

INS⁺

HLD-INS 600



INTEGRATED NAVIGATION SYSTEM





OVERVIEW

The Highlander Intelligent Bridge integrated navigation system (HLD-INS 600) is the second-generation INS from Highlander. HLD-INS 600 is the first integrated navigation system in China that has passed type approval tests from both CCS and DNV-GL, fully meeting the requirements of IMO MSC.252(83) and IEC 61924-2. HLD-INS 600 is composed of multifunction workstations that can be easily configured according to each customer's individual requirements – from radar or ECDIS up to a fully integrated multifunctional workstation providing data, features and functions. Each workstation supports route planning, route monitoring, collision avoidance, navigational control data display, status display, and alert management. HLD-INS 600 seamlessly integrates sensors for heading, position, target detection, and other safety-related data. Its consistent user interface design provides convenient operation to reduce sailor workload and stress, enabling more efficient task execution.

BENEFIT

Improve Safety

- Safe decision making and precision navigation by providing reliable and validated information.
- CCRS (Consistent Common Reference System) checks all sensor data, selects the best data, and transfers it to all modules in the system via LAN to make sure all modules use the same data.
- CAM, which aims at minimizing the total number of alerts, supplies the presentation and handling of all alerts to avoid misunderstanding due to complex alert information.
- The overlay of RADAR, AIS, weather data and NAVTEX enhances the safety.
- The redundancy of multifunctional workstations reduces the influence of failure of a single RADAR, or single ECDIS, or single point.

Increase of efficiency

- The system simplifies the operation of routine tasks to reduce workload and stress and increase efficiency.
- The multifunctional workstation allows users to perform many tasks on one workstation – for example, viewing and checking all navigational data and alert information, adjusting luminance – which saves time.
- All workstations use the same data, which makes use of data convenient and increases efficiency.
- CAM supplies a consolidated presentation of all alerts to reduce the time required for judgment.
- Track control keeps the ship sailing on the route to release sailors from frequent rudder adjustment, reducing workload and stress.
- The consistent user interface design makes operation convenient and shortens the learning curve.

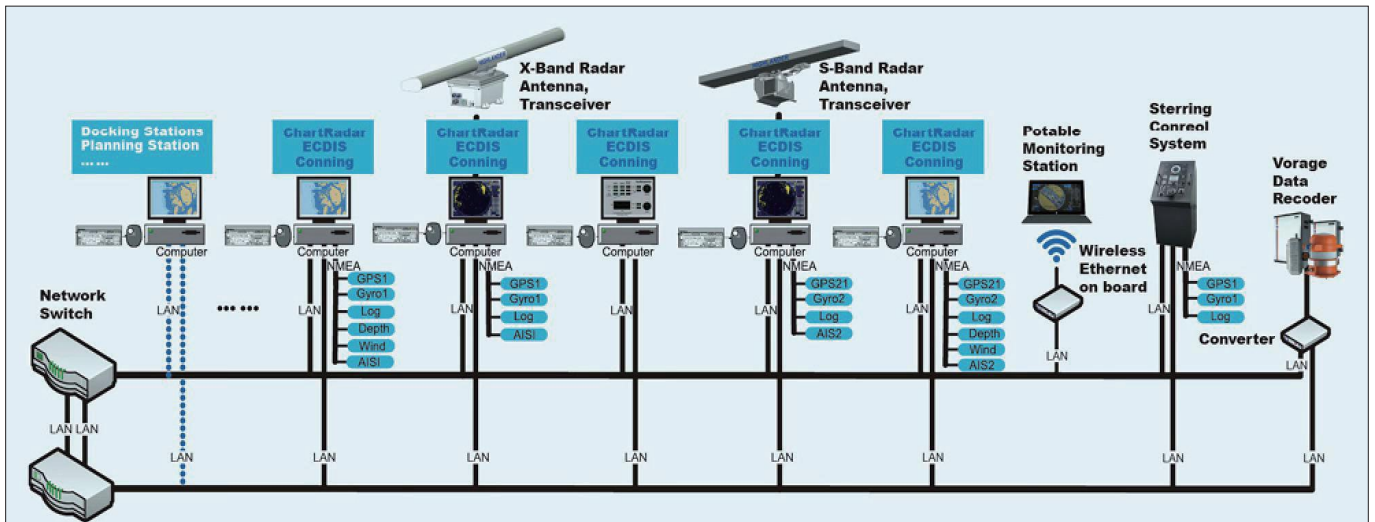
System customized

- HLD-INS 600 is designed based on several standard hardware modules and a consistent user interface design. All data, including RADAR echo, are collected, analyzed, and transmitted via LAN. This enables flexible system configuration according to each customer's individual requirements, including budget. Based on redundancy, the minimum of three workstations is required to supply tasks of route planning, route monitoring, collision avoidance, navigational control data display, status display, and alert management.

