MARINE & PORTS

ABB Ability™ Marine Pilot Control

More than just a Dynamic Positioning System

ABB Ability™ Marine Pilot Control simplifies vessel maneuvering with an intuitive touchscreen-based user interface that enables safer, more efficient vessel operations.

Swift changes between operating modes eliminate settling time.

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01 Marine Pilot Control makes use of touch interfaces simplifying console integration and layout.

Introduction
Traditional control methods and therefore traditional DP systems are designed for operation around 0 knots. This results in hydrodynamic and thruster allocations that are only suited for position keeping.

The physics changes when the vessel starts to make way through the water, and, like the best captains, smaller yet more precise control needs to be used by the DP system. ABB Ability™ Marine Pilot Control has the intelligence required to optimize thrust across the entire speed range.

Next Generation Ship Control
One of the key benefits of the system is that it can be utilized for the whole operation and maneuvering speed range of the vessel. This allows the operator to use joystick control for maneuvering the vessel at any speed including operations around the berth.

ABB Ability™ Marine Pilot Control employs algorithms that calculate the optimal way of executing a command for controlling the vessel. The overall safety of the operation is increased as the crew is supported in maintaining full situational awareness, rather than on changing control modes or individual thruster control.

User Centric Design
Marine Pilot Control is principally designed to make ships more effective, safer and simpler to operate.

The User Interface follows the same design philosophy as ABB's other marine digital products, conveying information, alarms and measurement values being logically to the operator.

Smooth Operations
The ability to switch to joystick control at any time enables a smooth transition without stopping for control mode changes and saves energy. Bridge teams can now plan arrivals and departures based on continual movement, reducing control inputs and fuel consumption, for example, during sensitive harbor operations.

Model Predictive Control
Traditional control systems are vulnerable to delays. With model predictive control, the system can dock the ship better, faster and more precisely as it knows where the vessel will be in 5-30 seconds instead of measuring its position when it is achieved. Combined with a nonlinear observer, this provides a filter and estimator to the system, with the best solution across the operational profile.

Powerplant Optimization

A ship doesn't react immediately, indeed a marine powerplant is required to overcome inertial forces as the load increases or decreases. The use of Model Predictive Control isn't limited to ship motion. By taking into account given limitations within the power plant, Marine Pilot Control is able to adjust thrust calculations on the availability of power within the vessel. New and future technologies such as energy storage solutions and other energy productions sources, such as fuel cells, will provide different dynamics for the system.

Just as a competent captain adjusts their mental model of the real world situation, Marine Pilot Control is also able to adjust providing the operator with contextual information and reactions.

DP Notation

Marine Pilot Control has received Lloyd's Register Approval in Principle for IMO DP1. Higher levels of DP are available based on parallel control architectures and redundancies required per class rules.

ABB Ability™ Collaborative Operations

Integrated digitalization helps you improve asset availability and operational efficiency. Asset and operational information is collected and analyzed 24/7 at Collaborative Operations Centers.

Marine Pilot Control can be enabled to send data through the ABB Ability platform to the ABB Collaborative Operation Centers to identify, categorize and prioritize actions with your staff both ashore and afloat.

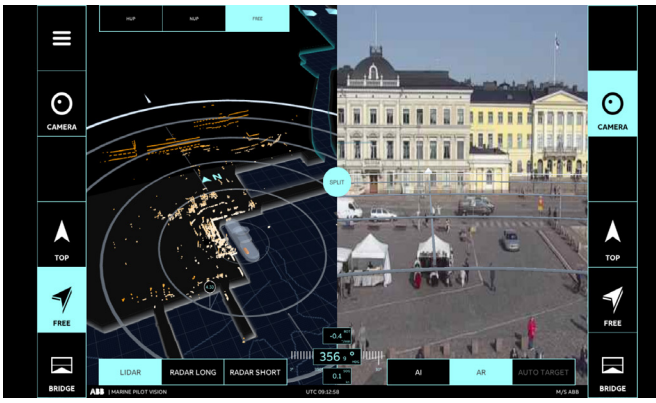

ABB Ability™ Marine Pilot Vision

We understood that we needed two things to start with in simplifying vessel operations. We need a product that gives us the situational awareness. This is ABB Ability Marine Pilot Vision, released in 2017, giving perspectives to increase awareness around the ship and within the area

Combined with Marine Pilot Vision, ABB Ability™ Marine Pilot Control provides operator enhanced control for novel awareness and operations now, and in the future.

Basic DP Code Definitions		
IMO Equipment Class 0	DP 0	Dynamic positioning system without redundancy. Even though IMO MSC/Circ.645 does not specify any equipment class corresponding to this level is often referred to as IMO equipment class 0.
IMO Equipment Class 1	DP 1	Dynamic positioning system with an independent joystick system back-up and a position reference back-up.
IMO Equipment Class 2	DP 2	Dynamic positioning system with redundancy in technical design and with an independent joystick system back-up.
IMO Equipment Class 3	DP 3	Dynamic positioning system with redundancy in technical design and with an independent joystick system back-up. Plus a back-up dynamic positioning control system in an back-up dynamic positioning control center, designed with physical separation for components that provide redundancy.

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