Sydney Opera House uses Omniflex Cathodic Protection

When Sydney Opera House needed to replace an ageing CP system, the consultants chose Omniflex because of the harsh and cramped environment.

The iconic Sydney Opera House

Scott MacDonald, Project Manager for Freyssinet with David Celine from Omniflex, during system commissioning.

"The Omniflex engineers worked closely with Freyssinet to ensure the project was a success"

When Sydney Opera House needed to replace an ageing cathodic protection system protecting the Western Boardwalk, the consultants chose the Omniflex PowerView Cathodic Protection because of its efficiency and compact construction to fit into the cramped space and harsh conditions.

Sydney Opera House

The iconic Sydney Opera House (built between 1957 and 1973) is a masterpiece of late modern architecture. It is admired internationally and proudly treasured by the people of Australia.

Sydney Opera House was inscribed in the World Heritage List in June 2007:

Parts of the Opera House extend over the water of Sydney Harbour and are supported by concrete pylons into the sea.

Protecting this national treasure from corrosion is a vital task.

CP Panel mounted under the boardwalk at Sydney Opera House

The Challenge

The Western Boardwalk extends over the sea, and has concrete support pillars that extend to the sea floor. The entire structure requires an impressed current cathodic protection system to prevent corrosion of the steel reinforcing in the concrete.

Space under the board walk is extremely limited, with tidal activity and ferry turbulence reducing the available height between the high water mark and the soffit to under two metres.

The Solution

Omniflex engineered a solution based upon their proven PowerView CP system.

5 x IP67 stainless steel panels are distributed along the 130 metre length of the boardwalk and mounted a mere 500mm above the high water mark.

The panels house 85 transformer rectifiers and monitoring for 195 reference half cells.

The panels are all interconnected with a communications cable and linked to the Data2Desktop web site allowing complete remote monitoring and control of the system.

One of the Omniflex panel internals showing TR modules in the confined space

REMOTE MONITORING SPECIALISTS

continued

Sydney Opera House from above.
(© Google Maps)

"This system would not have been possible without using high efficiency switch mode TR's"

David Celine
Omniflex.

The Result

The CP system was delivered on time and commissioned without any major issues.

David Celine said *"The design issues facing Omniflex were numerous. Firstly, the small allocated space meant that we had to fit a large number of TR modules into a confined space and ensuring long term reliability of the system required detailed heat load calculations to ensure that the system would operate within specification and design life.*

"*Secondly the harsh conditions required IP67 rated panels, and this protection is tested regularly, as the panels are splashed almost every day with the wake from passing ferries. These panels were custom designed to fit the tight space by the Omniflex engineers."*

The Omniflex engineers did a wonderful job, and the system two years after installation continues to operate within the design parameters set.

This would not have been possible without the high efficiency switch mode PowerView TR's in the Omniflex product range.

"Remote access via a web browser brings long term stability to the system."

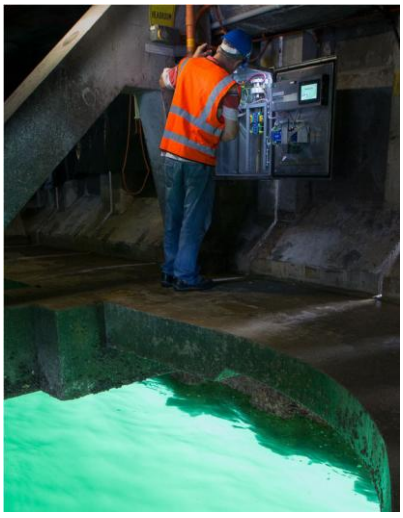
All enquiries to Omniflex

The remote monitoring allows the consultants to continue to monitor and adjust the system on a regular basis without visiting site, even conducting instant off, depolarisation and interference testing remotely.

The system also provides an Modbus/TCP link to the Opera House Building Management System, so that critical alarms can be monitored by Opera House staff.

Using a web browser interface to access the system remotely brings long term stability into the remote monitoring and control, because there is no need for special software installed on personal computers that require regular maintenance and upgrade.

Any computer with internet access can be used.



The PowerView CP system during system commissioning.
The high water mark is above the level of the walkway. Work could only be conducted at low tide.

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