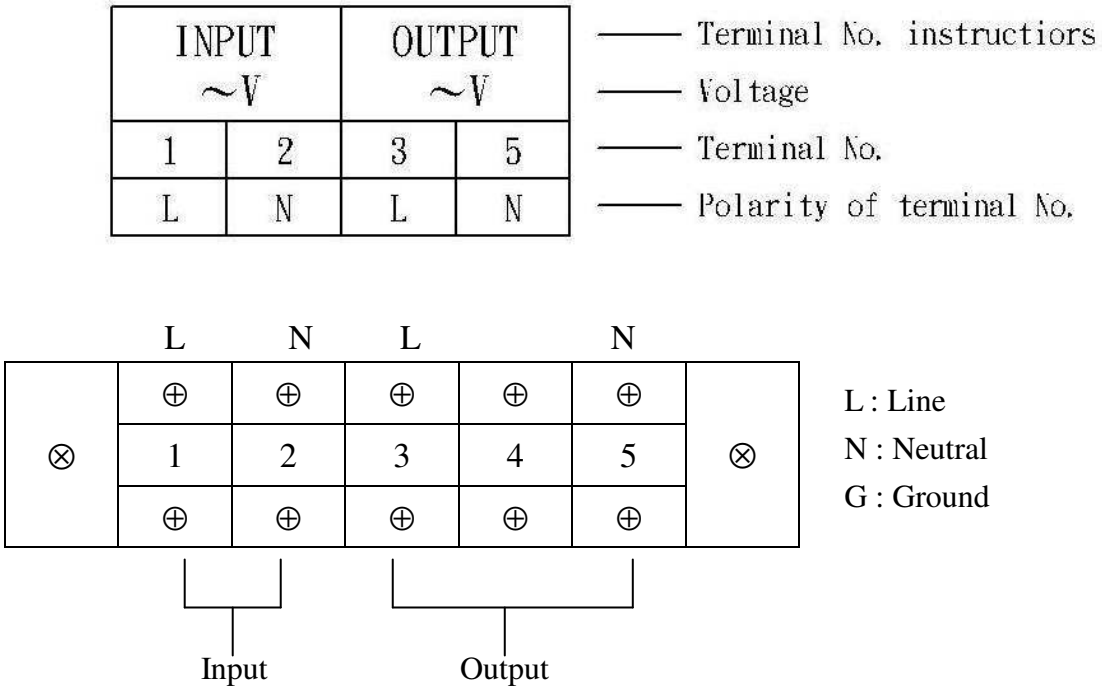
3. The grounding cable is best to connect the right point of the grounded stick or the right connecting point of the point of the panel cabinet.

