CDPStudio

PHOTO: REV OCEAN

A Development Platform for Modern Marine Control Systems

Launch and recovery systems | **Thruster control** | **Condition monitoring** | **Sub-system controller**
Remote operations | **Cloud access** | **Active heave compensation** | **Graphical user interface**

A modern ship has multiple control systems, ranging from bridge systems to monitoring of water tanks, and everything in between. Like in land-based industry, there are new expectations to control systems for sharing data, simulation, interworking, remote communication and even cloud services. There is a continuous work to reduce cost and increase efficiency and the demand on onboard control systems is increasing.

Advanced real-time control
Connected systems
Autonomous functions
Open and independent
Digitalisation

CDP Studio is a software development platform fit for the above challenges by merging the technology of marine automation with modern software-based control systems. CDP Studio has been used in the marine industry for more than 15 years, and developed to cover the new reality of Industrial Internet of Things, advanced sensors, digital twins, and modern technologies.

CANopen · Simulation · Industrial I/O

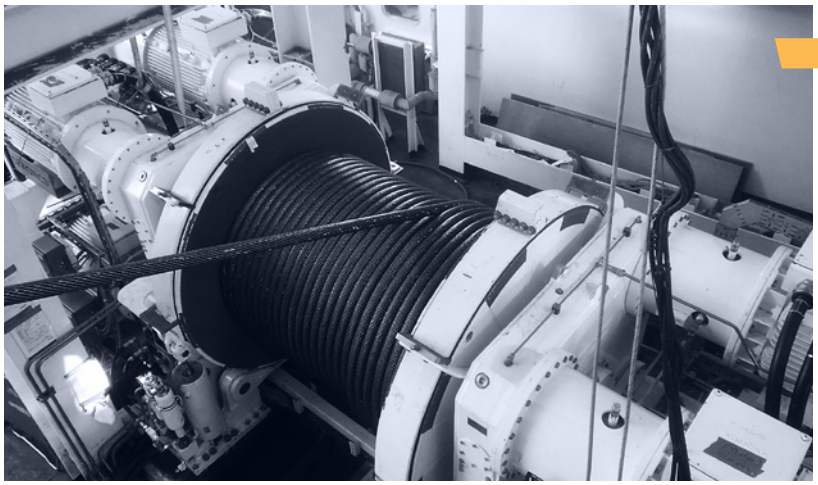
Winches, Cranes and LARS

Control systems for a heave compensated LARS, a range of advanced scientific and fishing winches and cranes on the REV Ocean, a unique exploration and research vessel. With CDP Studio you can run the main control system on a powerful marine computer for fast calculations and actions, combined with standard industrial remote I/O component and instrumentation.

Active motion control · Autonomy · Real-Time Control

Autonomous Gangway Control

The auto-landing feature of the new generation AMC gangways from Uptime International uses 2D cameras and 3D sensors to detect landing points. The CDP development platform has a frame-work and tools for real-time control systems and integration of advanced sensors. Simulation and the advanced test environment verify the control system quality and operational safety.



Simulation · HIL Testing

Electrical XMT Handling System with Training Simulator

A custom X-mas tree electrical handling system with active heave compensation on the Odfjell Deepsea Nordkapp platform. The use of HIL (hardware in the loop) testing combined with the digital twin ensured high quality in the system development and test. The training simulator on board the rig enables operator training before any critical operation. A modern and comprehensive development platform enables the system development in a single tool.

HW Independent · Modular Software

Standard Winches and Cranes

Building project specific control systems with standard industrial hardware, saves cost and improve spare parts availability. With CDP Studio you can build the control system from a library of pre-tested modules for a range of hardware and functions. Fast implementation of project specific configurations is achieved without additional coding, but with version control.

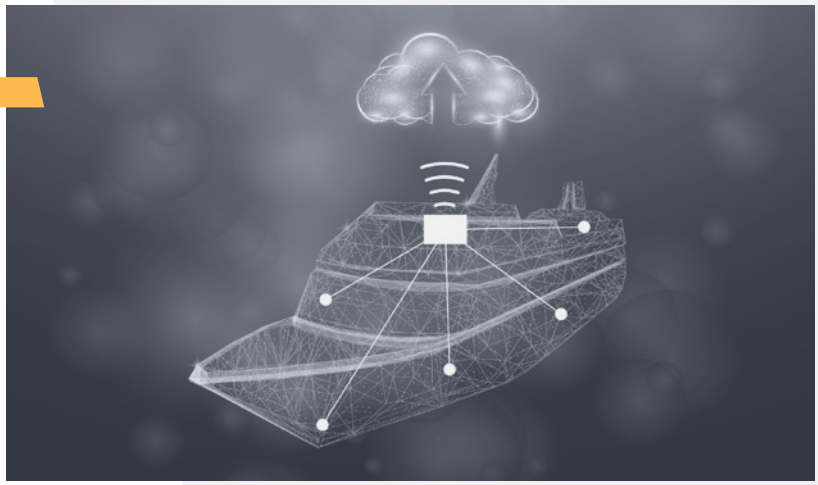
> **We were amazed how fast we could integrate our special hardware and add graphical user interfaces.**

