

Auto Diesel AD200 Generator Utility Paralleling System Upgrade



Project brief

To design, manufacture, deliver, install and commission a replacement two set Generator Paralleling Control System to replace the existing Auto Diesels obsolete and malfunctioning control system. The new control system was to have all of the same features as the original system including; generator to generator, and Utility Paralleling modes of operation to provide a 'No-break' transition between generator and Utility supply after a Utility power failure and no break for load testing.

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Job No: 6304TGC

Unit 12 Stirling Park,
Laker Road, Rochester, Kent
ME1 3QR

t 01634 668090
e sales@tgc.uk.com
www.tgc.uk.com



CASE STUDY

The design challenges of this project included maintaining a power supply to the site at all times, and providing a control system that would interface with two existing generators installed some 150 metres away from the control equipment and switchgear, supplying and installing new LV Switchgear for set to set paralleling, and interfacing with existing MV switchgear for set to Utility paralleling.

Controls specification

AD2000 Control systems are a similar design to the Petbow AP style control systems. The main control components are Printed Circuit Board based components that are specifically designed for this type of system and are now obsolete. The Generator Company offered the supply of our own TGC1000 Generator Paralleling Control Systems as this system has been designed specifically for control system upgrades in this application. The end user specifically required a facility for manual paralleling and manual load sharing in Set to Set and Sets to Utility modes of operation. This feature is offered as standard with our TGC1000 Control System.



The end user also specified that “Black Box All in One” style components were not to be used on this project due to previous issues with component obsolescence. The TGC1000 control system as standard does not use such components specifically to provide ease of maintenance and fault finding by any generator control systems specialist.

Installation

Due to the layout of the site it was not possible to utilise the two existing generators to provide standby power whilst the control system modifications were being carried out, we therefore utilised two of our 1,000 kVA Rental Generators each supplied with 100 metres of temporary load cables to support the site. The temporary generators had to be configured for Auto Start operation in the event of a Utility Power failure.



Once the temporary generators were installed and commissioned the existing ADC2000 (AP200) control system was removed and the new one installed in the same location. New set mounted engine management control systems were installed on each generator and interfaced with the new paralleling switchboard.

To keep costs for this project to a minimum we elected to utilise the existing load and control cables installed between the existing synchronising system and set mounted engine management controls. Our installation team tested each of the existing cables prior to re-use.



Site work for this project from commissioning of the temporary generators to commissioning of the modified installation was completed within the 16 day period stipulated by the client in accordance with the program of work that was submitted by The Generator Company at the design stage of the project.