※Cable connection of PS series AVR

1. Single phase (Type : PS-103BS) ; Input/Output : 1 ϕ 2W

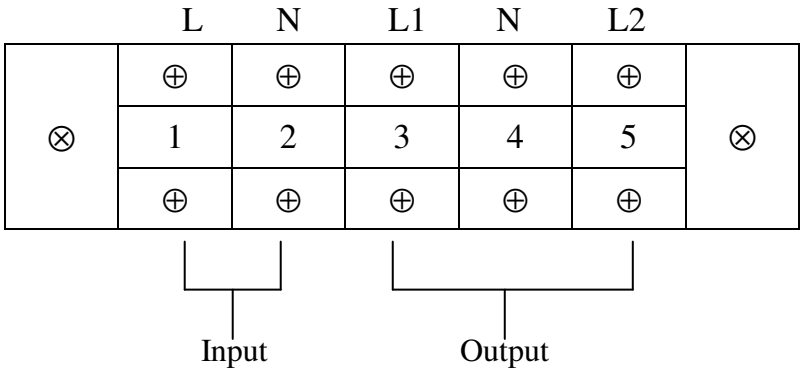


2. Single phase (Type : partially AS, BS, CS) ; Input/Output : 1 ϕ 2W



3. Single phase (Type : partially CS)；Input : 1 ϕ 2W, Output : 1 ϕ 3W

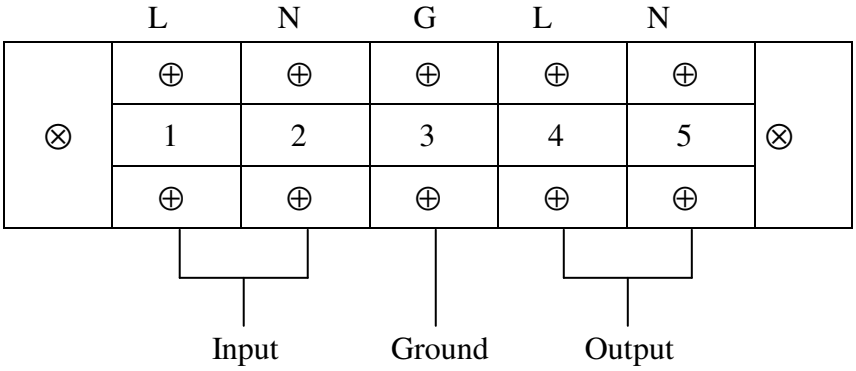
INPUT ~V		OUTPUT ~V/~V			——— Terminal No. instructiors
					——— Voltage
1	2	3	4	5	——— Terminal No.
L	N	L1	N	L2	——— Polarity of terminal No.



L, L1, L2 : Line
N : Neutral
G : Ground

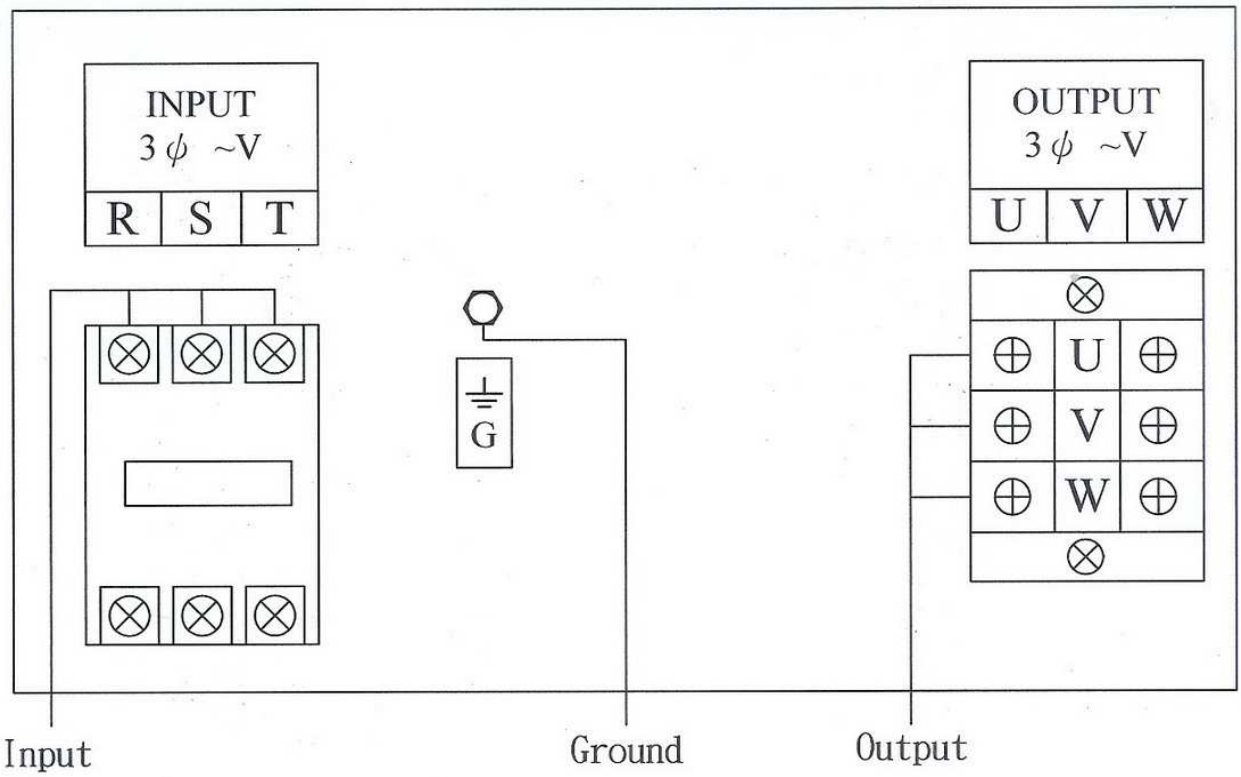
4. Single phase (Type : partially AS, BS)；Input/Output : 1 ϕ 2W

