



Integrated Platform Management System



What is INSEACON?

INSEACON is Logimatic's Integrated Platform Management System - a distributed computer system used on board ships for real-time monitoring and control of virtually all ship systems such as propulsion, electrical power supply, and damage management.

The system consists of a network of sensors and control devices that collect data for analysis. INSEACON provides an extensive overview of the vessel, giving the crew real-time access to the data that enables them to make informed decisions efficiently.

The INSEACON system can be controlled from operator stations around the ship or centrally from either the bridge or the controlroom. INSEACON also provides the possibility of remote supervision, monitoring and controlling from a land-based station using cyber security protection.

Smart features

Logimatic's IPMS system INSEACON includes a range of features such as alarms and automated responses to system failures, diagnostics and maintenance, and even predictive maintenance capabilities. This helps to reduce downtime and prevent costly repairs.

One of the primary benefits of INSEACON is the increased level of automation this system provides. This allows for a more streamlined operation, as crew members can focus on other critical tasks. It also reduces the risk of human error, which can be costly and potentially dangerous in a marine environment.

The system can also help to reduce fuel consumption and improve overall efficiency. By providing real-time data on engine performance and fuel usage, for example on dashboards, crew members can optimize the vessel's operations and reduce its carbon footprint.

Those operational dashboards show current progress related to your KPIs onboard. We provide them as strategic, tactical, operational and analytical tool.

Why INSEACON

Overall, INSEACON IPMS is a valuable investment for any marine vessel. It provides a centralized, automated solution for managing complex systems, reducing the risk of errors and improving efficiency.

With the constant evolution of technology, it is likely that IPMS will continue to advance and provide even greater benefits in the future.



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Please find more detailed information on the following pages and contact us for a talk about what we can achieve together!

Troels Severinsen, CEO, Logimatic.

INSEACON is not only designed to comply with HMI standards but is also tailored to meet the specific needs of its users.

Made for the users

Integrated & user-friendly

We have developed more than 100 mimic displays, based on standard windows graphical user interface. Operational data is displayed and controllable components can be manipulated via pop-up faceplates.

The mimics are designed in accordance with system diagrams and show outlines of essential machinery details to facilitate seamless operation of the system.

All operator stations can display any INSEACON mimic which makes it possible to control the ship platform completely from ECR or from the Bridge.

A ship-wide backbone network enables flexibility in connection of portable computers, a powerful advantage for diagnostic purposes or for establishing local Damage Control Stations.

Hands-on designing

Our engineeris and specialists collect knowledge from the users every day needs and use of controle systems. With this info we can program the frontend being valuable and efficiency increasing.

User Interfaces meet efficiency

Our approach to user interface design, is to make it more intuitive, operator-friendly, and tiered. This focus applies to all screen displays that is created. This ensures a significantly better overview of functionality and alarms.

A "high performance" HMI is all about prioritized information and a high degree of involvement of operators and users. The goal is to present information accurately to the person using the system. This way of working and has already proven its worth with a wide range of our customers.

INSEACON Core Benefits

- » Open and scalable architecture
- » Custom fit user interface
- » Virtually unlimited number of inputs/outputs
- » COTS based – worldwide spare parts
- » Reduced ship life cycle cost
- » Lean manning – optimization through high level of automation



INSEACON consists of several subsystems

Typical machinery, equipment and systems monitored and controlled by the INSEACON include.

Propulsion System
Control of propeller speed and pitch is based on the position of the handles on Bridge and in the Engine Control Room. This system belongs to one of the most critical functions onboard. It also manages gear clutching and load sharing between multiple main engines that operate on the same shaft.

Power Management System
Management of power generators, electrical distribution, transfer to/from shore, and handling of large consumers (e.g. bow thruster) is essential to ensure sufficient electrical power to ship systems and prevent blackout. The system automatically starts and stops generators to maintain a suitable power margin.

Damage Control System
Efficient damage control is crucial for the survivability of a naval ship. All relevant systems are joined on the same platform in INSEACON, including fire detection, flooding, closure state, ventilation, citadels and ship stability. In addition, Logimatics STRATECA product can be installed to provide Strategic Damage Management and improved situational awareness.

