

Application of Rotary Sensor in Stationary Engine Generators

A stationary engine is an engine whose framework does not move. They are used to drive immobile equipment, such as pumps, generators, mills or factory machinery. The term usually refers to large immobile reciprocating engines, principally stationary steam engines and, to some extent, stationary internal combustion engines. Other large immobile power sources, such as steam turbines, gas turbines, and large electric motors, are categorized separately.

Working Principle :

A stationary generator is a device that works on the principle of electromagnetic induction to generate electrical energy from a source of mechanical energy. This unit provides power by being hard-wired into the main distribution panel and can be started manually or even automatically in the event of a power outage. During a power failure, an automatic transfer switch isolates the electrical wiring from the utility grid and signals the generator to start functioning. The generator begins to feed power to the lines. When power is restored, a reverse action takes place, wherein incoming feed is once again procured from utility lines and the generator ceases to function and goes into a standby mode. The transfer time is usually about 10 to 30 seconds. Hence, it is essential to make provisions for uninterrupted power supply (UPS) in the interim so that computer systems and applications are not abruptly shut down during transfer time. Also, it makes practical sense to ensure UPS availability during times when the generator is shut down once in every 50 to 100 hours for the purpose of changing motor oil. Stationary generators are capable of supporting very high power levels in the range of 3kW to several hundreds of kilowatts, for extended periods of time.

Continued on Page 2

Rotary sensors are used in the generators to measure the rotation of a mechanical shaft. The shaft is placed on a motor, where it reads the angular position or rotational speed of the motor.

Shaft with rotary encoder on motor to read angular position and to control the rotational speed of the motor