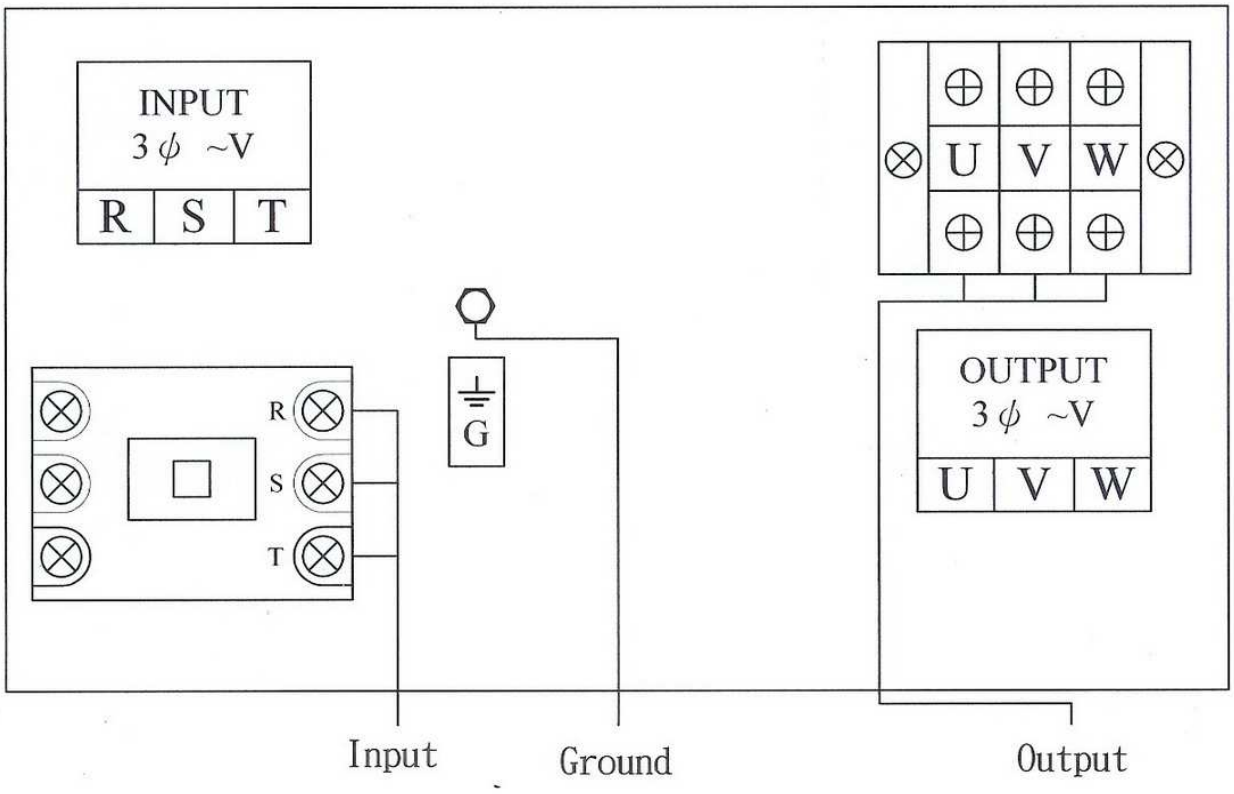
INPUT ~V		⏚	OUTPUT ~V		——— Terminal No. instructiors
					——— Voltage
1	2	3	4	5	——— Terminal No.
L	N	G	L	N	——— Polarity of terminal No.



