

## Navigation Assistant Management System

### ▶ Overview

Navigation lights, signal lights, window heating, wiper, fog horn, outdoor lights are the eyes and assistants of the ship during navigation. These equipment platforms are installed on the control console of the cab, which is not convenient for the crew to operate, but also occupies the space of the control table, and can not keep up with the requirements of one man bridge and intelligent ship.

Navigation Assistant Management System is an intelligent system which integrates all kinds of navigation assistant equipment monitoring, with high integration and centralized control, greatly improving the space utilization of the driving console. The crew can manage and control the auxiliary equipment through the centralized touch screen, which effectively improves the crew's operation comfort and provides information basis for the intelligent design of the whole ship.

### ▶ System architecture

The navigation assistant management system is mainly composed of a monitoring touch screen installed in the driving console, a navigation signal controller, a window heating controller, a fog horn controller and an outdoor light controller.

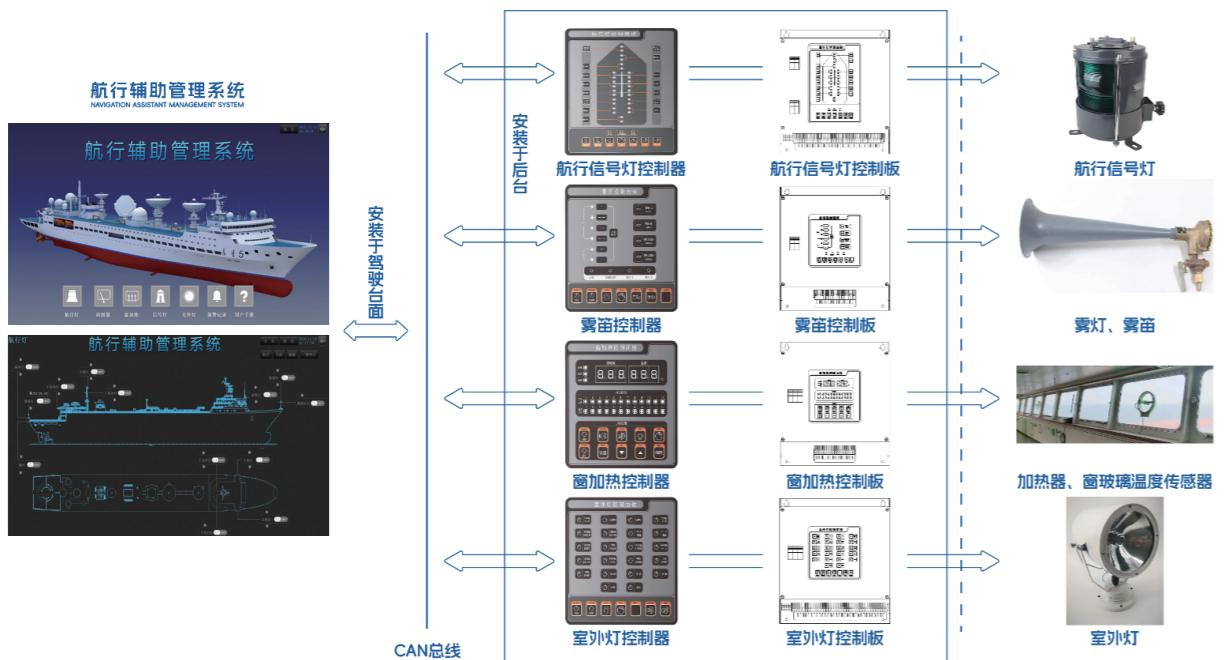


Figure 1 system composition block diagram

### ▶ Product features

- High system integration;
- Modular configuration is easy to expand;
- Provide rich external interfaces (serial port, network, can, etc.);

### ▶ Product function

- It can be flexibly combined on the monitoring touch screen of the driving console for centralized control; it can also be controlled by each controller separately;
- Support local and remote brightness adjustment, 256 level dimming;
- It has three display mode switching functions of day, evening and night, which can meet different navigation conditions;

