The vessel can be sailed with fewer bridge personnel.

Track control system makes ship sailing in the planned route accurately.

INS standardized software ameliorates the upgrading procedure.

The conning officer sees all navigational information from one display.

All workstations use consistent data and reduce data error.

All workstations can be dimmed in unison from a single control.

Highland’s "Intelligent Bridge" integrated navigation system (INS) is based on dual-redundant Gigabit Ethernet.

Stable system architecture
- The Highland’s "Intelligent Bridge" integrated navigation system (INS) is based on dual-redundant Gigabit Ethernet.
- All workstations use the same identical hardware and software.
- Workstation computers are ultra-compact, fanless industrial computers with resilient solid-state drives. Display monitors are top-notch IEC 60945 marine industrial models.

Information Fusion
Following validity and plausibility checks on data, the HLD-INS 600 common consistent reference system (CCRS) applies spatial corrections to data and then synchronizes datums in time (latency correction). Data is then subjected to integrity monitoring. Finally, it is distributed throughout the INS environment.

Multifunctional Workstations
Each bridge workstation is multifunctional, configurable to display stand-alone radar, chart radar, ECDIS, conning, alert management or track control.

Easy to Operate
- The conning officer sees all navigational information while standing in one place.
- The display of radar, conning and ECDIS can be arranged to suit individual preferences at the time.
- INS track control takes a great deal of the tedium out of steering.
- Each workstation uses the same exact keyboard-trackball module.
- All workstations can be dimmed in unison from a single control point.

Save Cost
- The vessel can be sailed with fewer bridge personnel.
- ECDIS route optimization and INS track control can shorten sailing distances by optimizing rudder movement and lessening off-track inefficiencies, thereby bringing about considerable reductions in fuel consumption.
- INS standardized hardware lessens the onus of spare parts management.
- INS standardized software ameliorates the upgrading of applications programs.
- Hi-Cloud remote equipment checkup and troubleshooting means smarter servicing. Solutions are identified better and sooner.
- Simplify Cabling.

BENEFIT
- Improve Safety
  - Data values are scrutinized by the INS for validity and plausibility.
  - A consistent common reference system (CCRS) intrinsic to the INS eliminates non-coherence in datums owing to the non-identical positions of antennas, transducers and other sensors.
  - Thresholds for INS monitoring and alerting raise the bridge team’s awareness of own ship’s position with respect to other sensors.
  - The redundancy gained from multi-function displays lowers the likelihood of losing radar detection and electronic charting from failure of a single monitor.
  - Blending radar, ECDIS and AIS onto a single presentation makes it easier and quicker for the officer to interpret the information from these three crucial navigation systems.
  - Centralized alert management alleviates the problem of “alarm proliferation.”
- Increase Efficiency
  - Each workstation provides multitasking capabilities.
  - All workstations use consistent data and reduce data error.
  - Data shared between each workstations and tasks.
  - Track control system make ship sailing in the planned route accurately.
  - To show the detail status of the vessel and equipments anytime and anywhere, improve the efficiency of management.

INTEGRATED NAVIGATION SYSTEM
- Safety • Efficiency • Easy operation • Lower costs
"Hi-Cloud" remote access facility enables ship data to be seen and utilized ashore for fleet management and technical servicing.

"Hi-Cloud" as a fleet management tool typically consists of a large-screen electronic chart system ashore where all ships in a fleet are shown in their current geographic positions. All ship's data is displayed with a mere click on the vessel. Either fixed or mobile computing devices can be used to connect with the vessel via "Hi-Cloud". The benefit is a quite powerful accessing of all the ship's data that passes through the INS: equipment health, navigational data, weather conditions and navigational alerts can all be accessed. Ship's equipment can be diagnosed for proper operation and troubleshooting.

"Hi-Cloud" remote access is a splendid tool for technical service providers, enabling them to get ahead of information from within shipboard systems about their well-being and thereby suggest appropriate corrective measures and, if need be, dispatch spare parts and service engineers to the best choice port of call.

Hi-Cloud provides real-time status of navigation data. Standard Conning interface, providing GPS, heading, depth, rudder angle, steering rate, wind speed and direction, trim and rolling and other information. Graphical user interface intuitive and visual, easy to use.

Integrative Navigation System

Safety • Efficiency • Easy operation • lower costs
### Optional Workstations

Individual Processor, Shared information with INS

- ECDIS
- Radar
- Conning

### System Overview

#### S-Band Radar System and Multifunction workstation
- 12ft. S-Band Antenna: 1 HLD-AT112
- Transceiver Unit: 1 HLD-TU112
- Power Supply Unit: 1 HLD-PCU600
- Display Unit: 1 HLD-DU112/133/134/135
- Main Control Unit: 1 HLD-MCU600/200
- Human Interface Unit: 1 HLD-IU600
- UPS (Option): 1

#### ECDIS System and Multifunction workstation
- Power Supply Unit: 1 HLD-PCU600
- Display Unit: 1
- Main Control Unit: 1 HLD-MCU600/200
- Human Interface Unit: 1 HLD-IU600
- UPS: 1

#### Steering Control System
- Follow Up Unit (Dual Channel): 1 HLD-FU200
- Non-Follow Up Unit (Dual Channel): 1 HLD-NFU/200
- Steering Mode Switch: 1 HLD-SW200
- Alarm Display Unit: 1 HLD-AD600
- Steering Control Unit: 1 HLD-SCU600

#### Other Components
- LAN Switch: 2 HLD-LS600
- Signal Conversion Unit: 1 HLD-SCU600

#### X-Band Radar System and Multifunction workstation
- 6/8ft. X-Band Antenna: 1 HLD-AT106/108
- Transceiver Unit: 1 HLD-TU110/125
- Power Supply Unit: 1 HLD-PCU600
- Display Unit: 1 HLD-DU112/133/134/135
- Main Control Unit: 1 HLD-MCU600/200
- Human Interface Unit: 1 HLD-IU600
- UPS (Option): 1

#### Conning & Alert Management System and Multifunction workstation
- Power Supply Unit: 1 HLD-PCU600
- Display Unit: 1 HLD-DU112/133/134/135
- Main Control Unit (Monitor): 1 HLD-MCU600/200
- Human Interface Unit: 1 HLD-IU600
- UPS (Option): 1

#### Steering Compass Repeater
- 1 HLD-RF200

#### Steering Console
- 1 HLD-ST200

#### Rudder angle feedback Unit
- 1 HLD-RF600

#### Automation Control Unit
- 1 HLD-ACU600

#### Relay
- 2 HLD-RE200

### World-Wide Service Network

With more than 80 service partners covering more than 30 countries worldwide such as USA, France, Russia, Belgium, Spain, Canada, Brazil, India, Korea and Singapore, Highlander is able to provide professional and prompt service to the customers. The service philosophy places the customers’ interests in the highest priority.

[Map Illustration]

- Safety
- Efficiency
- Easy operation
- Lower costs