



MAGELLAN POWER CASE STUDY

Perth Stadium

Located on the Swan River, the Perth Stadium and Sports Precinct is part of the Burswood Peninsula redevelopment. A major sporting and entertainment venue with 60,000 seats and the potential to increase to 70,000. The standard of the Stadium including its functionality, services, finishes and fit out ensures that it is one of Australia's finest.



Client

WA State Government

Date

2016

Location

Perth, Western Australia

Scope of Project

Redundant 2 x 520kVA (N+1) Double
Conversion UPS



Client Requirement

Magellan Power was approached by the project contractor to offer a solution for providing filtered 640kVA power for essential loads at the stadium whilst providing 20 minutes back-up time in the case of blackouts.



Magellan Solution

Magellan contributed to the conceptual design of the UPS system using 2 x 520kVA UPS frames with 13 x 40kVA power modules installed into each frame. As the specified UPS was 640kVA, Magellan used 8 x 40kVA hot swappable power modules in each frame. Using hot swappable modules not only reduced MTTR but also provided high reliability and redundancy. This configuration also allows future capacity expansion up to 1040kVA. In order to achieve 20 minutes back-up time for 600kVA load at 25°C temperature, Magellan used 240 blocks of 150Ah 12V high quality Magellan Power batteries with 10 years float charging design lifetime at 20°C. The batteries are formed in 6 strings of 40 x 12V blocks in series. Magellan also provided the room layout drawings where 2 x 520kVA UPS Frame, 6 x Battery enclosures, external bypass switch and external DC junction box enclosure are shown. As well as on site commissioning of the systems and preparation of site specific emergency operation manuals.

In order to ease the maintenance of the system, Magellan used a common battery busbar for two UPS frames and a switch in between each three battery strings to allow discharge tests in the future.

- High reliability, high efficiency (up to 95%).
- Hot swappable, decentralized Parallel Structure Concept.
- Double conversion for pure sine wave.
- Parallel operation, up to 6 units.
- Touch panel display.
- Micro controlled with state of the art functionalities.
- High input power factor, low input THDi and low output THDV.
- Modbus, TCP/IP, relay output.
- Compact in size, only 3U height.



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