



INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X

Impact factor: 4.295

(Volume 4, Issue 1)

Available online at www.ijariit.com

Automatic Start and Stop the Power Generator

Harish Tukaram Wakudkar

harishwakudkar7@gmail.com

Dhamangaon Education Society College of
Engineering and Technology, Amravati,
Maharashtra

Mandar V. Pathak

mandarpathak12@gmail.com

Dhamangaon Education Society College of
Engineering and Technology, Amravati,
Maharashtra

ABSTRACT

The main aim of this paper is any electric power supply in the world is to provide uninterrupted power supply at all times to all consumers. Like industries, colleges, public sector and the private sector. Organization and the even domestic user cannot permit the power outage because it pushes them in a loss in business; interrupt in normal official work, obstruction in routine and domestic life. This paper we have to use of good interference in term of switching speed and smooth operation. By using this paper diesel generator set can start and stop automatically very nicely on main supply failure. In this case, diesel generator set must have self start facility. At the time of power failure or abnormal condition main supply will be switch off and diesel generator set start automatically. When the power supply is restored or voltage becomes normal diesel generator set will be stopped and a power supply switches on automatically. This idea may be very used fully of colleges, hotels, offices, etc. The result of its ability to perform the automatic power change over work is smoothly and no human effort.

Keyword: *Circuit Breaker, Contactor, Relay, Timer, VMR, etc.*

1. INTRODUCTION

Due to the instability supply of power, there is reacts a need for an alternative source of power supply. It makes sure the supply of power to the load with minimum less gap between power supply failure and reconnecting load and the power supply for industry, hospital, colleges, schools, and homes. It makes sure the supply of power to the load with minimum less gap between power failure and reconnecting the load and the power supply for industry, hospitals, colleges, schools, homes. The problem of power failure can be check meted with use of stand by the generator set.

If some of these big compacts do not make provision of stand by one power source frustration would set in which may lead to the closure of business and thus throwing workers due to unemployment. Also in case of the hospitals, undergoing a surgical operation and the power supply is going off patient might his or her life due to the power outage.

Furthermore if the president of the country nationwide broadcast and all of a sudden power is went off in the transmitting stations it would be an attempt to machinery the government ruling and same people must pay for it.

This idea of installing in our homes, colleges, hospitals and business premises, there is a defensible need for the faster and more secure change our system in our incident of a power outage.

The changeover systems switch of the power supply and subsequently switch on another power supply. Basically, this paper aimed is switch on a more kindly power supply to the load. However, if the starting of the generator is automatically done by a relay which switches the battery voltage to inflammation coil the generator spell the main power relay switches the load to either public supply or generator. The main aim of this paper of an electric power supply in the world is to feed uninterrupted power supply at all times its consumers, a device which switches to a generator when power fails and from generator to when the power comes back, using contactor as the switching devices.

