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HLD-SC 600/HLD-TCS 600

STEERING CONTROL SYSTEM



HLD-SC 600 Steering Control System is based on years of intensive research & development by Beijing Highlander Digital Technology Co., Ltd. The latest generation digital steering control system has been type approved by China Classification Society (CCS) and DNV GL. HLD-TCS 600 adopts advanced online ship-model identification and dynamic parameter tuning technology, delivering high control precision with fewer rudder movements. This effectively reduces fuel consumption and wear on the steering gear, thereby lowering the vessel's operating costs.

Features

■ Wide range of applications

- Modular design: all modules are of a standard size or a multiple of the standard size. Different module combinations can be configured to support different system types, such as single-rudder and dual-rudder systems, hydraulic steering gear systems, torque-motor steering gear systems, and proportional-valve steering gears.
- Autopilot module available separately.
- Steering Gear Pump Starter, Steering Gear Alarm, and NFU Control Box are provided separately.
- Suitable for container ships, government/utility vessels, large bulk carriers, offshore engineering vessels, small fishing vessels, etc.

■ High reliability

Online self-monitoring technology detects system abnormalities at any time. Strict channel isolation technology ensures that each channel is electrically independent and fully isolated from other channels.

■ High control accuracy & energy efficiency

Advanced control algorithms ensure follow-up control accuracy of less than 0.3° , and better than 0.3° in Sea State 3 under automatic control mode; they also reduce steering frequency, avoid large rudder angles, save fuel, and reduce wear and tear on the steering system.

■ Friendly interface

Full-color 7-inch touch screen with both touch and button operation modes.

■ All-digital design

All-digital interfaces (IEC 61162-1), including the interface with the VDR; supports two heading source inputs.

■ Easy installation and maintenance

Original calibrated correction technology, simplifies Rudder Feedback Unit connecting rod installation.

■ Intelligent alarm system

100 records of historical alarms, each accompanied by a fault-recovery guide.

■ Multiple automatic control functions

Supports heading, course, and track control.

■ Big data logging

The system records 2 hours of heading and rudder-angle data, helping the crew review and improve their steering habits.

■ Remote maintenance

Maintainable remotely together with HLD-VDR 600.



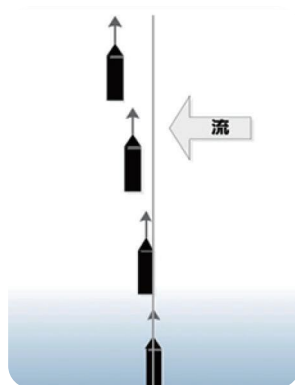
Functions

Functions	Characteristics
Non-Follow-up steering Control	The Non-Follow-up Unit is equipped with a robust, imported control handle that provides a quality tactile feel.
Follow-up steering Control	The follow-up wheel provides one detent per degree, and the dial scale near zero is specially enlarged for precise steering.
Override	Supports directly operating the NFU handle to override automatic steering control.
Automatic steering Control	Support the heading control, course control, track control.
Remote Control	Multiple remote control stations can be selected by the Remote Control Link Unit.

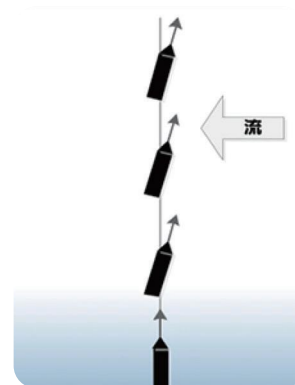


Automatic Control Unit Display

Heading & Course-to-steer Control



Heading control



Course control

Technical parameters

Power input	● 220/380/440VAC24V ● DC(18~36V DC)	Signal Output	● To the steering engine Contact output (110 V DC, 0.5 A; 24 V DC, 2.0 A) Voltage output (±10 V DC, max. 5 mA) ● To the VDR NMEA sentences: HTD, RSA, ALR ● Alarm output Off-heading alarm, compass difference alarm, follow-up amplifying system failure alarm, auto control failure alarm, low-speed alarm, rudder angle limit alarm, steering gear alarm (optional) ● Status output Handle activated status, handwheel activated status, override status, current heading, set heading, current heading source, current steering mode, current speed, current rate of turn (ROT), current rudder order, rudder angle, rudder angle limit, and system status information
Consumption	40W		
Temperature	● Working -15°C~55°C ● Storage -25°C ~70°C		
Signal input	● NMEA sentences (HDT, THS) ● Magnetic compass NMEA, HDT, HDG ● Speed Log NMEA, VTG, VHW, VBW	Regulations	● IEC 62288 ● A.342(IX) A.694(17), MSC.64(67)Annex 3 ● CCS 《Rules for Classification of Steel Ships》 ● SC-94
Regulations	● ISO 11674 ● EN/IEC 62065 ● EN/IEC 61162-1 ● EN/IEC 60945 ● ISO 16329 ● IEC61174		

