

# XINUO



## XA-198

### Class A Shipborne Equipment Of Automatic Identification System

Quick Reference V1.2

## INTRODUCTION:

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**NOTES:** The equipment is not used for navigating directly.

When use the device, please refer to other available navigation sources, including the information from other navigation aids and actual sea conditions, such as: official chart, visual sightings, radar, tides, hydrology, weather and so on.

## NOTES:

【 】 : Menu title, such as 【Main Menu】 means the basis menu called by the system.

⌂ : The symbol on the Keyboard buttons, such as ⌂Menu⌂ means the menu button on the keyboard.

This manual applies to the following models:

☐ XA-198

## CAUTIONS

Before turn on the equipment, please be sure to read the following cautions to avoid product failure caused by inappropriate operation.

1. Avoid fall down cases damage the product, firmly install your product is necessary.
2. Do not use this product with any other power adapters or the navigator may not work properly; its performance will be affected or even the equipment will be damage because of the different circuit designs. The voltage requirement for this product is DC 18-36V. Do not exceed this voltage range.
3. Do not disassemble the equipment by any means or no warranty will be extended.
4. When in use or cleaning, be sure to avoid any liquid or other objects falling into the equipment, or this might cause damage or short circuit.
5. Do not place the equipment and its accessories in a damp environment or the direct sunlight. Keep the machine in a dry environment.
6. Power supply should be grounded to avoid static and lightning. If not in use, please turn off the system.
7. If the equipment cannot position for a long time, check the following: Whether the antenna is installed properly; the connection; any forms of interference around the antenna. GNSS antenna is active antenna, Before the starting of the AIS system, make sure that the antenna cable joints are intact; there is no short-circuit or open circuit; and follow the correct procedure. During the start-up stage, do not arbitrarily remove the antenna in order to avoid damages to the equipment.
8. When external temperature is too high, the equipment may not function properly, stop using the equipment.
9. Avoid direct sunlight to the LCD screen. You can adjust the angle of the screen anytime to get the best visual effects.
10. When hardware failure occurs (e.g. power lines burned, machine damage or foreign bodies fall into the equipment, etc.), shut down the power immediately and contact with the distributor immediately.
11. Virtually, all data sources contain some inaccurate or incomplete data, the data only for your reference and we cannot guarantee any accident, minor injury or properly damage. All legal responsibility and other obligation will not be taken by XINUO.

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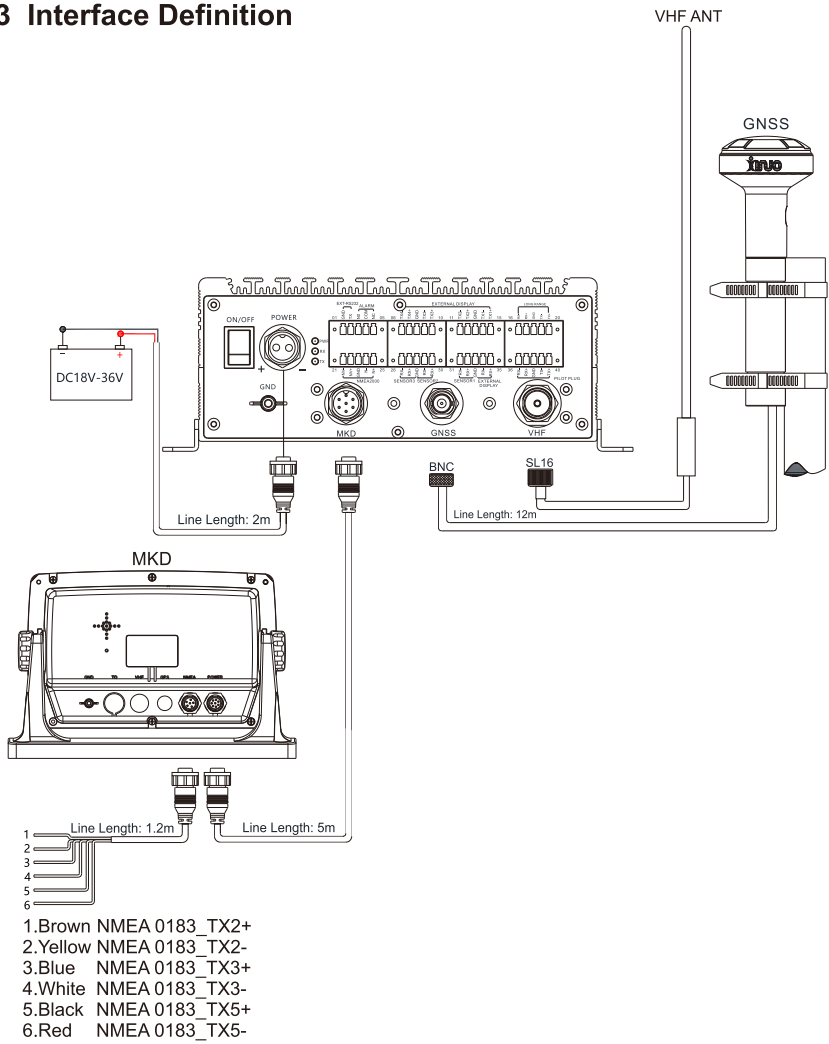
## 1 Product introduction