2. BLOCK DIAGRAM

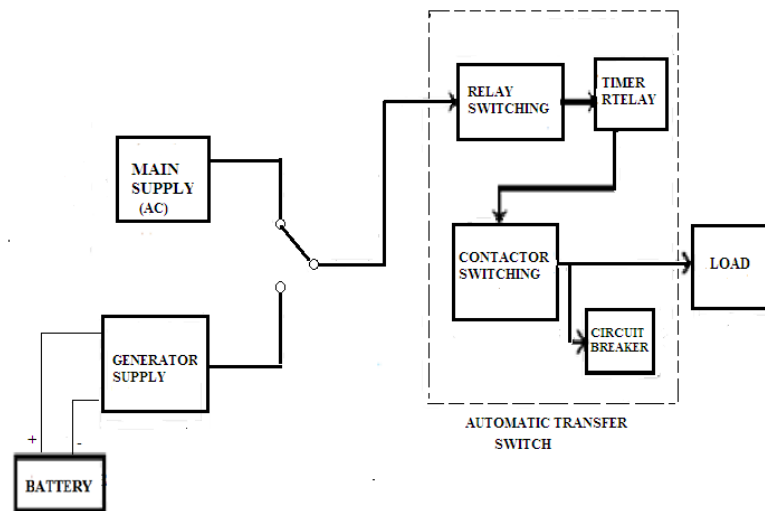


Fig.1 Block Diagram of Automatic Transfer Switch for a Generator

The voltage monitoring and control circuit are designed and constructed. This was accomplished by using voltage monitoring relay (VMR) as an initial component of the power sensing and control circuit. This is used for measuring and comparing the voltage level of the main supply with the set of voltage range (230 volts) spell a 12 ampere miniature circuit breaker will act as a switch to the power supply from the main supply end of the automatic transfer switch. The power switching it can design the circuit. Ideal type power contactor rated 63amp, 230 volts a. c. timer delay to supply the delays (10 seconds) during the starting of the generator and transfer of the connected load vice versa from both power is depending on the side with steady electrical power at any point in time are used.

A switching mechanism of the generator is done with by the battery supply 12 volt d. c. and contact of the timer relay and contactor. The automatic start and stopping of the generator depending on whether the contactors are energized and de-energized. The voltage monitoring unit is too displayed by the main supply voltage and generator supply voltage.

3. STAGES OF THE DESIGN

3.1 Relay Switching Stage: This block is consist of the alignment of the voltage monitoring relay and the finder relay which serve as the sensor used to choose the availability or non availability of the voltage supply from either power sources until triggering the control section of the automatic transfer switch. The voltage monitoring relay is used for comparing and measuring the voltage level of main supply with a set voltage is in rage 230 volt.

3.2 Timer Relay Stage: This block is made by the delay timer relay operating as normally open time closed timer relay on every section of the automatic transfer switch. The timer relay on the main section helps to delay the supply of electric power from the main supply, thus preventing the occurred electrical damage due to fluctuation in supply. The timer relay on the generator section helps fix the power generator and allows it to warm-ups before it finally supplying the power to the connected load. The delay time for the main timer relay is 10 seconds while that of the generator is about 15 seconds.

3.3 Contactor Switching Stage: This block is made of the contactor on each side of the automatic transfer switch its mean by main supply contactor and generator side contactor. The function of a contractor is to switch the current to the

connected load easily. Because they have made to handle a large amount of current flow in electrical installation. The more load rating of the contactor is 63 ampere.

4. CONCLUSION

The manual start and stop and transfer the on generator can static used after the addition of the automatic controller. It can engage the self-start generator at the start of the power failure. The total cost of the automatic transfer switch is very low. Automatic transfer switch has the ability is to control and switch between the power sources in minimum seconds. It is also comfort for starting a standby power generator when there is power failure from mains without the need for human effort. The system work is satisfactory with respect to design specification.

5. REFERENCES

- [1]. Adeel Arshad, Mian Rizwan, Adil Maqsood, "Design & Implementation of Cost Effective Automatic Transfer Switch," International Journal of Engineering Research and General Science, vol. 4, September-October, 2016 ISSN pp. 2091-2730.
- [2]. Agbetuyi A. F., Adewale A. A., Ogunluyi J. O., Ogunleye D. S., "Design and Construction of an Automatic Transfer Switch for a Single Phase Power Generator," Covenant University Department of Electrical and Information Engineering, Nigeria.
- [3]. Ezema, L. S., B. U. Peter, and O. O. Harris, "Design of Automatic Change Over Switch with Generator Control Mechanism," Academic Research International, 2012.
- [4]. Hamed, Lasisi, Oladokun Ajibola Samson, "Elimination of Stress and Reduction in Switching Time from Mains to Back-Up Power Source in Power Dependent Public Utilities by Automatic Mains and Phase Changer," International Journal of Engineering Sciences & Research Technology, vol. 3, April 2014.
- [5]. M. Qaisar Azeem, Habib-ur-Rehman, Sheeraz Ahmed, Amjad Khattak, "Design and Analysis of Switching in Automatic Transfer Switch for Load Transfer," IEEE International Conference on Open Source Systems and Technologies (ICOSST) 2016, page no. 129-134.