

## Generator Interface Unit to Supply Critical Infrastructure



Generator Interface / Distribution Assembly with 6 x 800A Incomers and 2 x 3200A Outgoing ACBs, part number A7193399

Towards the end of 2020, as normal business began to return, the Blakley Projects Team were involved in developing an outdoor, IP55 rated, Generator Interface Unit, which is to supply a critical piece of UK infrastructure whilst major changes are made to the permanent electrical supply.

A Generator Interface Unit (GIU) acts as a marshalling point for supplies from multiple synchronised generators and it distributes the aggregated power via one or more outgoing way. In this instance, the GIU is to be supplied from 6 no. 500kVA generators and the output is via 2 no. 3200A 4 pole Air Circuit Breakers. The assembly also incorporates two auxiliary power sockets, both rated at 16A, with one providing a 16A 230V 3P single-phase and neutral supply and the other a 16A 400V 5P three-phase and neutral supply.

The generators that feed the GIU are not only synchronised but they also monitor the load and automatically take sets on and off line to match demand. In practice this greatly reduces diesel consumption, CO<sub>2</sub> emissions and noise pollution, because sets only run when there is demand. The use of multiple smaller generators (in place of one very large set) also allows individual generators to be taken off line for routine servicing without any disruption to the supply. The use of multiple sets also results in a high level of seamless resilience, which can't be achieved if an installation is supplied from a single large set with a back-up stand-by generator.

The construction of the GIU is in accordance with Form 4 Type 3 segregation requirements with each functional unit and the bus bars housed in separate compartments. The supply from each generator terminates in a compartment housing an 800A 4P switch fuse. To reduce the footprint of the GIU, it is double fronted with three incoming compartments to the front and three to the rear. The two ACB compartments are the full depth of the assembly and each is capable of terminating 8 no. 240mm<sup>2</sup> cables per phase and neutral. The ACBs incorporate volt free status contacts, which can be connected to the on site BMS system to indicate when the ACBs are Open, Closed or Tripped. The incoming and outgoing ways are interspersed to allow the bus bar system to be matched to the supply and load (both ACBs can be supplied at 3200A but not simultaneously at full rating due to limitations in the size of the generated supply, which is approximately 4200A).

Blakley GIUs are used extensively by the UK military to supply large tented camps, by the construction and civil engineering sectors when mains power is not available, as well as for one off major infrastructure projects. If you have a possible requirement for a GIU, please contact our Projects Team who would be pleased to discuss possible solutions.