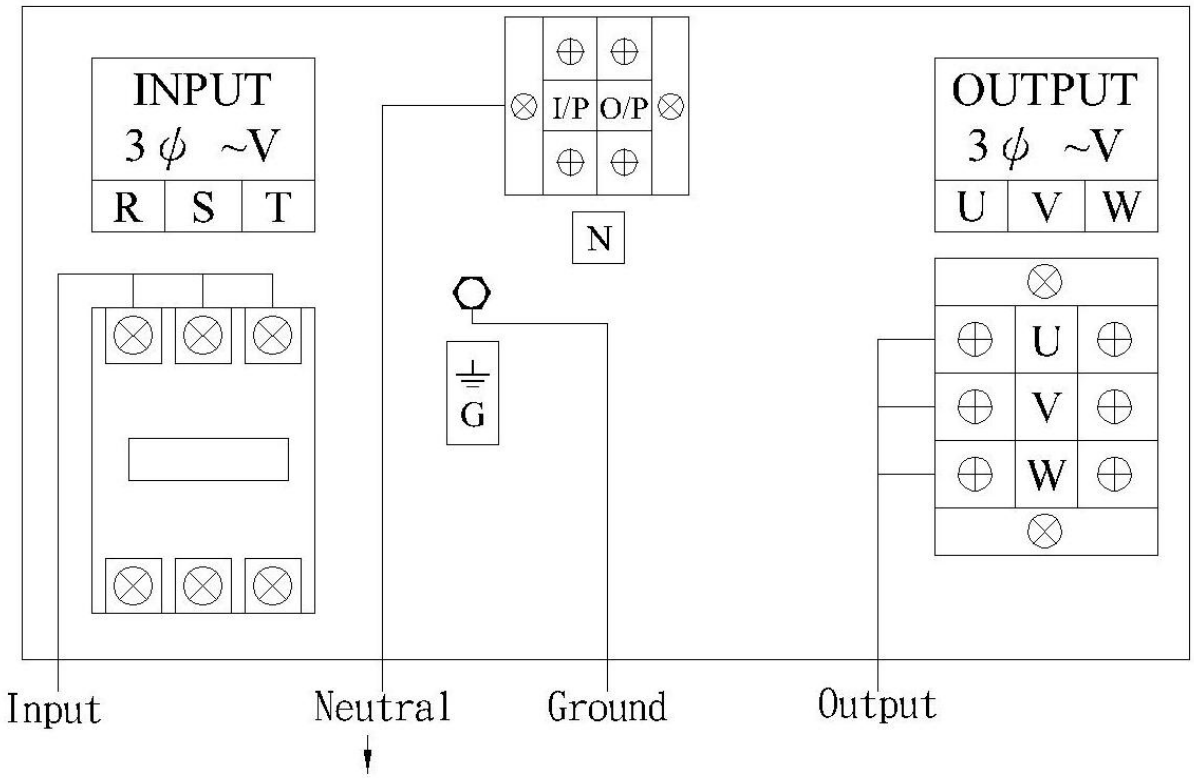
L, L1, L2 : Line
N : Neutral
G : Ground

※Three phase system（Type : X/Y）

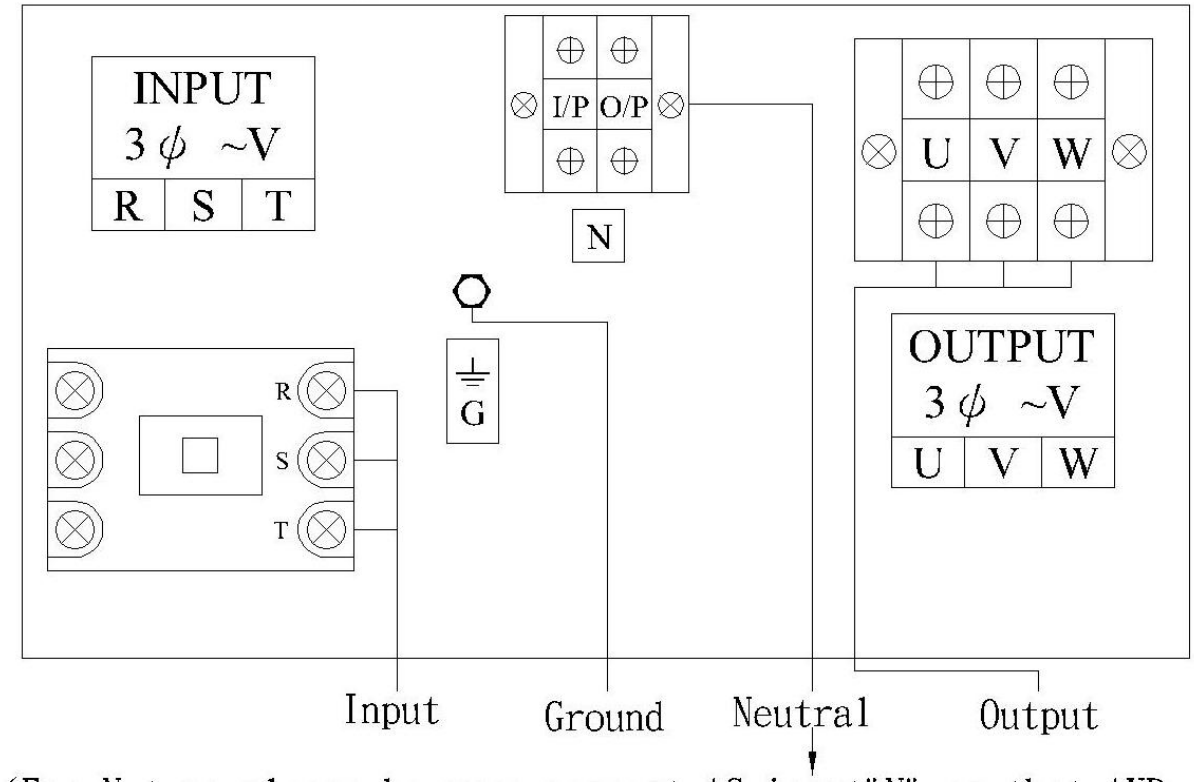




※Three phase system（Type : N/Y）



(For N type, please be sure connect AC input"N", so that AVR can work normally)



(For N type, please be sure connect AC input"N", so that AVR can work normally)

Ⅳ. How to safely switch on / switch off

Proper operation procedure makes PS series AVR's function more smooth and prevent from various unnecessary troubles.