HLD-TCS 600 Track Control System

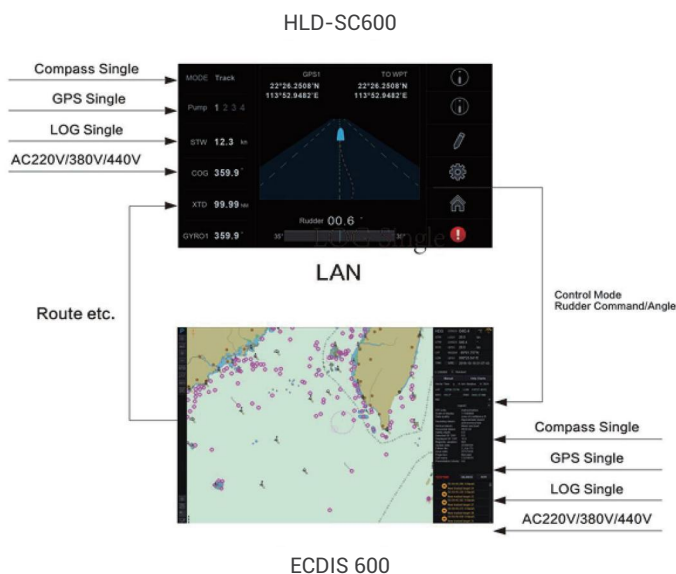
- ECDIS: HLD-ECDIS 600
- Steering Control System: HLD-SC 600

Functions

- The system provides rhumb-line and great-circle sailing modes; the great-circle mode allows ocean-going vessels to sail the shortest route on Earth.
- The system provides a route-checking function, validating the rationality, safety, and manoeuvrability of the user-planned route before execution.
- The system provides an assisted-turning function, enabling the vessel to automatically transition smoothly to the next leg according to the user-configured turning process.

Track control system performance

- Control performance: the cross-track error is less than 0.1nm under the 3rd sea state.



Product Configuration

Standard

Manual steering system

● Steering Mode Switch	HLD-SW200
● Follow-up Unit	HLD-FU200
● Non-Follow-up Unit	HLD-NFUV200
● Rudder Feedback Unit	HLD-RFU600
● Steering Control Unit	HLD-SCU600

