

Generator Interface Unit with Integral Distribution, to Operate in a 50°C Ambient

Part No. A7193465 incorporating 3 no. 800A 4P incomers, supplying distribution switchgear via 2200A bus bars. The assembly was provided with a separate stand extension, increasing the ground clearance to 1 metre.

A Generator Interface Unit (GIU) allows a generator fed installation to operate at maximum efficiency, even when there is a fluctuating load. GIUs act as the marshalling point for the supplies from multiple, smaller generators. The generators must be synchronised and require automatic control systems, which monitor the load, and start or stop the generators feeding the GIU to match the changing load. This on demand approach enables the number of generators supplying the installation to be seamlessly matched to the load and ensures fuel consumption, pollution and noise are all minimised, as the size of supply is closely aligned to the load. Disruption caused by generator maintenance can also be eliminated, as the other generators in the farm can typically supply the installation if one set is taken out of service.

On a recent project there was a requirement to provide a GIU with 3 no. 800A 4P incoming switches each fed from a 500kVA generator (each with an output of 721A). The three incoming switches supplied a bus bar rated at 2200A in an ambient of 50°C. To reduce the effect of intense overhead sunlight (the assembly was destined for the Middle East) a projecting sun canopy was provided. The GIU also incorporated distribution switchgear comprising of 2 no. 630A 4P MCCBs and 2 no. 400A MCCBs each with earth fault protection and 1 no. 630A MCCB and 1 no. 400A MCCB each with variable time and current RCD protection.

The enclosure was of Form 4 Type 3 segregated construction with each functional unit housed in its own compartment, with the bus bars housed in a separate, segregated compartment. The assembly was located outside, adjacent to the generators and the enclosure provided ingress protection to IP56 with an outdoor duty paint finish. The assembly incorporated thermostatically controlled anti-condensation heaters and a surge protection device providing Type 1, 2 and 3 protection.

The GIU supplied an array of our IP56 MCB and MCCB sub-distribution boards, all of which were installed outside, had to be suitable for operation in an ambient of 50°C and featured enclosures providing protection to IP56 with sun canopies (see Special Project SP95).

If you have a requirement for a GIU or for outdoor distribution assemblies with a high IP rating, please contact the Blakley projects team, who will be pleased to be of service.