Before switch on (initial start)

In order to perfect the AVR's normal function, please check the followings in advance :

1. make sure the switch is in "OFF" status.

2. make sure all of the load's switches are in "OFF" status.

3. make sure all the cables are fixed tight in the terminal and do not come loose.

4. check with a multi-meter for the right AC voltage to suit for AVR.

☐AC voltage correct or not ?

☐AC phase correct or not ?

☐For N type, make sure connect AC "N" or not ?

☐Grounding properly ?

After all the above are well confirmed, please take the following steps to switch ON and OFF :

1. To switch on :

Single phase (i.e. AS type, BS type, CS type)

☐Push the switch upward, to the position of "ON".

☐If the indicator is lighted, meaning the O/P voltmeter showing the right output voltage value (this indicator only installed on some models of the single phase ones)

☐Check the AVR's output voltage to see whether it meets the nominal output value or not (it is only for the initial start). If every function works well and normal, you then can connect to the load equipment.

☐For the sake of keeping a normal AVR function, please not to overload your AVR.

Three phase (i.e. X type, Y type, N type)
To switch on (step by step as stated in the below) :

☐Firstly, push the MCCB switch to “ON” position.

☐Both the “NORMAL” (Green) and the “OFF” (Red) LED will light on when MCCB switch is ON, the output voltmeter will also show out the normal output voltage (but not yet start to output to the load).

☐Please simultaneously push two green color buttons to start output (there will be no function at all if only push one green button).

☐Check the AVR’s output voltage to see whether it meets the nominal output value or not (it is only for the initial start). If every function works well and normal, you then can connect to the load equipment.

☐Please not overload your AVR.

2. To switch off :
Single phase (i.e. AS type, BS type, CS type)
☐Firstly, to switch the load equipment “OFF”.

☐Secondly, to switch the AVR “OFF”.

☐Generally, AVR needs not to be switched “ON” and “OFF” every day.

Three phase (i.e. X type, Y type, N type)
☐Firstly, to switch the load equipment “OFF”.

☐Secondly, please simultaneously push two red color buttons on the panel to cut the output off to the load, although there is no output but the AVR is still under working status.

☐The only way to stop the AVR from working is to switch the AVR’s MCCB to “OFF” position.

☐Generally, the AVR does not need to be switched “ON” and “OFF” every day.
position.

3. Bypass device : 3 phase and single phase series are all with bypass device. You can only push it on position “Bypass” when the AVR can’t regulate normally. (Turn off main power before you switch it to “bypass” position)

