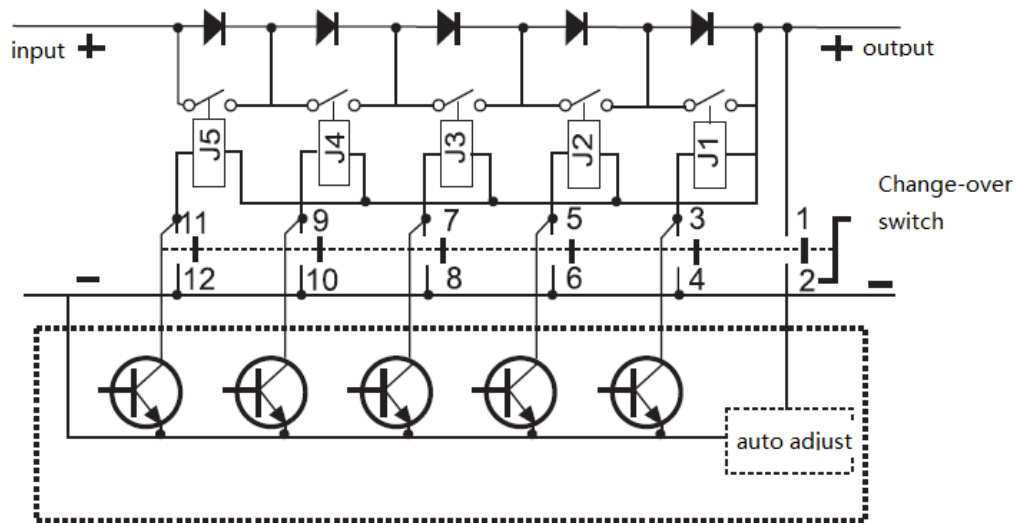# Automatic Voltage Regulating Device Manual

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DWB series automatic voltage regulating device, when working in the "AUTO" state, the automatic controller detects the control bus voltage (i.e. output voltage), after signal attenuation, and then compares it with the set value:

a. When the output voltage of the device is lower than the lower limit of the set value, the controller sends a signal, and shortens a section of diodes through the contact of the executive relay, reducing the voltage drop value of the dropping diode, thus increasing the output voltage;

b. When the output voltage of the device is higher than the upper limit of the set value, the controller sends a signal to cancel the short-circuit bypass contact of a section of diodes by executing the relay, thus reducing the output voltage.

4.2 when the device is in operation, the "open circuit protection circuit" in the controller always monitors the state of the dropping diode no matter in the automatic or manual state. When an open circuit fault occurs in a part of the dropping diode, the "open circuit protection circuit" acts immediately, shorting the open circuit part of the dropping diode by executing the contact of the relay, so that the remaining part of the diode can still work normally, and still has the "manual" function ""Auto" adjustment function. At the same time, the alarm circuit acts to send out the alarm signal of dropping diode open circuit (relay dry contact).

for dropping diode in picture, the model is DWBG2/7-20A/25V(DC220V):

DWBG2-----series of dropping diode

7---- 7 step down levels of voltage

20A----for rated current of dropping diode

25V----for max reduce voltage of dropping diode

note: 7 step total is 25V, so for 1 step is 25/7=3.57V

When the switch is in gear "auto", dropping diode will automatically detect the output voltage of charger and make the output voltage of dropping diode stable at 220VDC

When the switch is in gear "0", the relay will not work, and the diode inside will not be short circuited, so the dropping diode will reduce the voltage to the maximum, for this picture is 25VDC.

e.g. when charger output is 242V, reduce 25V ,then dropping diode output is 242-25=217VDC

when the switch is in gear "1", the relay will work, and short circuited 1 step dropping diode, then the reduce voltage is 25-3.57=21.43V.

e.g. when charger output is 242V, reduce 21.43V ,then dropping diode output is 242-21.43=220.57VDC

when the switch is in gear "2", the relay will work, and short circuited 2 step dropping diode, then the reduce voltage is 25-3.57*2=17.86V.

e.g. when charger output is 140V, reduce 21.43V ,then dropping diode output is 242-17.86=224.14VDC

when the switch is in gear "3", the relay will work, and short circuited 3 step dropping diode, then the reduce voltage is 25-3.57*3=14.29V.

e.g. when charger output is 140V, reduce 21.43V ,then dropping diode output is 242-14.29=227.71VDC

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when the switch is in gear "7", the relay will work, and short circuited 7 step dropping diode, then

the reduce voltage is 25-3.57*7=0V.

e.g. when charger output is 242V, reduce 0V ,then dropping diode output is 242-0=242VDC