This product is class A shipborne equipment of automatic identification system, comprising two parts: the host and the display unit. This product is subject to approval by CCS. It has abundant interface design and can easily communicate with electronic charts, radar and other marine electronic equipment. Furthermore, it has comprehensive AIS functions such as sending and receiving messages, intelligent voice alarm, real-time collision avoidance information and so on.

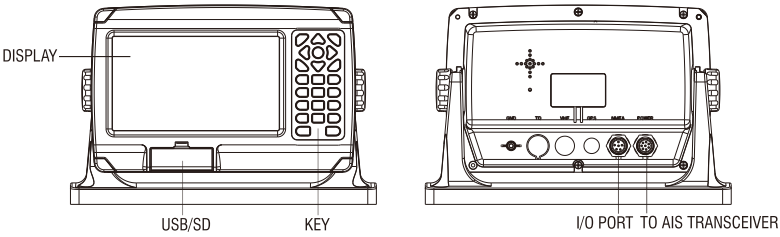
## 2 Standard Configuration

No	Name of Item	Spec	Quantity
1	Host Machine		1
2	Display (MKD)		1
3	GNSS Antenna	GP80-12M	1
4	Z108 Power Cable	Z108-2C-2M	1
5	6C-Data Cable	GX16-6C-1.2M	1
6	Oblate Self-tapping Tail Screw	TA4.8*20	4
7	Oblate Self-tapping Tail Screw	TA3*20	4
8	Plug-in Connector Head	JK2EDGIK-381-5P	8
9	M8 Knob	Black logo, M8*33	2
10	8C-Data Cable	GX16-8C-5M	1
11	Big Rubber Gasket	30*8.2*2.5	2
12	Product Quick Reference	XA-198	1
13	7 Inch Bracket		1

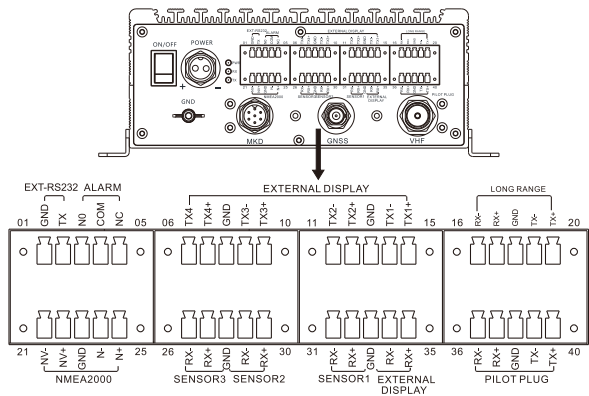
3 Interface Definition



3.1 Display (MKD) Interface Definition



3.2 Host Interface Definition



- AIS signal lamp: display AIS TX/RX signal status.
- Main unit internal interfaces are as follow.