V． How to adjust output voltage

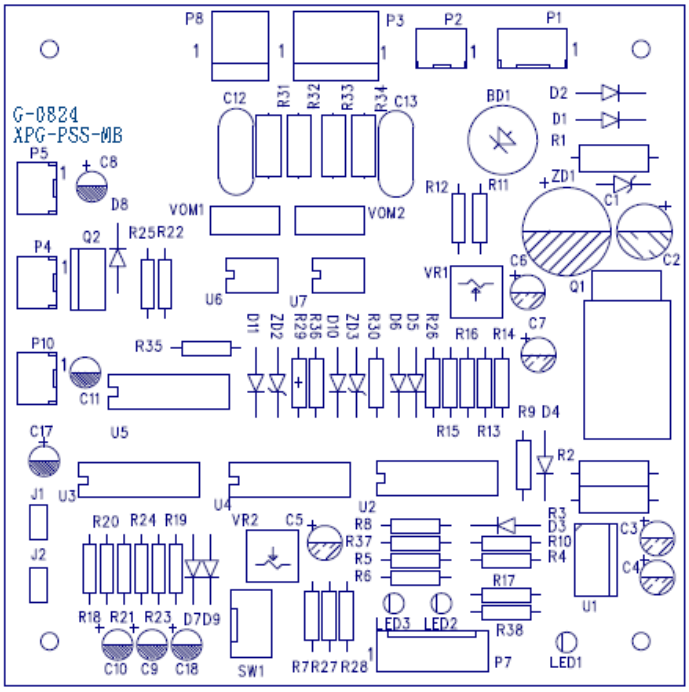
❖Single phase

Single phase PCB

1. There are two PCBs : one is the Regulation Board and the other is the Protection Board.

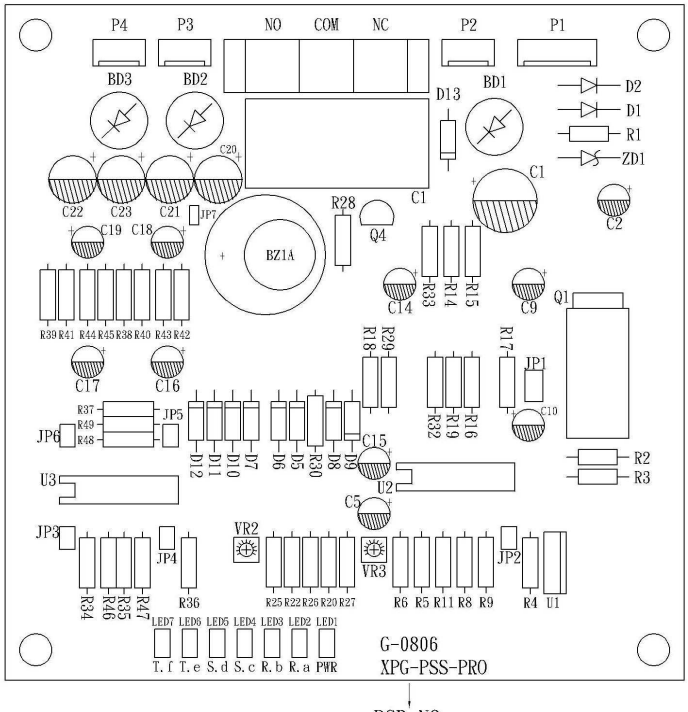
The regulation board :

PCB No.



The protection board :

Note : Single phase AVR only with one control board, that's regulation board.

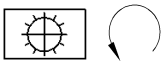


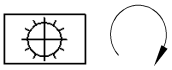
PCB NO.

2. Single phase adjustment

PCB No.	Adjustment for	VR	How to adjust	LED indicator	Status
Regulation Board : XPG-PSS-MB	Increasing output voltage	VR1	Clockwise	Red L3	Boost
	Decreasing output voltage	VR1	Anti-clockwise	Red L2	Buck
	Decreasing output voltage sensibility	VR2	Clockwise		
	Increasing output voltage sensibility	VR2	Anti-clockwise		
	PCB power normal			Green L1	
	AVR voltage is decreased			Red L2	Buck
	AVR voltage is increased			Red L3	Boost
Protection Board : XPG-PSS-PRO	Output over voltage trip point up	VR3	Clockwise	Red L2	
	Output low voltage trip point down	VR2	Clockwise	Red L3	
	PCB power normal			Green L1	
	AVR high voltage trip			Red L2	Trip
	AVR low voltage trip			Red L3	Trip

Re1 : The markings of Regulation Board and Protection Board are printed on the PCB.

Re2 :  anti-clockwise

Re3 :  clockwise

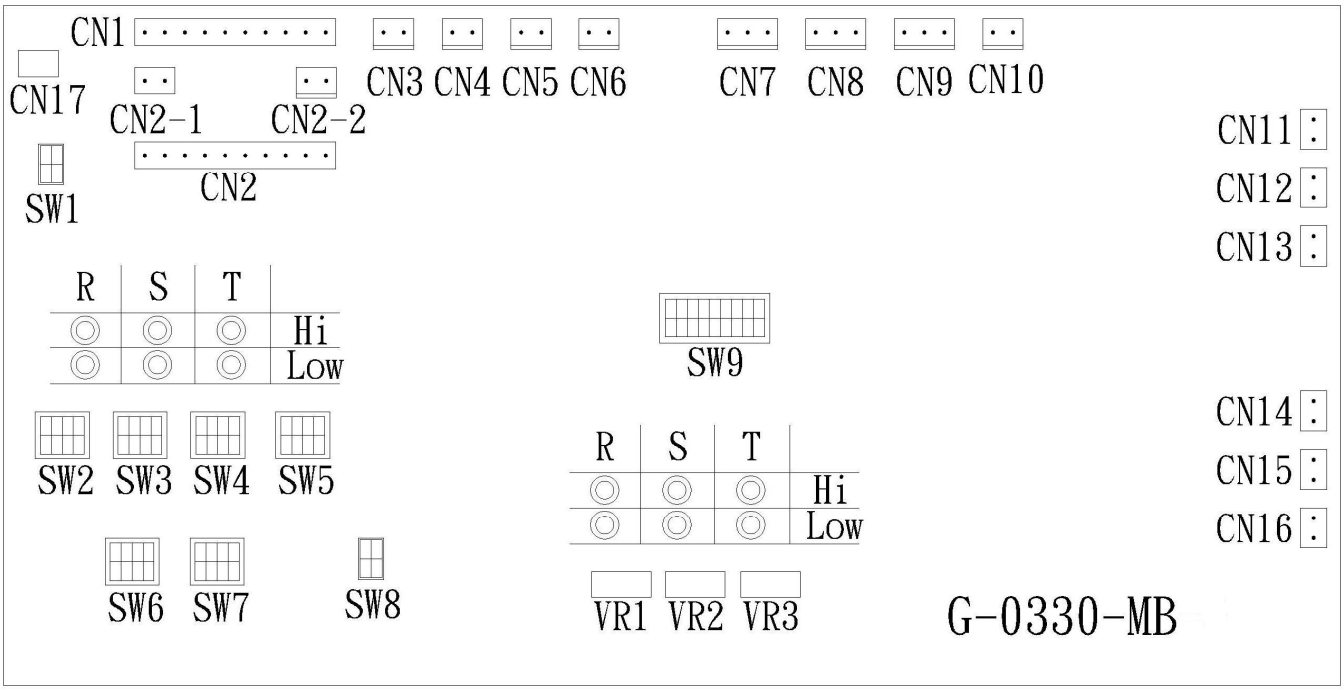
Re4 : There is only a regulation board for single phase AVR.

