



In this edition...



We explore the challenges in designing a remote monitoring system for a cathodic protection installation at the hazardous gas, chemical and petroleum berth for NSW Ports.



And the crucial considerations that will allow you to select the correct radio frequency for industrial or field-based telemetry systems.



Meet Alastair Allen, project engineer

This year, we welcomed Alastair Allen as Omniflex UK's newest project engineer. A 36 year-old Scot from Argyle, his experience abroad, from SE Asia to the Persian Gulf, will bring a new perspective to Omniflex's remote monitoring and industrial measurement offerings.

Alastair's proficiency with signal monitoring and transmission makes him a perfect fit for Omniflex's technological solutions. In his spare time you'll find Alastair cycling or running around the north west of England, or taking Spanish and salsa dancing classes.

Celebrating success



Omniflex is immensely proud of its work on the WharfWise technology with AMOG, who this month won a High Commendation (SME Category) at the Indo-Pacific Innovation Awards 2023

WharfWise is a monitoring solution that provides port operators with a data-driven approach to eliminate overloading and mooring lines and increase wharf utilisation.

Meet the team



David Celine

David Celine is managing director of Omniflex Pty Ltd, a position he has held for over 20 years. Born and raised in Durban, South Africa, David has spent his entire working career in the development of industrial measurement and control instrumentation products. He was instrumental in obtaining funding for Industrial Internet of Things (IIoT) oversized detection instrumentation for the global mining industry.

He feels extremely lucky to lead a company of talented, innovative individuals, striving to provide better real-world solutions in industrial remote monitoring. David is also an avid wine collector but doesn't think much of his golf abilities.

Protecting NSW Ports from Corrosion

When NSW Ports embarked on a two-year program to rehabilitate the structures and combat corrosion levels at its Bulk Liquid Berth 1 (BLB1), it commissioned Melbourne-based consultancy Infracorr to deliver a bespoke cathodic protection (CP) system. To deliver the system, the consulting firm engaged Omniflex to support the hazardous area and remote monitoring aspects of the CP system design.

Over the last decade, reports have established that chlorine-induced corrosion is affecting some of the major structures at NSW Ports, including Sydney Harbour and Port Botany, Australia's largest container port.

NSW Ports commissioned Infracorr to design a CP system for use at BLB1, which is located at Port Botany and houses hazardous gas pipelines. The project also included the repair of defective concrete structures, which were suffering from the effects of corrosion and concrete spalling in the many pre-stressed beams and headstocks of the various bridges and catwalks at the port.

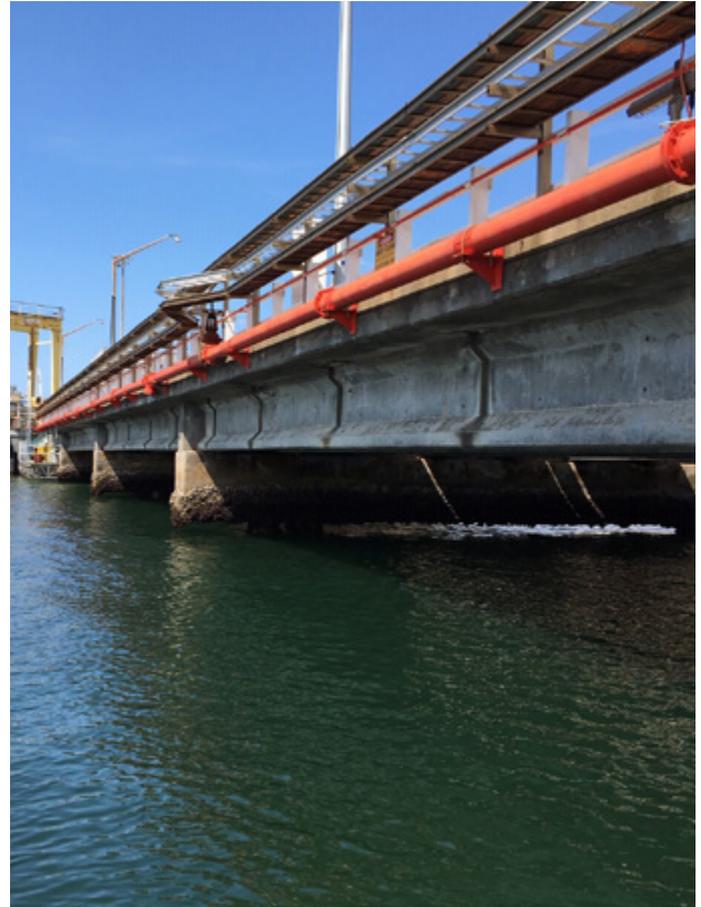
Designing the system presented several challenges because BLB1 houses hazardous gas, petroleum and chemical pipelines that could be at risk of ignition if exposed to unsafe levels of voltages and currents.

"One of the big technical challenges for the project was that there is no off-the-shelf CP system available that has certification for

use in zone 1 classified hazardous areas," explained Ashley Rangott, Asset Manager at NSW Ports.

The system, designed for use at BLB1 by Ian Godson, director at Infracorr, was a hybrid CP system that combines the properties of both passive galvanic and impressed current cathodic protection (ICCP). It uses remote monitoring technology to provide asset managers with ongoing reassurance that systems are operating as intended and corrosion levels are under control. To deliver this, Godson requested the assistance of Omniflex to advise on the hazardous area and remote monitoring aspects of the design.