NO.	Data Interface	Definition	Explanation	Function
01	RS-232 EXT-RS232	GND	GROUND WIRE	Connect with computer, level RS232
02		TX+	EXTERNAL DISPLAY OUTPUT TX+	
03	ALARM	NO	ALARM NO NORMAL OPEN	Connect with alarm
04		COM	ALARM COM COMMON TERMINAL	
05		NC	ALARM NC NORMAL CLOSE	
06	EXTERNAL DISPLAY	TX4-	EXTERNAL DISPLAY OUTPUT TX-	Total four outputs, the interface connect with data in/out of the ECS, ECDIS, Radar ect. Level RS-422.
07		TX4+	EXTERNAL DISPLAY OUTPUT TX+	
08		GND	GROUND WIRE	
09		TX3-	EXTERNAL DISPLAY OUTPUT TX-	
10		TX3+	EXTERNAL DISPLAY OUTPUT TX+	
11		TX2-	EXTERNAL DISPLAY OUTPUT TX-	
12		TX2+	EXTERNAL DISPLAY OUTPUT TX+	
13		GND	GROUND WIRE	
14		TX1-	EXTERNAL DISPLAY OUTPUT TX-	
15		TX1+	EXTERNAL DISPLAY OUTPUT TX+	

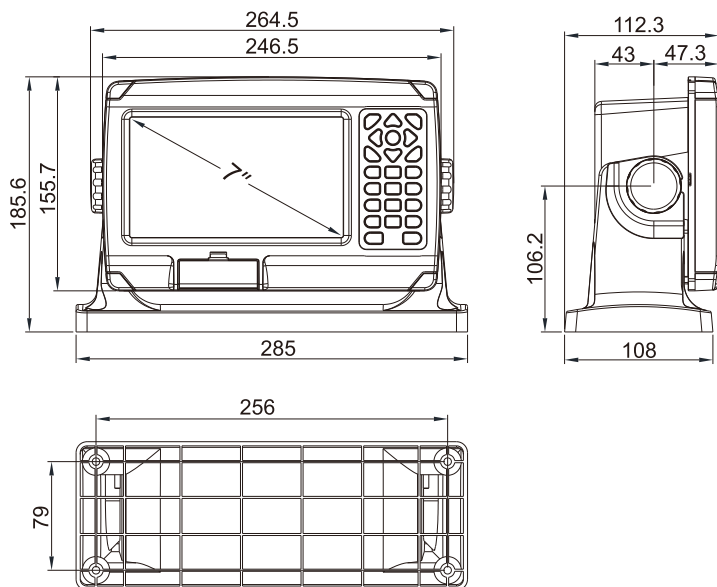
NO.	Data Interface	Definition	Explanation	Function
16	LONG RANGE INPUT	RX-	LONG RANGE INPUT RX-	Level RS-422
17		RX+	LONG RANGE INPUT RX+	
18		GND	GROUND WIRE	
19	LONG RANGE OUTPUT	TX-	LONG RANGE OUTPUT TX-	
20		TX+	LONG RANGE OUTPUT TX+	
21	NMEA2000	NVCC-	NMEA 2000 VCC-	Support connection the equipment of NMEA2000 signal.
22		NVCC+	NMEA 2000 VCC+	
23		GND	NMEA 2000 GND	
24		N-	NMEA 2000 -	
25		N+	NMEA2000 +	
26	SENSOR3	RX-	SENSOR3 INPUT RX-	Input rotting (ROT) signal, level RS-422
27		RX+	SENSOR3 INPUT RX+	
28		GND	GROUND WIRE	
29	SENSOR2	RX-	SENSOR2 INPUT RX-	Input heading (HDT) signal, level RS-422
30		RX+	SENSOR2 INPUT RX+	
31	SENSOR1	RX-	SENSOR1 INPUT RX-	Input GNSS signal, level RS-422
32		RX+	SENSOR1 INPUT RX+	
33		GND	EXTERNAL DISPLAY OUTPUT GROUND WIRE	
34	EXTERNAL DISPLAY INPUT	RX-	EXTERNAL DISPLAY INPUT RX-	The interface connects with data in/out of ECS, ECDIS, Radar ect. Level RS-422.
35		RX+	EXTERNAL DISPLAY INPUT RX+	
36	PILOT PLUG INPUT	RX-	PILOG PLUG INPUT RX-	This interface connects with 9 pin 206486-1/2 connector of AMP company: RX+ is connected to pin 2; RX- is connected to pin 1; TX+ is connected to pin 6; TX- is connected to pin 5; GND is connected to pin 9, level RS-422
37		RX+	PILOG PLUG INPUT RX+	
38		GND	GROUND WIRE	
39	PILOT PLUG OUTPUT (Non Standard)	TX-	PILOG PLUG OUTPUT TX-	
40		TX+	PILOG PLUG OUTPUT TX+	