### ▶ Product technical parameters

- System Indicators
- Data refresh time: ≤1S;
- Operation response time: ≤500ms;
- Monitoring touch screen

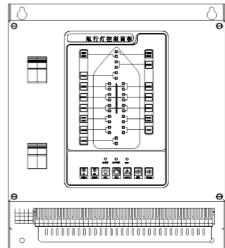


- Working voltage: DC24V±20%;
- Processor frequency: cortex-a9 1.0ghz;
- Memory capacity: 1G;
- Maximum resolution: 1024×600;
- Power consumption: ≤25W;
- Ethernet communication: 1 channel, 10 / 100Base-T / TX adaptive;
- Can communication: 2 channels, CAN2.0B protocol;
- RS485 communication: 1 channel;
- Installation mode: embedded;
- dimension (length × width × thickness): 292mm × 194mm × 53mm;
- Protection grade: IP20;

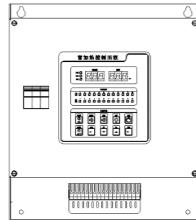
- Safe and reliable
- Software and hardware control redundancy;

- Provide VDR, ship network system and other external information output interface;
- It has the functions of system self-test, alarm and parameter setting;

- Navigation signal light controller



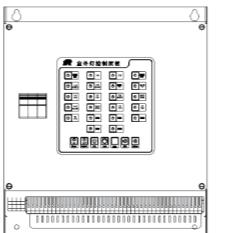
- Working voltage: main power supply AC 220 V ± 10% 50 Hz; Standby power supply AC 220V± 10% 50 Hz;
- Number of output channels: according to 18 channel configuration;
- RS485 communication: 1 channel, meeting IEC61162 specification;
- Can communication: 1 channel, CAN2.0B protocol;
- Power consumption: ≤40W;
- Control power: 100W / channel;
- Installation mode: wall mounted;
- Overall dimension (length × width × thickness): 400mm × 450mm×137mm;
- Protection grade: IP20;

**■ Fog horn controller**


- Working voltage: main power supply AC 220V ± 10% 50 Hz;
- Output control: fog lamp active AC220V / 5A one channel; Fog whistle solenoid valve dc220v / 0.5A two- channels; og whistle heater AC220V / 5A two channels;
- Can communication: 1 channel, CAN2.0B protocol;
- Power consumption: ≤10W;
- External interface: remote control button, Mohs lamp key, Mohs lamp, general alarm;
- Installation mode: wall mounted;
- Overall dimension (length × width × thickness): 400mm × 450mm × 137mm;
- Protection grade: IP20;

**■ Outdoor light controller**

- Working voltage: main power supply AC 220V ± 10% 50 Hz;
- Control power: 500W / channel, 20 channels in total
- Can communication: 1 channel, CAN2.0B protocol;
- Power consumption: ≤10W;
- Installation mode: wall mounted;
- dimension (length × width × thickness): 400mm × 450mm × 137mm;
- Protection grade: IP20;

**■ Window heating controller**


- Working voltage: main power supply AC 220V ± 10% 50 Hz;
- Input signal: PT100 thermistor (2-wire / 3-wire system);
- Control power: according to the actual use configuration, according to CB / T 3226-1995 standard;
- Output channels: 12 channels;
- Display mode: fixed point / patrol;
- Automatic control: ≤ 20 °C heating (settable); Stop heating when ≥ 40 °C (settable); Over temperature alarm when ≥ 50 °C (settable)
- Can communication: 1 channel, CAN2.0B protocol;
- Power consumption: ≤10W;
- Installation mode: wall mounted;
- Overall dimension (length × width × thickness): 400mm × 450mm × 137mm;
- Protection grade: IP20;

