



Optus Stadium in full control with classy drive system

Location: Western Australia, Australia

Segment: Infrastructure, HVAC

Looking across the Perth skyline toward the Burswood Peninsula, a new picturesque stadium is drawing big cheers from many sport-loving locals, music fans and tourists. The design acknowledges Western Australia's unique sporting, cultural and Aboriginal heritage, while the stadium park landscape provides a spectacular vista across the Swan River to the city. Opened on 21 January 2018, the 60,000 seat Optus Stadium is set to become one of Australia's top venues for sport and entertainment.

Taking over five years to plan and build, the circa \$1 billion Optus Stadium is a modern venue that features the latest innovation in design, construction and technology. MizCo a specialist Johnson Controls Systems Integrator, was engaged by stadium builder Multiplex to provide the Mechanical / Electrical solution to the stadium's heating, ventilation and air-conditioning (HVAC) control systems.

MizCo is a wholly owned and operated Western Australian specialist in electrical engineering, switchboard manufacturing, systems integration and installation, which has provided services to the commercial and industrial sectors for over 30 years.

"This is one of the largest commercial mechanical electrical projects that MizCo has been engaged to work on in Perth and our first ever stadium build – so our team of specialists knew it was important to pick the right products for the job," said Greg Mizza, Director at MizCo.

Navigating new fields

Encouraged to break away from tradition and introduce cutting edge technology, MizCo considered several unique factors when designing the HVAC control system for its maiden stadium project.

The key challenge was understanding the complex communication protocols and technical requirements of the Converged Network / ICT (Information, Communication and Technology) Network. The HVAC control system needed to operate seamlessly with this network and as a standalone. With more than 400 variable speed drives to be installed and integrated within the backbone network, MizCo invested a significant amount of time finding a product that would work into the control system and allow the team to deliver the project with maximum efficiency.

Prior to selecting Eaton as the drive partner, MizCo tested several different variable speed drive products and measured them against the following stadium scenarios: Conductivity at an Ethernet, BACnet/MS/TP and BACnet/IP level and serviceability. The Eaton H-MAX series of drives, with BACnet/IP communications onboard was selected based on its strong capability and cost benefit.

Key points why the Eaton HMAX VSD was chosen:

- Onboard BACnet IP & MSTP without additional cards
- Max Connect Software allowing remote access to VSD's over IP to configure, diagnose faults and manually control.
- Onboard Input/Output's for direct connecting of sensors & actuators.
- Inbuilt PID loops for pressure and temperature control algorithms.
- Compact size and ease of installation
- IP54 and robust design
- Easy to navigate and configure control screen

Eaton steps up to the pitch

Working closely with Eaton's local team and US-based experts, MizCo was able to enhance the H-MAX drives by developing new software configurations and product changes that helped streamline the physical installation.

"We were impressed by Eaton's flexibility and responsiveness during this phase. These enhancements have now become normal practice at Eaton."

The MizCo team installed 410 Eaton H-MAX variable drives across the stadium infrastructure. This is the largest single install of this product anywhere in the world. With Eaton's Max Connect drives software, the HVAC control system was setup to display the parameters of all drives in real-time from one location.

Eaton's built-in Active Energy Control software provides management capabilities that reduce the input voltage and current requirements to maintain system speed and torque demands – setting a new standard in energy optimisation and stability, while delivering additional cost savings.

The HVAC control system designed by the MizCo team also featured multiple access points across the stadium in the form of touch screens for local/remote control management giving the maintenance and service team capabilities to access live information.

Ready for play

After a three-year construction program, Optus Stadium was successfully opened on 21 January 2018 with thousands of West Australians flocking to see the new venue.

While MizCo expects it to take a little while before the technology and systems are operating at optimum efficiency and productivity, initial feedback shows that the HVAC drive system is working as designed and delivering the client's requested outcomes.

Contracted for three-years to support the ongoing service and maintenance of the HVAC control system at Optus Stadium, MizCo looks forward to maximising the benefits of Eaton's integrated software to continue to deliver efficiencies and minimise running costs.

"MizCo has great confidence in Eaton's global capability, product range and willingness to work with its suppliers as has been shown on this project to meet client expectations. Moving forward, for HVAC and electrical projects MizCo will continue to showcase Eaton products for proven technologies where clear benefits can be delivered as has been our experience on the Optus Stadium project."

After the success of this project, Eaton has also appointed MizCo as an Eaton drives integration partner.