Alarm System

● Alarm Display Unit	HLD-ADU600
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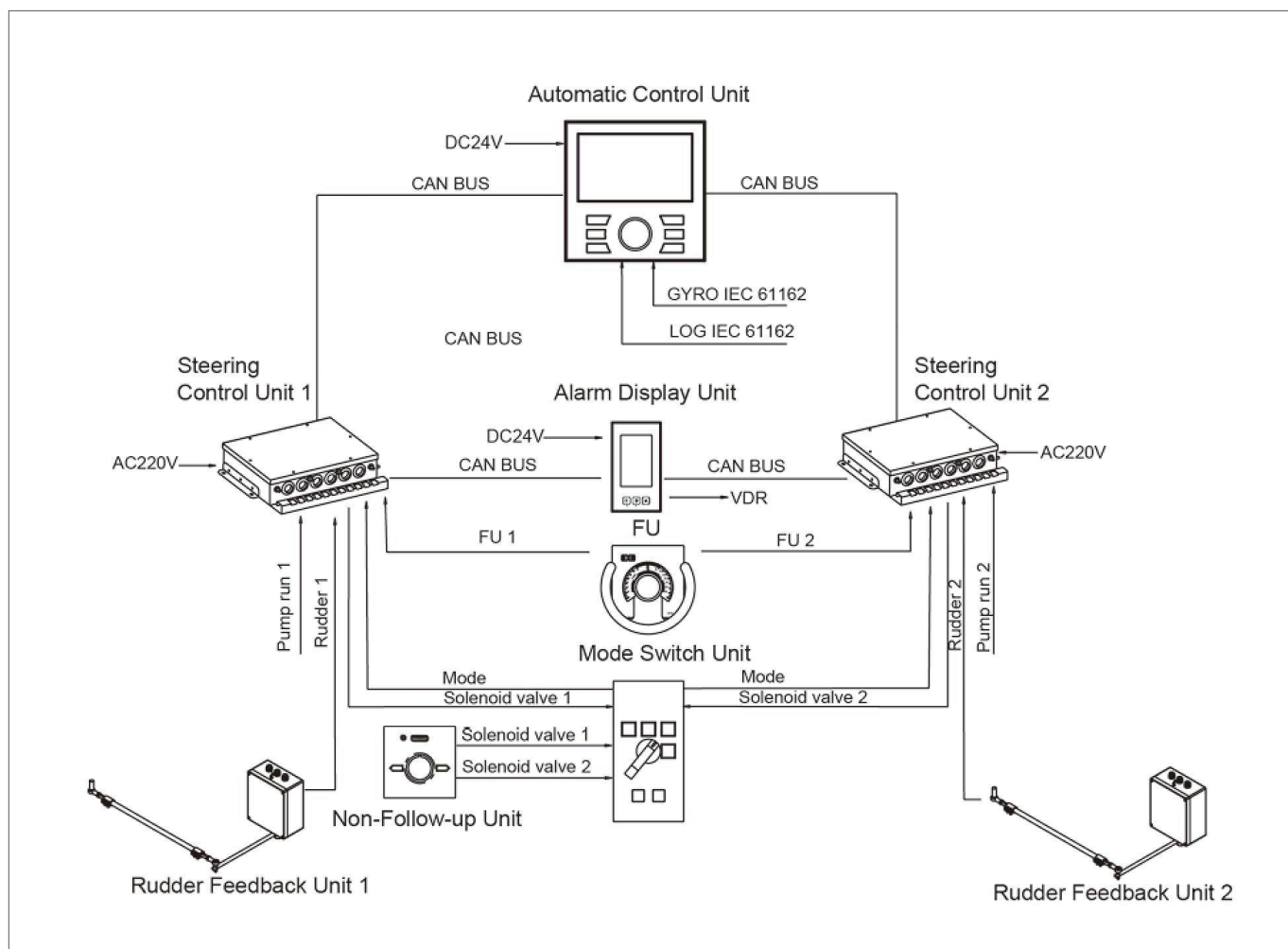
Automatic Steering System

● Automatic Control Unit	HLD-ACU600
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Optional

● Relay	HLD-RE200
● Rudder Pump System Switch	HLD-RPS200
● Compass Repeater	HLD-RP200
● External Steering Interface Unit	HLD-ESIU600
● Remote Control Link Unit	HLD-RRU600
● Compact Follow-up Unit	HLD-MFU600
● Steering Gear Starter	HLD-SST600
● Steering Gear Alarm & NFU Control Box	HLD-SAC600
● Steering Alarm Display Unit	HLD-SADU600
● Steering Console	HLD-ST200
● Bridge-wing NFU Handle	HLD-NFU200
● Servo Control Box	HLD-SCU600-MDW

