



# SafeCaptain and CAT ROT PPU integration

FOR IMPROVED SAFETY AND EFFICIENCY



**Arkas, a prominent Turkish-based holding that offers an integrated service chain in its main business lines including maritime transportation, logistics, port and terminal operations, partnered with Trelleborg Marine and Infrastructure to integrate advanced navigational tools within its container fleet as part of its strategic initiative to improve overall operational efficiencies and safety. The decision to explore a simplified AIS-based program for its container fleets that do not traverse the Panama Canal follows the previous success with SafeCaptain, which was provided alongside Trelleborg’s SafePilot P3 for its vessels transiting the Panama Canal.**

### CHALLENGE

Despite technological advancements, navigating narrow and complex waterways remains a critical challenge in the maritime industry, particularly in scenarios involving constricted passages, unpredictable currents, outdated nautical charts and unreliable navigation tools. These factors create a high-risk environment for pilots, captains, and crew members, potentially compromising vessel safety and operational efficiency. The combination of these elements continues to pose significant challenges, underscoring the need for ongoing improvements in navigation technology and practices.

### SOLUTION

To support Arkas Holdings’ need for better operational efficiencies for their container fleet, Trelleborg proposed combining its SafeCaptain technology with the CAT ROT Portable Pilot Unit (PPU), both key components of the comprehensive SafePilot piloting system developed in-house. SafePilot, has been at the forefront of maritime navigation technology with its latest iteration, SafePilot P3, gaining notable recognition, becoming the first high-accuracy navigation unit to be evaluated and approved by the Panama Canal Authority (ACP). This approval underscores the system’s reliability and precision in even the most demanding navigational environments.



SafeCaptain is designed to address the limitations of conventional AIS pilot plug data formats. The system enables precise monitoring in constrained waterways, employing a high-accuracy GNSS and an advanced motion sensor to track the vessel’s three-dimensional movements. In the event of a blackout, SafeCaptain continues to compute the ship’s position and heading using its dual GNSS antennas.

By integrating with CAT ROT, SafeCaptain significantly enhances the reliability and precision of operational data, providing captains with a more comprehensive



and trustworthy navigational tool. The CAT ROT is a small and compact pilot unit primarily designed to connect to a ship's AIS pilot plug and transmit data via Wi-Fi to the captain's tablet/notebook.

To demonstrate the capabilities of this integrated solution, a comprehensive trial was conducted in Turkey in January 2024. The trial involved a six-hour journey from Bursa's Gemlik harbor to Kocaeli's Derince harbor, allowing for rigorous testing of various navigational scenarios. These included planned route creation,

harbor approach simulations, and complex docking maneuvers, all of which showcased the system's versatility and effectiveness.

One of the notable enhancements to SafeCaptain during this trial was the addition of a feature allowing users to manually draw missing details directly on the app interface. This functionality addresses a common issue in maritime navigation - incomplete or outdated charts.

## OUTCOME

The implementation of SafeCaptain technology with the CAT ROT Portable Pilot Unit (PPU) enabled real-time data sharing and improved decision-making. The system's chart annotation features mitigated delays and ensured safe navigation, even in areas with outdated information. During the trial, SafeCaptain's manual drawing capability proved vital when faced with uncharted harbors, showcasing its adaptability to address unforeseen challenges. By enabling pilots to supplement existing chart data in real-time, SafeCaptain proved to be a more adaptable and comprehensive navigational tool. The system is now operational on a total of 49 ships within the Arkas Holding fleet.



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