Lars Gunnar Hodnefjell
Product Manager, Blue Logic

Edge Computing · OPC UA · MQTT · Cloud

Remote Monitoring and Cloud Connection

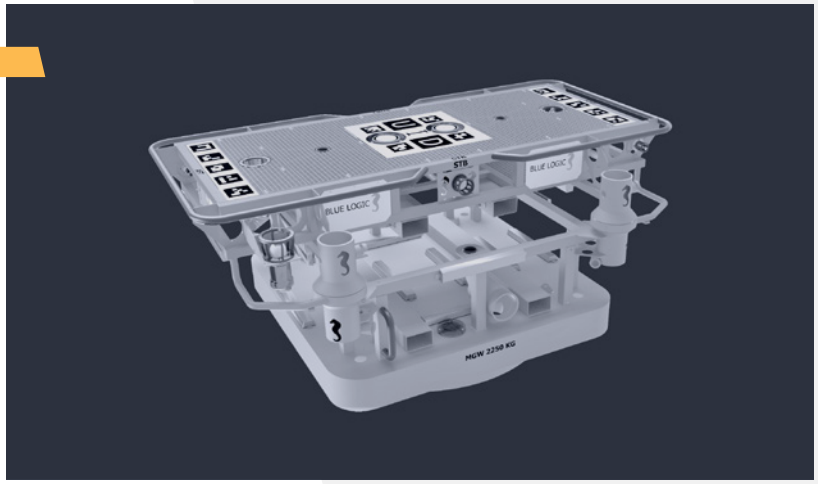
Remote monitoring and access is important for condition-based maintenance, technical support, and fleet operation. Using CDP Studio, a small monitoring system may scale from a stand-alone industrial router up to server systems to collect and log data, analyse and report the system state.



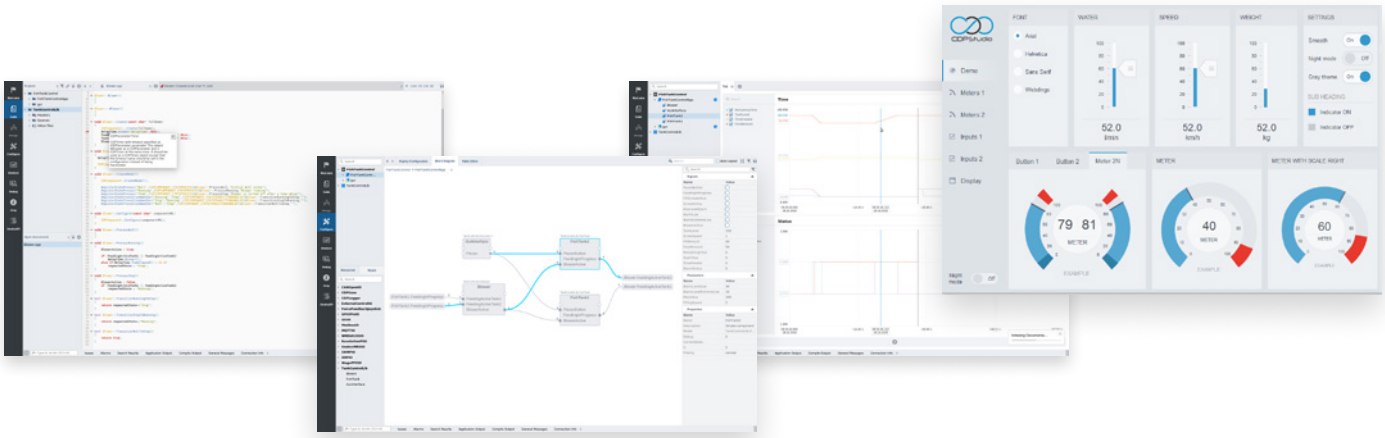
Distributed · Remote I/O · OPC UA · HMI

Underwater Drone Docking Station

The Blue Logic charging station for autonomous underwater drones use hardware from various vendors to provide a universal solution with inductive connectors for power and data communication. CDP Studio is used for an integrated control and monitoring system with subsea electronics, topside control station, cloud access and network control.



The cost saving impact of having a single software development tool.



Quality

The strictly modular structure used when building systems with CDP Studio, combined with the built-in tools for testing, analysis and simulation, helps to build rugged, re-usable software components. CDP Studio also works well with third party automated testing tools and version control systems.

Cross Platform

As a true cross platform development tool, CDP Studio let you use equipment from different vendors, combine Windows and Linux on x86 and ARM architectures; even in the same distributed control system giving you full flexibility.

Open Architecture

Modern marine systems need to interface operational data from multiple sources as well as deliver data to a cloud-based analytics service or other onboard systems. This asks for data processing beyond traditional automation. CDP Studio combines a powerful automation framework with an openness to additional software elements in C++, Python, Java, HTML5 and opensource.

Modularity

The extreme modularity of CDP Studio is a key to build robust systems, enable teamwork, simplify testing, improve re-usability, and help maintenance. In other words; increase quality and reduce development cost.

End-User Value

The value of software tools is measured in saved developer hours; the hours to build the environment and tool-chains, as well as maintaining these, are non-productive direct cost. A development platform with relevant protocols and HW integrations in place, saves even more hours. CDP Studio let you focus on your core competence and add real value to the end-user.

User Experience

The HMI design is fully integrated in the development tool to achieve advanced interaction between the control core and the visual presentation.

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