"The decision to go with a hybrid CP system was jointly made between NSW Ports and the project consultants. The hybrid system reduces the ongoing risk of hydrogen embrittlement on prestressed concrete elements that a standard ICCP system presents," added Rangott.



"Because of the low currents required to meet the prestressed steel and hazardous area limitations, the hybrid CP system required an initial power-up phase of three to four months before the external power source was disconnected and the system left to operate galvanically," explained David Celine, managing director of Omniflex. "The system comprises of nearly 35,000 embedded hybrid anodes that were installed

in the structures at BLB1 and is designed to control corrosion for up to 50 years.

[Click here to read the full case study](#) to find out how Omniflex navigated the challenges at BLB1 to provide 24 remote monitoring units to keep a watchful eye over the hybrid CP system at Port Botany.

New project announcements



Guarding Sellafield against radiological contamination

Omniflex has been awarded a contract to provide the radiological surveillance system for Sellafield's product and residue store retreatment plant.

Omniflex has been awarded the contract for Sellafield's product and residue store retreatment plant (SRP) radiological surveillance system (RSS) project. Omniflex will fulfil the project using its nuclear decommissioning award-winning RPN1 off-the-shelf radiological protection instrument. [Click here to read about the plans for our radiological monitoring system](#) and what director Gary Bradshaw thinks are essential product features for engineering work of this kind.

See our technical artical abstracts below

Omniflex operates across numerous sectors including: radiological monitoring; remote monitoring and control for cathodic protection and industrial tanks; alarm and event management; and more. Read the abstracts below for some of the technical articles we've written for different sectors, and follow the links to find the full version of the articles, if they pique your interest. This month, we have Ian Loudon outlining considerations for choosing the right radio frequency, Gary Bradshaw explaining the importance of SIL ratings and David Celine discussing satellite-based pipeline monitoring.



Wireless

Selecting the right radio frequency for telemetry applications.

In highly regulated industries where laying cables is not feasible, radio-based communication can transfer critical data from multiple locations wirelessly and effectively. When installing radio equipment and telemetry devices, such as transmitters and receivers, in an industrial facility or field-based utility applications like gas, electric and water, frequency is an important consideration. Click here to read Ian Loudon's article that **outlines considerations when selecting a radio frequency (RF) to operate on.**



Cathodic Protection

Low-cost satellite-based remote CP monitoring of pipelines.

Pipelines provide some of the most critical infrastructure in society, stretching over thousands of kilometres often in very inhospitable terrains. Two major challenges for pipeline operators are leaks and corrosion. Traditional metering and monitoring techniques for the cathodic protection of pipelines are costly and time consuming. Click here to read David Celine's article that explains how **low-cost satellite technology is ushering in a new era for IoT based pipeline monitoring**



Safety

The importance of understanding SIL ratings

Major industrial accidents around the world, like the Bhopal chemical plant disaster, have occurred due to insufficient and poorly designed safety systems. Safety Integrity Level (SIL) ratings were introduced as part of IEC 61508 in 1998 and seek to quantify the probability of dangerous system failure. However, there are some points of confusion that stem from SIL ratings' complexity. Click here to read Gary Bradshaw's explanation of **how SIL ratings work and the dangers of the misconceptions that exist around them.**

A brief history of Omnifacts

While we're very happy to bring you an Omnifacts edition fit for 2023, this is far from our first venture into the world of newsletters. Omnifacts first reached our colleagues and customers in 1998 – **click here to see David Celine sporting a moustache not seen since the turn of the millennium.**

After a run as a print leaflet, Omnifacts went digital. 2003 saw the first online edition, distributed over a then-widely available email service. These electronic editions continued until December 2009, where we left Omnifacts. Now it returns as a quarterly newsletter, giving insights into the people behind the brand and detailing the fascinating work Omniflex does across our different industries. Make no mistake, Omnifacts is here to stay!

Product spotlight



Teleterm D3 - Flexible RTUs for asset monitoring

The Teleterm systems provide an easy-to-use front-end interface to SCADA/HMI platforms via communications ports like ethernet or RS485 and are compatible with Omniflex's web based Data2Desktop remote monitoring platform. By combining all the standard features of a COTS product, the Teleterm range provides a trouble-free installation and setup in a matter of minutes.

The Teleterm D3 Series is a state of the art RTU range designed to expand the possibilities of remote monitoring and control. It comes with built-in lithium batteries, so provides battery back-up in the event of mains power failure (DC powered options are also available). The Teleterm D3 also has a built-in LCD display, allowing you to view

data locally. Furthermore, it has eight digital or analogue configurable I/O and can communicate using ethernet, Modbus, radio, satellite and 3G options.

To see the full specification range, read the [Teleterm D3 C2395A product brief here](#) on the Omniflex website.

Get in touch with us

 www.omniflex.com

 www.linkedin.com/omniflex

What to expect in the January edition of Omnifacts...



We'll introduce you to our new business development manager, Stuart, who will be responsible for cathodic protection and structural monitoring projects in Europe and the Middle East.



Read about our project replacing 21,000 critical alarm points at the Sasol processing plant in Secunda, South Africa with minimal downtime and maximum cost-efficiency.



Learn about the remote monitoring and control system we designed for clean and grey water supply management in a rhino conservation habitat in South Africa.