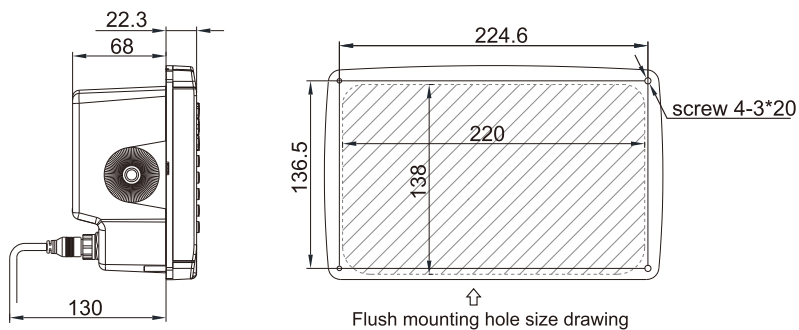
## 4 Installation

### 4.1 Display Equipment Installation Method

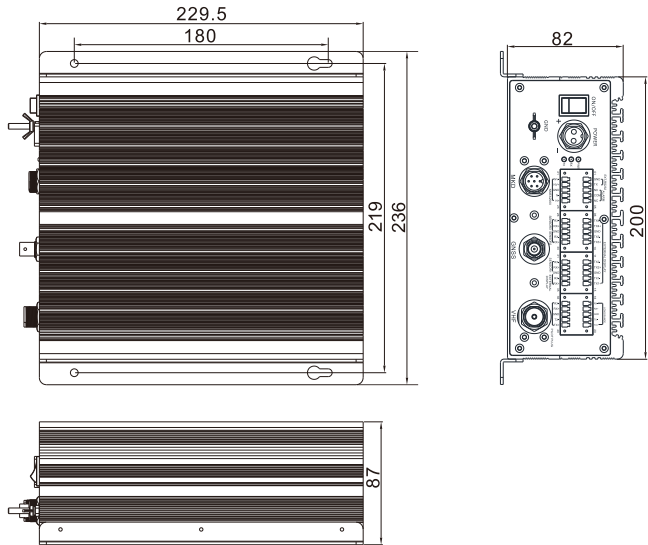
Desktop installation:



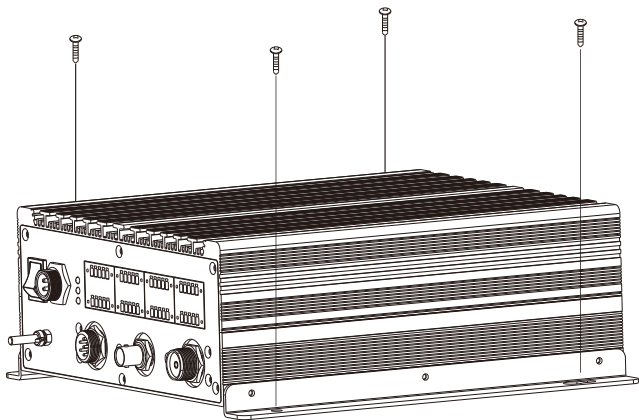
Flush Mounting:



4.2 Main Unit Installation

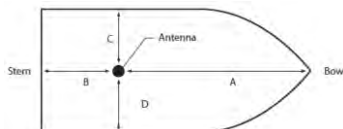


Fixed with 4 screws of 4.8×20



### 4.3 Installation of GNSS Antenna

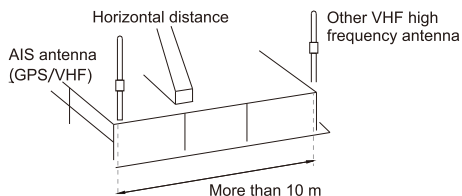
GNSS antenna should be without continuous obstacles in the level  $360^\circ$ , elevation  $5^\circ - 90^\circ$ . Apart from more than 3m from the s-band radar and INMARSAT system and other high power antenna beam. Measure A/B/C/D distance data to set up the ship's static parameter.