Re5 : VR2 on regulation board and VR2, VR3 on protection board are to be adjusted only by qualified technician.

❖Three phase

1. Three phase PCB

SW1 : Protection On/Off select
SW2 : Over-voltage protection select
SW3 : Low-voltage protection select
SW4 : Over voltage trip delay select
SW5 : Low-Voltage trip delay select
SW6 : Instant FUZZY regulation select
SW7 : Output regulation select
SW8 : Three phase regulating sequential time select
SW9 : PCB application select
VR1~3 : Output voltage adjustment



※ Non-qualified engineers are not recommended to adjust the PCB.

2. Three phase's PCB programmable adjustment

①Three phase output voltage adjustment : VR1, VR2, VR3

V R	Adjustment	Indicators	Feature
VR1	Clockwise	LED3, Hi light on	R phase voltage increased
	Anti-clockwise	LED2, Low light on	R phase voltage decreased
VR2	Clockwise	LED5, Hi light on	S phase voltage increased
	Anti-clockwise	LED4, Low light on	S phase voltage decreased
VR3	Clockwise	LED7, Hi light on	T phase voltage increased
	Anti-clockwise	LED6, Low light on	T phase voltage decreased

NOTE 1: All three phase models are using this same PCB.

NOTE 2:  anti-clockwise (decreasing voltage)

NOTE 3:  clockwise (increasing voltage)

②Push the SW6-2 to "ON" position before you adjust the voltage, after you finished the adjustment, push SW6-2 back to "OFF" position.

VI. Protection programming

SW1 : Protection On / Off select

Program select	SW1-1	SW1-2	Protection feature
✓	OFF	OFF	Indicators from LED8 to LED13 will light on and output cut off immediately when output voltage abnormal is detected.
	ON	ON	Indicators from LED8 to LED13 will light on but output still remains when output voltage abnormal is detected.

SW2 : Three phase output over-voltage protection program select

Program select	Pre-set %	SW2-1	SW2-2	SW2-3	SW2-4
	+ 2%	ON	ON	ON	ON
	+ 3%	OFF	ON	ON	ON
	+ 6%	ON	OFF	ON	ON
	+ 9%	ON	ON	OFF	ON
✓	+15%	ON	ON	ON	OFF
	+17%	OFF	ON	ON	OFF
	+19%	ON	OFF	ON	OFF
	+21%	ON	ON	OFF	OFF
	+23%	OFF	ON	OFF	OFF
	+24%	ON	OFF	OFF	OFF

Remark : indicators LED8/ Hi indicating R phase over voltage, LED10 / Hi indicating S phase over voltage, LED12 / Hi indicating T phase over voltage.

SW4 : Over voltage trip delay program select

Program select	Pre-set time	SW4-1	SW4-2	SW4-3	SW4-4
✓	0 sec (no delay)	ON	ON	ON	ON
	1 sec	OFF	ON	ON	ON
	1.5 sec	ON	OFF	ON	ON
	2 sec	ON	ON	OFF	ON
	2.5 sec	ON	ON	ON	OFF

Remarks : please select SW1 at OFF status when apply this program.

