

Petbow AP600 Paralleling Control System Upgrade



Project brief

To design, manufacture, install and commission a replacement generator control system to interface with clients existing LV Switchgear and building loading shedding system. The new control system was required to replace the existing obsolete Petbow AP600 paralleling system and also to provide enhancements to their current system with regard to a building load shedding system and monitoring of generator associated loads.

**A Leading Property
Investment Company**

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CASE STUDY

Design challenges included interfacing the new Generator Control System with the existing Generator LV Switchboard containing 10 Motorised Air Circuit Breakers and 20 sets of load shedding switchgear located throughout the building, and interfacing the new control system with 4 x Petbow Standby Generators fitted with Dorman 12 SET Diesel Engines and a combination of alternator types.

Offering a guarantee to install and commission the new Generator Control System within a continuous 60 hour period was a significant factor in The Generator Company being awarded the contract for this work, as was our technical ability to design and deliver a complex Load Management Control system to schedule building loads relative to available generator capacity and proven track record of successfully delivering similar projects within limit time periods.

Project Details

The standby power system on site comprised of 4 x 1200kw Dorman powered diesel generators each with its own set mounted engine management control system. One of the generators was fitted with a Petbow Frame AG7 alternator whilst the remaining three were each fitted with Leroy Somer alternators.

The original control system comprised of a Petbow 4 set AP600 set to set paralleling system and a suite of LV switchgear housed in Logstrup enclosure and comprising of 4 x Generator Paralleling Breakers, 5 x Feeder Breakers supplying 17 sets of ATS switchgear, and 1 x Breaker for Loadbank or temporary Generator connection.

The new control system had to be designed to interface with the existing LV switchboard, the 4 x existing generators, and all of the existing ancillary equipment associated with the installation including Fuel Transfer Controls, Building fire System, Fuel Coolers etc. Due to the flexibility of our TGC1000 paralleling control system, The Generator Company offered this product for the project.

The complex Building Load Management controls were delivered utilising a Mitsubishi Touch screen and Programmable Logic Controller (PLC) consisting of over 15 different screens to provide an interface for operators of the system. Design of the load shedding system involved several design meetings with the client and reviewing load data for the site to establish the best protocol to adopt for the operating characteristics of the system. A detailed control system operating philosophy was submitted to the end user for approval prior to installation.

To achieve the required 60 hour installation and commissioning period extensive planning by our Project Management team was carried out once a purchase order was placed and an hour by hour work schedule produced for our team of installation and commissioning technicians. Delivery of the project within the required 60 hour period was achieved by coordinating two teams of installation and commissioning technicians each working 12 hour shifts.

Site works included replacing all of the control wiring in the existing Generator LV Switchboard and removing the existing Generator Control Panel before the new control system built in 3 sections could be installed and the interconnecting wiring between the three sections reconnected. Upon completion of the installation work a 12 hour period was set aside for commissioning and loadbank testing the 4 generators.

Commissioning of the project was carried out in accordance with our detailed Commissioning Procedures for the TGC1000 Paralleling Control System, and a copy of this procedure complete with setting and performance information recorded by our Commissioning Technicians was submitted to the client as a permanent record of the work upon completion of the Commissioning.