

Regulating Methods

A comparison of different regulating methods.

Method	Advantages	Disadvantages	Applications
Resistor Potentiometers Rheostats	<ul style="list-style-type: none"> ✧ Inexpensive ✧ Easy to understand ✧ Easy to install 	<ul style="list-style-type: none"> ✧ Limited power range ✧ Very high heat losses ✧ Fragile ✧ Bulky 	<ul style="list-style-type: none"> ✧ DC Motor field control ✧ Variable loads
Variable autotransformers	<ul style="list-style-type: none"> ✧ Can provide output higher than supply ✧ Sine wave output ✧ Easy to understand ✧ Low losses ✧ Robust ✧ No EMC problems ✧ Can be servo-controlled ✧ Unity power factor 	<ul style="list-style-type: none"> ✧ Require some maintenance ✧ High power/weight ratio 	<ul style="list-style-type: none"> ✧ Voltage stabiliser ✧ Test engineering ✧ Fan Control ✧ Test instruments ✧ Welding equipment ✧ Simple power supplies ✧ High voltage power supplies ✧ Screened rooms ✧ Anodising
Thyristor controllers	<ul style="list-style-type: none"> ✧ Compact ✧ Easy to control ✧ Require little or no maintenance 	<ul style="list-style-type: none"> ✧ Generate RFI ✧ Generate harmonics ✧ Require large heatsinks ✧ Non-symmetrical output ✧ Not easy to understand 	<ul style="list-style-type: none"> ✧ Electro-plating ✧ Furnaces ✧ Vacuum coating ✧ Materials handling ✧ Ozone generation ✧ Dimmers ✧ Heaters ✧ Lifting magnets ✧ Dryers ✧ Soft starters
Switch mode controllers	<ul style="list-style-type: none"> ✧ Very compact ✧ Easy to control ✧ Require little or no maintenance 	<ul style="list-style-type: none"> ✧ Generate RFI ✧ Generate harmonics ✧ Often require cooling 	<ul style="list-style-type: none"> ✧ Cathodic protection ✧ Electro-plating ✧ Motor control