## ▶ Overall dimensions

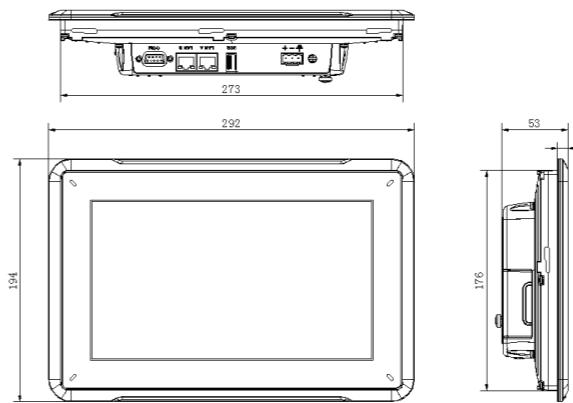


Figure 2 monitoring touch screen

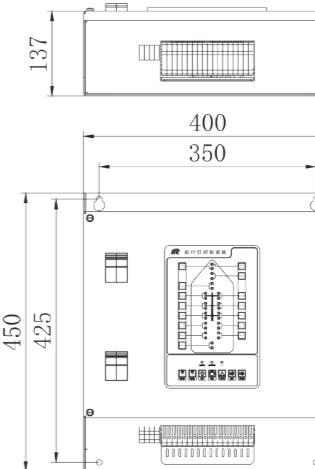


Figure 3 navigation signal light control equipment

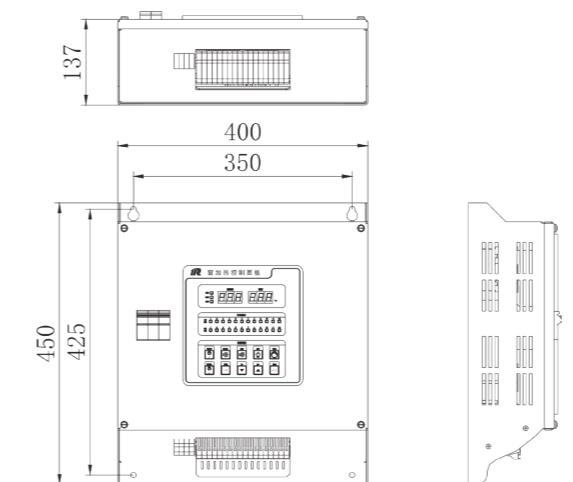
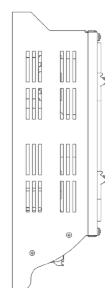


Figure 4 window heating control equipment

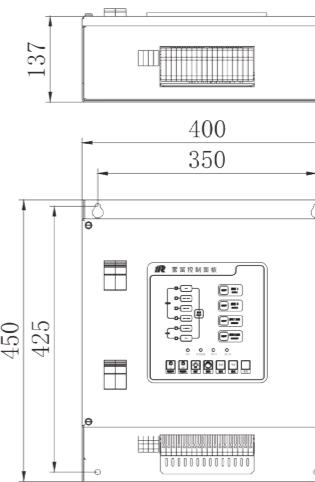


Figure 5 fog horn control equipment

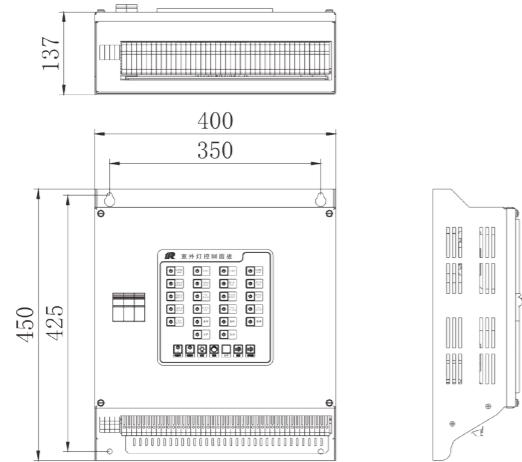


Figure 6 outdoor lamp control equipment

## ► Description of model selection

Serial number	Name	Model and specification	Number	Remark
1	Motor centralized monitoring box	GR-HXFZ	1套 One Set	Including navigation aids controller

## ► software interface