### 4.4 Installation of VHF Antenna

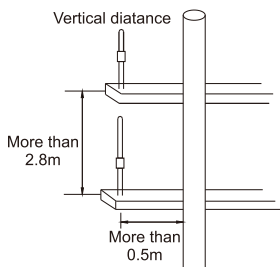
#### 4.4.1 Horizontal Installation

- [1] VHF antenna should be installed in the level  $360^\circ$  without any obstacles.
- [2] VHF antenna should be kept more than 2m away from conductor structure in horizontal position. It also should be kept more than 3m away from the transmitted beam of radar and high power source antenna.
- [3] VHF antenna should be kept more than 10m away from ship's other VHF in horizontal position, it must be in a same horizontal plane.

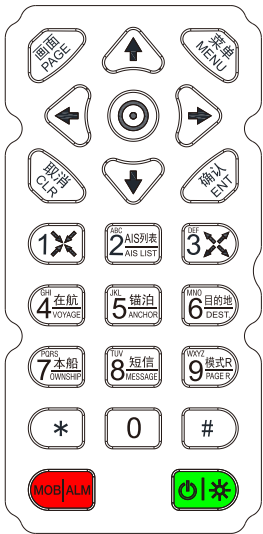









#### 4.4.2 Vertical Installation














VHF antenna must be kept more than 2m away from ship's other VHF antenna in vertical position.



5 Key Definition



No.	Key Name	Key function
1	[[PAGE]] 	Select and display three main pages of AIS page/Chart page/AIS Radar page.
2	[[MENU]] 	Enter the main menu .
3	[[ARROW]] 	Moving chart positions and menu item.
4	[[Center]] 	Center the ship to the screen.
5	[[CLR]] 	1) Quit to chart page under AIS list page; 2) In other screen or main menu list , press [[CLR]] retreat AIS list page; 3) Quit or cancel the current operation; 4) Character can be deleted when it is on the state of text input.
6	[[ENT]] 	Confirm that an operation is performed.
7	[[ZOOM OUT]] 	1) Zoom in chart scale to see a more detailed chart; 2) When editing, enter the number “1”.

No.	Key Name	Key function
8	【AIS LIST】 	1) Enter the AIS list page 2) When editing, enter the number “2” and “A,B,C”.
9	【ZOOM IN】 	1) Zoom out charts and view large-scale charts; 2) When editing, enter the number “3” and “D,E,F”.
10	【VOYAGE】 	1) When not editing, the voyage state can be quickly switched to the “in the air”; 2) When editing, you can enter the number “4” and the letters “G, H, I”.
11	【ANCHOR】 	1) When not editing, the voyage state can be quickly switched to the “anchor”; 2) When editing, you can enter the number “5” and the letters “J,K, I”.
12	【DEST.】 	1) When not editing, quick entry to the destination; 2) When editing, you can enter the number “6” and the letters “M, N, O”.
13	【OWNSHIP】 	1) When not editing, quick entry to ownship information page; 2) When editing, you can enter the number “7” and the letters “P,Q,R,S”.
14	【MESSAGE】 	1) When not editing, quick entry to AIS inbox; 2) When editing, you can enter the number “8” and the letters “T,U,V”.
15	【PAGE R】 	1) When not editing, quick entry to page R (AIS Radar); 2) When editing, you can enter the number “9” and the letters “W,X,Y,Z”.
16	【*】 	When editing, it is used to switch symbols.
17	【0】 	When editing, you can enter the number “0”.
18	【#】 	When editing, it is used to switch input methods.
19	【POWER/ Brightness】 	1) Long press to turn the display on/off; 2) Short press to adjust backlight brightness and adjust volume.
20	【MOB/ALM】 	1) Short press to create MOB; 2) Long press to entry AIS safety message page, and then quickly sends AIS safety information.

## 6 Function Introduction

### 6.1 AIS List

#### Opening mode:

- 1: Default display page is **【AIS List】** ;
- 2: In addition to the chart screen, press the **⏏** on any other screen to return to the **【AIS List】** .