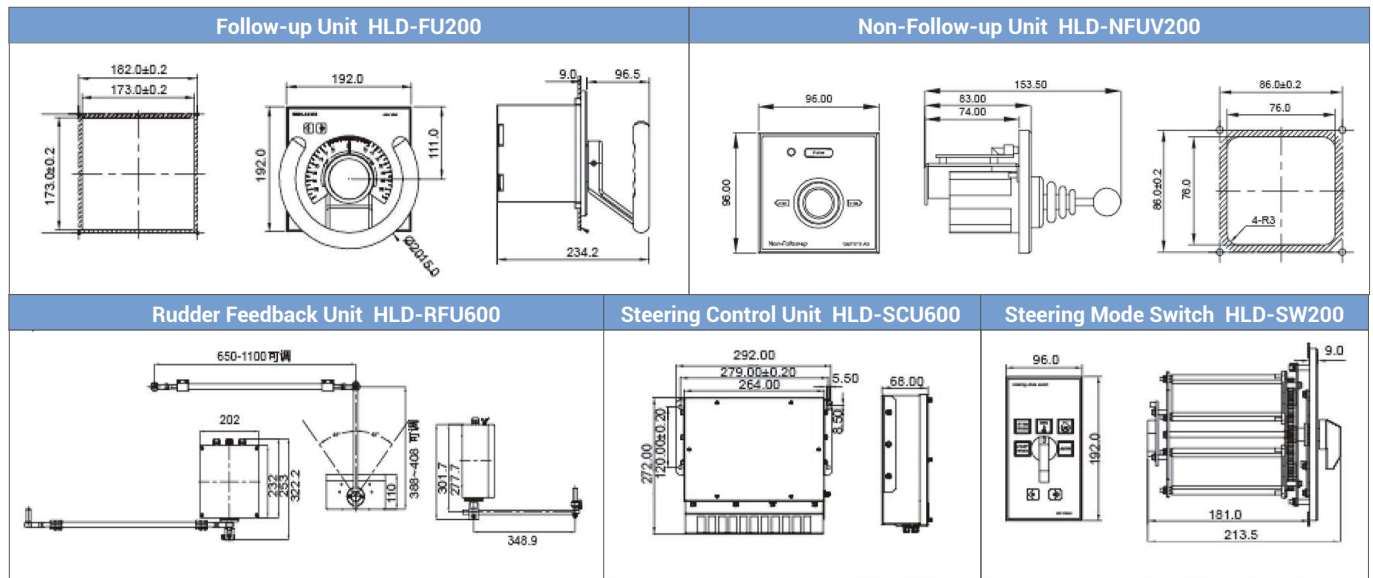
Typical Configuration



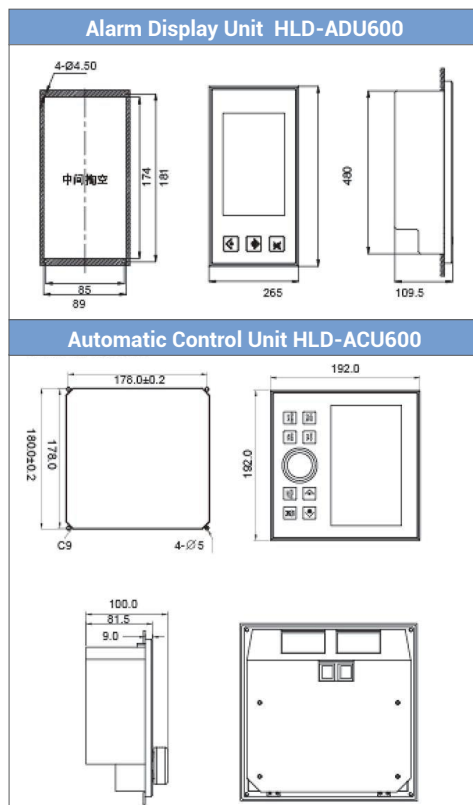
HLD-SC 600 Steering Control System

Dimensional Drawings

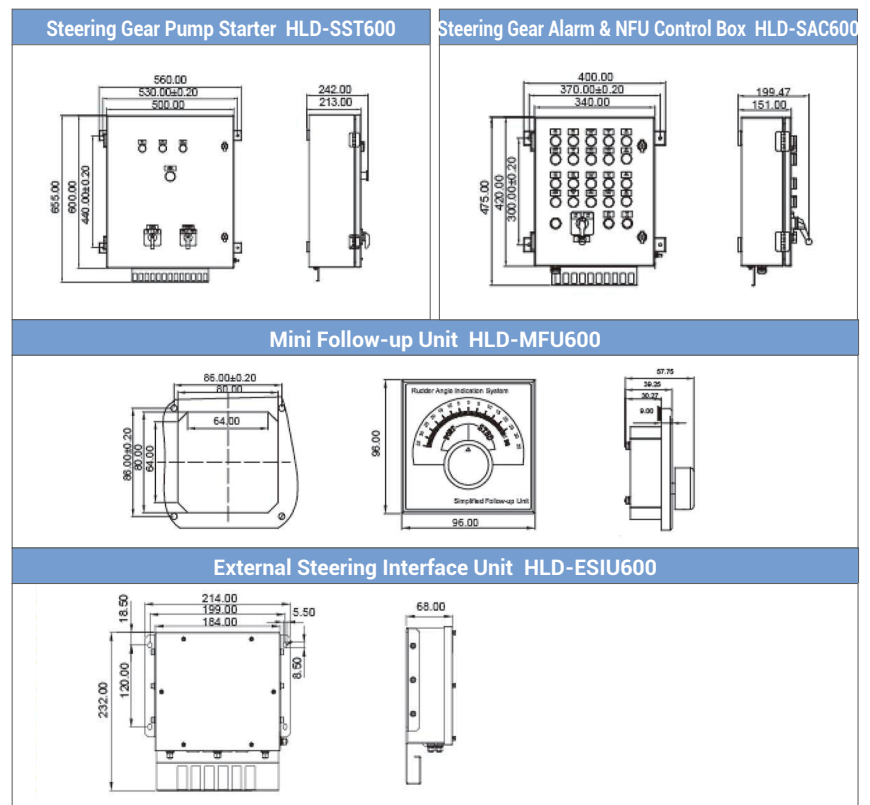
Manual System



■ Alarm & Automatic Control



■ Optional Components



24 Hours
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