

Learning about Automatic Voltage Regulator

“AVR” Systems:

Automatic voltage regulators or AVR are electronic tools used for maintaining voltage of the output terminal at a predetermined value. The voltage count is subjective to load and working temperature. The AVR controls the output by measuring the voltage of the coil that's generating power and comparing it to the established reference value. Upon finding any variation in these measurements, the voltage regulator fixes the volt counts to their expected figure. That is any sudden change in the alternator's load should be complemented by an equal excitation adjustment to balance off the load count.



Working:

The AVR is made of an all-copper base that is shielded and tapped over multiple times to guarantee a remote terminal transformer. It also contains separate converse electronic switches that are controlled independently. The autonomous control is responsible for the seven taps over each phase, providing strict voltage monitoring.

The phase current is observed for zero current detection to initiate any needed switch change. A microprocessor installed inside the regulator controls the line synchronization. Line synchronization is monitored through linear devices that prevent any unusual or unstable power shift from occurring.

Use in a Generator:

The primary function of an AVR in a generator is to stop the voltage fluctuations created during different conditions in the power load supply system. It basically takes the irregular voltage and converts it into a fixed power count. A severe and continuous variation gravely damages electronic equipment and also puts the house at risk of any serious hazard. Thus in order to control these variations, many generators comes equipped with transformers and power regulators.

Below are a few important aspects of automated voltage regulators every generator buyer must know about as most of them come prefixed with AVRs.

Indicating Faults:

The AVR alarms the operator through the indicator lights labeled as Phase A, B, C and so on. These lights indicate fuse failure, input overload, insufficient power supply, and voltage imbalance among other power conditions. There are some other indicator lights attached on their regulator that indicate output failure and exceeding temperature. These lights help the user in understanding if there's something wrong with the generator.



Monitoring Input Current:

The AVR also comes equipped with a crucial, three pole designed case which is operated manually. It maintains a check of the entire input load and ensures that it's within the 125% threshold limit of full capacity.

Cable Connections:

Automatic voltage regulators are copper-based devices with other materials used for lining and coiling. The input and output cables are connected at two points, one being the power source and the other on the regulator.

Ventilation:

The AVR transformer is designed to maintain a balance in the electrical power. Therefore, it needs to be placed in a cooler environment with proper ventilating facility. In some cases, the system may require fan cooling if the climate is too hot. Under extreme conditions, the copper wires might start to melt causing major damage to the machine and risking an electrical hazard.