#### ● Custom List View

Select any record in the **【AIS List】** and press the **⏏** to pop up the AIS menu, Select the **【Custom List View】** option and then press the **⏏** , Pop-up **【Custom List View】** dialog box. This dialog box is utilized to define the parameter type of AIS list display. At most three parameters can be chosen for display.

#### ● Search Ship

Select any record in the **【AIS List】** and press the **⏏** to pop up the AIS menu, Select the **【Search】** , and then press the **⏏** to pop up the Search AIS dialog box, you can enter MMSI of the ship to search the ship in the list.

#### ● Sort Ship

Select any record in the **【AIS List】** and press the **⏏** to pop up the AIS menu. Select the **【Sort】** and press the **⏏** to pop up the Sort dialog box, you can select **【MMSI】** , **【ROG】** , **【SNG】** to sort ship.

#### ● View Track

Select any record in the **【AIS List】** and press the **⏏** to pop up the AIS menu. Select the **【View Track】** and then press the **⏏** , the current page will switch to chart page to view the track of the ship.

#### ● Correct Chinese Name

Select any record in the **【AIS List】** and press the **⏏** to pop up the AIS menu, Select the **【Correct Chinese Names】** and then press the **⏏** to pop up the dialog box, and then modify the Chinese name of the ship .

### ● AIS Radar Page

The main screen of boot-up is AIS list screen. Press the [PAGE] once, the screen will switch to chart page, then press the [PAGE] again, turn over the screen to AIS radar page.

## 6.2 AIS Monitor

Click the [Menu] to enter the 【Main Menu】 and then press the key [↓] to select 【AIS Monitor】. Press [ENT] you can enter the AIS monitor list.

### ● Add Monitor

**Method 1:** 【AIS List】 → select one ship in the list → press [ENT] → select 【Add Monitor】 → press [ENT] you can add the selected ship in the monitor list.

**Method 2:** In the [AIS Monitor], press the [ENT], pop-up the 【AIS Monitor】 dialog box, select the 【Add Monitor】, enter a MMSI number, and then press [ENT] to add.

**Note:** The monitor list up to 15 ships. If it is full, the prompt “The montitor num exceed” will pop up.

### ● Delete Monitor

In the [AIS Monitor], press the [ENT] to pop-up 【AIS Monitor】 dialog box, select 【Del Monitor】 to delete the monitor item you want.

### ● Monitor Setting

In the 【AIS Monitor】, Press the [ENT] to pop-up 【AIS Monitor】 dialog box, select 【Monitor Setting】, press [ENT] to enter Monitoring Settings.

### Enable enter alarm:

When the distance between the monitored ship and the ship is less than the set alarm distance, the device will be alarm according to the set alarm interval time. In the 【AIS Monitor Settings】 menu, you can turn on and off the incoming alarm, set the alarm distance and alarm interval.

### 6.3 Message

Click the [Menu] to enter the [Main Menu] , then press the [↓] to select the [Message] , and then press the [ENT] to enter the short message information. You can select [Inbox] , [Alarm Message] , [Status Message] , [Lr Message] , [Safety Message] , [New Message] , [OutBox] and other functions.

- **[Alarm Message] [Status Message] [Lr Message]**

In the [Message] , press [←] , [→] to Select page, press [ENT] enter page. Press [↓] [↑] to select information, and then press [ENT] to pop up the [Operation] dialog box, you can confirm, delete, empty and other operations.

- **Safety Message**

Select and view specific safety message by pressing the [↓] , [↑] in the [Safety Message]. Press [ENT] pop-up [Safety Alarm Message] , select [ENT] to send Safety Broadcasting Information to Nearby Ships.

- **New Message**

In the [Message] , press [←] , [→] to select [New Message] and then press to entry [New Message] . You can select receiver (MMSI), message type, and message content and so on. Press the key [ENT] enter edit status. After edited, press [ENT] Exit edit status, then select [Send] and press [ENT] to send message .

- **Outbox**

In the [Message] , select [Outbox] by pressing [←] [→] , and then press [ENT] to view message content, receiver, message type, acceptance time, message content etc.