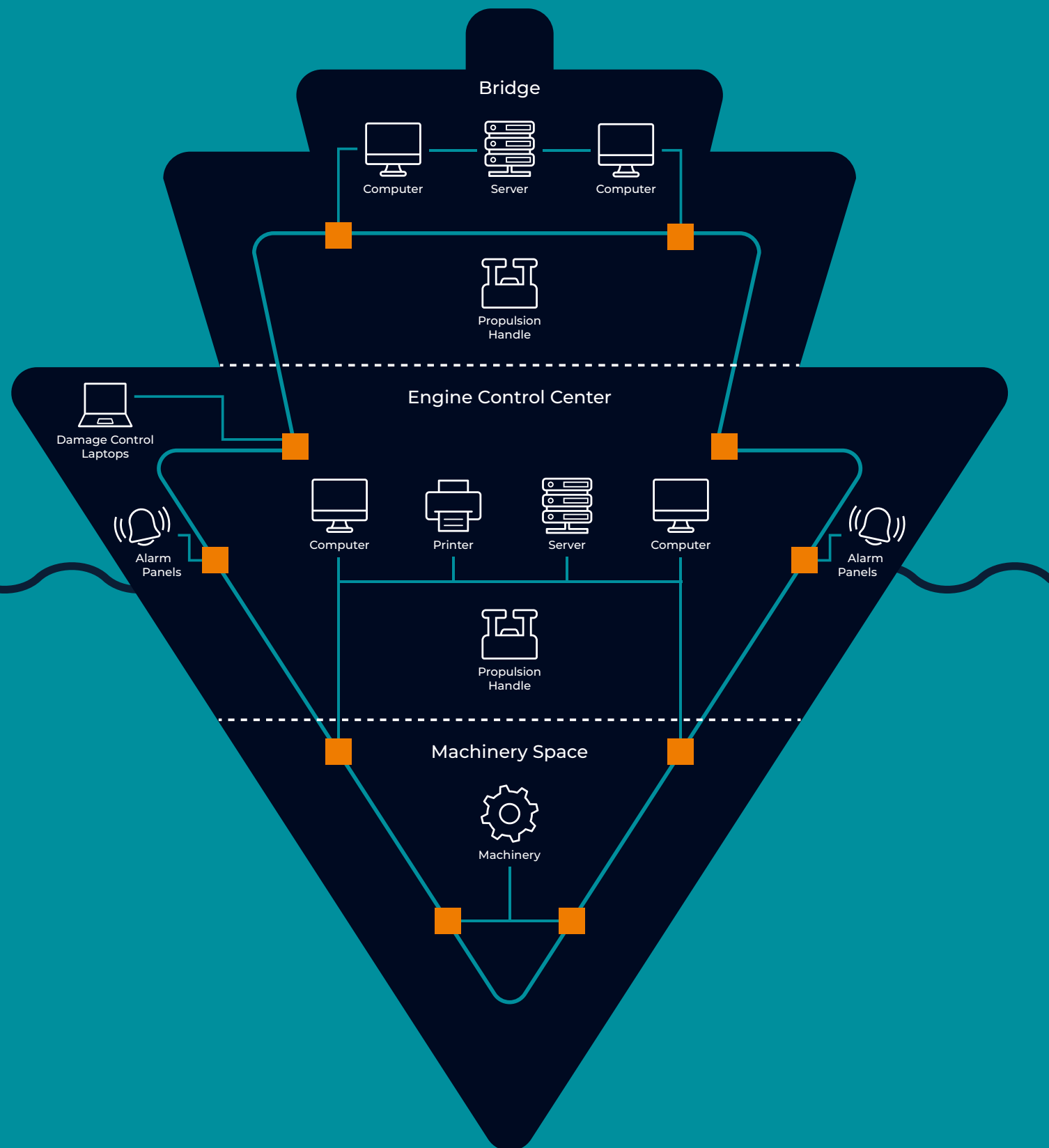
Auxiliary Machinery Systems
INSEACON provides monitoring, control and automation of all auxiliary systems such as heating and cooling, ventilation, fuel and lube oil, hydraulic valves, compressed air, red light, and so forth. This means that the entire vessel can be managed from the Engine Control Room.

Alarm System
All systems and signals are monitored for anomalous behavior and handled with the standard alarm system within INSEACON. In addition, an Alarm Extension System that fulfils the Class notation UMS (Unmanned Machinery Space) enables the Duty Engineer to respond to alarms from his cabin or public areas. This system also provides a “Call Engineer” feature.

Conning
Conning displays on the Bridge present essential information to the ship navigator such as propulsion power, heading, wind, depth, speed, and so on. The flexibility of integrating virtually any system with INSEACON makes it possible to customize these displays, and a special version for helicopter operation has been developed.

Camera Surveillance (CCTV)
Integrating the ships camera system with INSEACON enables the operator to select and display camera streams on the INSEACON platform supporting the particular task he is undertaking. The system can also automatically show relevant camera streams, for example when a fire has been detected.