SW3 : Three phase output low-voltage protection program select

Program select	Pre-set %	SW3-1	SW3-2	SW3-3	SW3-4
	- 2%	ON	ON	ON	ON
	- 3%	OFF	ON	ON	ON
	- 6%	ON	OFF	ON	ON
	- 9%	ON	ON	OFF	ON
✓	-15%	ON	ON	ON	OFF
	-17%	OFF	ON	ON	OFF
	-19%	ON	OFF	ON	OFF
	-21%	ON	ON	OFF	OFF
	-23%	OFF	ON	OFF	OFF
	-24%	ON	OFF	OFF	OFF

Remark : indicators LED9 / Low indicating R phase low voltage, LED11 / Low indicating S phase low voltage, LED13 / Low indicating T phase low voltage.

SW5 : Low voltage trip delay program select

Program select	Pre-set time	SW5-1	SW5-2	SW5-3	SW5-4
✓	0 sec (no delay)	ON	ON	ON	ON
	1 sec	OFF	ON	ON	ON
	1.5 sec	ON	OFF	ON	ON
	2 sec	ON	ON	OFF	ON
	2.5 sec	ON	ON	ON	OFF

Remarks : please select SW1 at OFF status when apply this program.

SW6 : Three phase instant regulation FUZZY range pre-set program select

Program select	Pre-set range	SW6-1	SW6-2	SW6-3	SW6-4
	Within ± 1%	ON	ON	ON	ON
	Within ± 2%	OFF	ON	ON	ON
✓	Within ± 3%	ON	OFF	ON	ON
	Within ± 4%	ON	ON	OFF	ON
	Within ± 5%	ON	ON	ON	OFF

Remarks : this program select is to provide a very quick and instant regulation speed when output voltage is over or lower the nominal requirement.

SW7 : Three phase output regulation accuracy program select

Program select	Pre-set %	SW7-1	SW7-2	SW7-3	SW7-4
	± 0.5%	ON	ON	ON	ON
✓	± 1%	OFF	ON	ON	ON
	± 2%	ON	OFF	ON	ON
	± 3%	ON	ON	OFF	ON
	± 4%	ON	ON	ON	OFF

SW8 : Three phase's regulating sequential time program select

Program select	Pre-set time	SW8-1	SW8-2
	0.5 sec	ON	
✓	3 sec	OFF	

Remarks : 1. SW8-2 no program.
2. This program select is to provide more accurate and sequential regulation control after the instant FUZZY regulation is completed.

SW9 : PCB application program select

Program select	SW9-1	SW9-2	SW9-3	SW9-4	SW9-5	SW9-6
Regular type	ON	ON	ON	ON	ON	ON
D type	OFF	OFF	OFF	OFF	OFF	OFF

Remarks : please make the select the same as the original select, otherwise there is no regulation effect. (There will be no output)

Ⅶ. Trouble shooting

1. Tools : multi-meter (digital type), or clamp meter.
2. Watch out for the high voltage inside the AVR, unqualified electrician is not recommended to handle the maintenance.

Troubles	Inspection	Action
Output interruption	◆Check AC off or interrupted ? ◆Check AC I/P switch trip or not ? ◆Check AC I/P phase loss or not ? ◆Is there overload ? ◆Check output voltage, too high or too low ?	◆Re-set to start AVR ◆If it is overload, cut down some load ◆Make sure which phase loss ? Exclude problem & re-supply the power. (or call electrician for service) ◆Replace PCB or adjust the VR on regulation board. (please refer to P. 30 or P. 32)
No AC output	◆Check the fuse, is it burned ? ◆Check and see if it is overloaded ? ◆Check the voltage, is it normal ?	◆Check the load side. ◆Upgrade the AVR's capacity. ◆Replace new fuse.
Output voltage low	◆Is there overload ? ◆Check the I/P voltage, is it over the nominal range ? ◆Check the fuse, is it burned ? ◆Is voltmeter damaged ? ◆Is regulation board fault ? ◆Is screw of terminal block tightly or not ?	◆Re-arrange the load. ◆Call for service. ◆Replace new fuse. ◆Replace new voltmeter. ◆Replace new regulation board. ◆Re-lock the screw tightly.
Output voltage high	◆Is the I/P voltage over the nominal range ? ◆Is voltmeter damaged ? ◆Is regulation board fault ?	◆Call for service. ◆Replace new voltmeter. ◆Replace new regulation board.
Overheat	◆Is it overload ? ◆Is cooling fan fault ? Or speed too low ?	◆Cut down the load. ◆Replace the cooling fan.