WOODWARD CONTROLLER UPGRADES ENSURE EMERGENCY BACKUP POWER FOR UAE HOSPITAL

EASYGEN 3200XT AND LS5 CONTROLLER UPGRADES FOR FG WILSON GENSETS

A well-known hospital in the UAE recognized that the Woodward Gen6000 controllers on their FG Wilson generators were obsolete and no longer supported. System performance and reliability of the ATS system were also a concern due to the hardwired relay logic. The hospital approached Goltens Energy Control Solutions (GECS) to seek a technically sound and supported upgrade for this critical emergency power machinery.

Although not a drop-in replacement, the combination of Woodward easYgen 3200XT and LS5 controllers was an ideal successor to the Gen6000 controller and hardwired relay logic. Goltens presented a plan for a phased upgrade that would ensure continuous and reliable emergency power to the hospital while the controls were being upgraded.

EXECUTION FOCUSED ON POWER AVAILABILITY

To ensure sufficient emergency power was available to the hospital while the controllers were upgraded, four mobile generators were installed to account for the offline generators. The project was broken down into three phases. The first consisted of upgrading the controllers on two of the generators, with the remaining pair to be upgraded in Phase 2. This was a strategic and precautionary measure to ensure the hospital would always have reliable backup emergency power in case of failure. Phase 3 included the upgrade of the ATS system.

PHASE 1: All four generators were tested in operation with the existing controllers to create a baseline which could be compared against the improved performance of the easYgen 3200XT controllers. Once complete, the first two generators were isolated from the bus and the mobile generators were connected. The generator panels were modified to accommodate the easYgen 3200XT and rewiring was completed in parallel to the configuration.

Final loop checks were then carried out and the engines were started without any issues, responding well to the test commands provided from the easYgen controllers. After the

PROJECT FACTS: WOODWARD UPGRADE

Customer:	UAE Hospital
Generator:	FG Wilson
Application:	Emergency Backup
Legacy Controller:	Woodward GEN6000
New Controller:	Woodward easYgen 3200XT
ATS Upgrade:	Woodward LS5 Controller

UAE Hospital where upgrades were completed

Legacy Panel (left) and Upgrade Panel (right)

Goltens' ECS technician performing setup of HMI after installation

initial test, the gensets were taken online and a load was applied to test their response and operation before handing them over and moving to the next phase.

PHASE 2: The remaining two gensets were also upgraded and tested on and off load. Both performed well and responded to commands as intended. As load testing was not advisable due to the critical nature of the power, a load bank test of all four generators was carried out to test the performance of the gensets at peak load before final handover. With all tests successful and the customer satisfied with performance, the gensets were brought online for regular operation.

PHASE 3: The existing ATS system had an old and traditional relay logic to carry out the transfers between transformers and bus couplers. Additionally, using traditional relay logic provides no indication in case of a fault, and so traceability can be extremely difficult and time consuming. If the fault is intermittent and not resolved then that fault can occur anytime in the future, which is huge risk for a hospital installation. This outdated technology was no longer suitable for such a critical application.

Goltens upgraded the old relay logic system with the Woodward LS5 controllers, which are designed for this purpose. The LS5 provides readings such as voltage, frequency, and power, and most of all provides error logging for traceability. The upgraded system now allows the user to trace the root cause of problems for rectification.

Fourteen LS5s were provided to retrofit the existing ATS system along with earth leakage monitoring relays on the outgoing feeders. These will provide additional information to the LS5s in case of fault or trips. All the controllers were connected to a central HMI display developed by Goltens that provides an immediate overview of the complete system including data from the easYgen and ATS system. The HMI data is in turn fed into the BMS system for remote monitoring and operation.

RESULT

Overall, this complex project was methodically installed and commissioned by GECS over the course of a few months. In addition to the precautions inherent in the phased approach and the installation of the mobile generators, the team primarily worked at night, coordinating closely with hospital management and support staff so as not to disturb normal operations.

ATS Panels after upgrade of system

Configuration of controls on engine after installation