Stability Computer
The real-time calculation of tank volumes in INSEACON is used by the integrated Stability Computer, together with the operator’s manual inputs on heavy loads, to determine the ships loading condition. This is primarily used for assessment of the ship’s stability, but the information calculated by the Stability Computer, such as list, trim and draft, is also utilized by other functions in INSEACON.



INSEACON architecture

The system is realized with distributed cabinets called 'outstations'. Outstations hosts data collection and control units, and several operator stations with computers, displays, keyboards and trackballs for easy operation. All equipment is arranged in a network architecture.

INSEACON consists of a number of processing units (PLCs) distributed around the ship. The PLCs are used for interfacing the machinery, and the operator interfaces located around the ship, specifically tailored for the exact requirements for the individual location. The main control location is the Engine Control Room (ECR). But all controls can also be done from the bridge.

Carefully designed

The distributed architecture is carefully designed to ensure the highest availability of the entire ship platform by arranging the PLC automation components according to the ships damage zones, essential machinery, and the redundancy of ship systems. The design guarantees that no single failure or damage to a compartment can lead to loss of critical functions.

An optical ship-wide Ethernet backbone links the various computers and PLCs, connected in a ring so single failures do not prevent communication between equipment across the damage zones.

Within each damage zone additional outstations are installed with remote inputs/outputs which significantly reduces installation costs. These outstations are connected to their associated PLC outstation through a separate redundant network that are completely independent of the backbone ring. This independence between damage zones ensures an optimal survivability of the overall system.

Powerful redundant hardware

The software platform is realized with minimum two marine approved high performance server hosts. They are redundant installed in two or more geographically separated racks, each with redundant UPS power supply and redundant cooling.

The powerful servers execute all necessary computers as virtual machines, which means that there is no need to install software anywhere else. All operator interfaces are Zero Clients that receives software at boot time from the servers. This makes replacement of the client computer hardware extremely easy. Each client computer is supported by simultaneously running sessions in the two server hosts, so in case of failure, the client switches to the healthy session within fractions of a second.

INSEACON can control several sub-systems

Propulsion Control System >> **Power Management System** >> **Conning Displays**
Damage Management System >> **Integrated Ship Control and Supervisory System**
Interfaces to NAV, ADM, Load Computer >> **Alarm Handling System** >> **STRATECA**
Extension Alarm System >> **CCTV Interface** >> **Engines Emergency Telegraph**
Damage Chat Application >> **Auxiliary Machinery System for HVAC**

Proven solution for navies worldwide

Logimatic originally developed INSEACON for The Royal Danish Navy's Frigates, and the system is installed on all five Danish Frigates, and also on a number of other types of vessels, including Her Majesty The Queen of Denmark's Royal Yacht. INSEACON is suitable to any kind of ship, and especially to the extended requirements of a Navy vessel. A retrofitted frigate belonging to Bangladesh Navy is also upgraded with a Inseacon solution.

Not only The Royal Danish Navy has shown their trust to Logimatic and our INSEACON IPMS solution. Navies worldwide has through decades been our customers and business partners.

We're proud telling that not only INSEACON is a requested grace but also our talented engineers experience and competences in automation design, electrical design and project planning.

The Logimatic Way

As our customers consulting partner we work 'The Logimatic Way'. That means that we work in close cooperation with our customers from A-Z in our projects. What we deliver is up to date with todays needs, classifications, rules and laws. And the quality of our work is outstanding.

Our references



DANISH DEFENCE



BANGLADESH NAVY

What our customer says

"Logimatics IPMS has brought the application of computer aided control and supervision of our vessels into a new era, both in terms of operability and maintainability.

Logimatic has had a strict focus on the ship operators in the development of a very user friendly system, and we are especially satisfied with the Damage Control System that is tailored exactly to our specific needs.

The crew members also express their satisfaction in the daily use of the system, stating that it provides seamless supervision, diagnostic and maintenance of the ship equipment."

Per Bigum Christensen, Technical Director, Naval Systems
2010 - 2018, Danish Defense Acquisition & Logistics Organization.

Member of



NavalTeamDenmark™

A solution from Logimatic.

Logimatic is a Danish engineering and software company, founded in 1987. We are specialists in marine automation, HMI, SCADA, supply chain and a number of niche areas — all with the overall aim of increasing efficiency and strengthening our customers' competitiveness.

We deliver customer specific solutions that support the individual customer's business processes. Our goal is to offer solutions and concepts that are at the forefront of the technological development, where high quality meets customer satisfaction. When we identify needs and challenges at our customers, we see it as our most important task to develop new solutions that create value.

We prioritize working closely with our customers. You know your business best. We have the software and expertise. In close cooperation, we can achieve the best solution — a solution that is well rooted in your business and that creates excellent results.

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