SYSTEM COMPONENTS & DESCRIPTION

Stable system architecture

HLD-INS 600 is based on dual-redundant Gigabit Ethernet. All workstations use identical hardware and software. The main control computer is an ultra-compact, fanless industrial computer equipped with solid-state drives. The display unit is a marine industrial display, meeting requirements of IEC 60945, with stable performance and long service life.



INS System Architecture Diagram

Multifunctional Workstations

Each workstation is a multifunctional workstation which supplies tasks of route planning, route monitoring, collision avoidance, navigational control data, status and data display, and alert management.



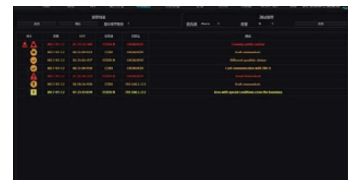
CCRS

CCRS checks the validity, plausibility, latency, and integrity of all sensor data, refers to the consistent common reference point based on the shape of the vessel, and transmits the analyzed data to all modules via LAN to ensure data consistency.



CAM

CAM supplies the presentation and handling of all alerts, based on the priority, category, and timestamp of each alert. This helps operators handle the alerts according to their level of urgency.



OPTIONAL WORKSTATIONS

Individual Processor, Shared information with INS



SYSTEM OVERVIEW

S-Band Radar System and Multifunction workstation	X-Band Radar System and Multifunction workstation
<ul style="list-style-type: none"> ● 12 ft. S-Band Antenna 1 HLD-AT112 ● Transceiver Unit 1 HLD-TU130 ● Power Supply Unit 1 HLD-PCU600 ● Display Unit 1 HLD-DU162/163/165/138/134 ● Main Control Unit 1 HLD-MCU770 ● Human Interface Unit 1 HLD-IU600 ● UPS(Optional) 1 	<ul style="list-style-type: none"> ● 6/8 ft.X-Band Antenna 1 HLD-AT106/108 ● Transceiver Unit 1 HLD-TU110/125 ● Power Supply Unit 1 HLD-PCU600 ● Display Unit 1 HLD-DU162/163/165/138/134 ● Main Control Unit 1 HLD-MCU770 ● Human Interface Unit 1 HLD-IU600 ● UPS(Option) 1
ECDIS System and Multifunction workstation	Conning & Alert Management System and Multifunction workstation
<ul style="list-style-type: none"> ● Power Supply Unit 1 HLD-PCU600 ● Display Unit 1 HLD-DU162/163/165/138/134 ● Main Control Unit 1 HLD-MCU770 ● Human Interface Unit 1 HLD-IU600 ● UPS 1 	<ul style="list-style-type: none"> ● Power Supply Unit 1 HLD-PCU600 ● Display Unit 1 HLD-DU162/163/165/138/134 ● Main Control Unit(Monitor) 1 HLD-MCU770 ● Human Interface Unit 1 HLD-IU600 ● UPS(Optional) 1
Steering Control System	
<ul style="list-style-type: none"> ● Follow-Up Unit(Dual Channel) 1 HLD-FU200 ● Non-Follow-Up Unit(Dual Channel) 1 HLD-NFUV200 ● Steering Mode Switch 1 HLD-SW200 ● Alarm Display Unit 1 HLD-ADU600 ● Steering Control Unit 1 HLD-SCU600 	<ul style="list-style-type: none"> ● Steering Compass Repeater 1 HLD-RP200 ● Steering Console 1 HLD-ST200 ● Rudder angle feedback Unit 1 HLD-RF600 ● Automation Control Unit 1 HLD-ACU600 ● Relay 2 HLD-RE200
Other Components	
<ul style="list-style-type: none"> ● LAN Switch 2 HLD-LS600 ● Signal Conversion Unit 1 HLD-SCU600 	

WORLD-WIDE SERVICE NETWORK

With more than 170 service partners covering over 40 countries worldwide – including the USA, France, Russia, Belgium, Spain, Canada, Brazil, India, Korea, and Singapore – Highlander is able to provide professional and prompt service to its customers. Our service philosophy places the highest priority on customers' interests.





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