### 6.4 Ships Parameter Setting

- **Voyage Status Setting**

Press the [Menu] to enter voyage Parameters. Move the cursor to the one that needs to be set, and press the [ENT] to modify it. Press the [ENT] again and complete the individual settings. Press to go into the setting of the next item. After all settings are completed, press [CLR] to save the settings successfully.



**Settings include:**

【Staus】 , 【Destination】 , 【Arrival time】 , 【Draft】 , 【The crew num】

**● View the Ship's Information**

Press the [Menu] to enter 【Main Menu】 , and then press the [↓] select 【Ownship】 , press the [ENT] to view Ownship information. It includes static parameters such as name, MMSI, ship type, call sign, position of internal and external GNSS antenna, etc; The Voyage parameters such as draft, destination, navistatus, arrival time, etc. Other information such as coordinates, HDG, COG, SOG and rotation rate, etc.

**● AIS Static Parameters**

It mainly includes MMSI, ship type, ship name, call sign, installation position of internal and external GNSS antennas, etc.

**Note:** These data are usually written by the agent when installed, and can not be changed by yourself. If you need to change information such as MMSI, please consult the agent.

**● Ships Display Settings**

Press the [Menu] to enter 【Main Menu】 , and then press the [↓] select 【Ships】 . Press [ENT] to entry ship display settings menu. Use the [←] [→] [↑] [↓] to select the appropriate item. Press [ENT] again to set specific ship display items.

**6.5 Alarm Settings**

Press the [Menu] to enter 【Main Menu】 , and then press the [↓] to select 【Alarm】 , press [ENT] again to enter 【Alarm Settings】 menu, use [←] [→] [↑] [↓] to select alarm, press [ENT] to turn on/off alarm. Press [←] [→] [↑] [↓] to select and setting alarm distance.

**6.6 Auxiliary**

Press the [Menu] to enter 【Main menu】 , and then press the [↓] select 【Auxiliary】 , and then press [ENT] to enter 【Auxiliary】 . You can select 【Calendar】 , 【Satellites】 , 【Tidal】 , 【Map query】 and other functions.

### ● Calendar

Press the [Menu] to enter **【Main menu】**, and then press the [↓] to select **【Auxiliary】**. Press [←], [→] to select **【Calendar】**, and then press [ENT] to enter **【Calendar】** menu. You can use [←], [→] to view different date information.

### ● Satellites

Press the [Menu] to enter **【Main menu】**, and then press the [↓] to select **【Auxiliary】**. Press [←], [→] to select **【Satellites】**, press [ENT] to enter **【Satellites】** menu. You can view the current signal status of satellites.

### ● Tidal

Press the [Menu] to enter **【Main menu】**, and then press the [↓] to select **【Auxiliary】**. Press [←], [→] to select **【Tidal】**, and press [ENT] to enter tidal chart. Through [←] [→] [↑] [↓] to select area, tidal station, date etc. The tidal curve will change according to selection.

### ● Map Query

Press the [Menu] to enter **【Main Menu】**, and then press the [↓] to select **【Auxiliary】**. Press [←] [→] to select **【Map Query】**, and then press [ENT] to enter **【Map Query】** menu.

Through [←] [→] [↑] [↓] to select area, and then press the [ENT] again to view the corresponding chart area.

## 6.7 Switch Recording

Press the [Menu] to enter **【Main menu】**, and then press the [↓] to select **【Switch Record】** and enter **【Switch Record】**. In the case of normal GPS connection, display **【Start】**, **【Last】**, **【Shutdown】** and **【Working Time】**.

## 6.8 Event Recording

Press the [Menu] to enter **【Main Menu】**, and then press the [↓] to select **【Event Log】** and enter **【Event Recording】**. It can display **【Event Type】**, **【Start Time】**, **【Finish Time】**, **【Duration】**.

## 6.9 MOB list

### ● Add MOB

On the chart, short press [MOB/ALM] to add MOB. (Up to 20 points. When 20 points are reached, the newly added MOB replaces the oldest MOB point.)

### ● MOB operating

Press the [Menu] to enter [Main Menu], and then press the [↓] to select [MOB] and then enter [MOB] list. Press [ENT] Pop up MOB operation menu.

- ① Select [Navigationi] ---- MOB navigation is performed;
- ② Select [View] ---- Jump to chart page to view MOB;
- ③ Select [Delete] ---- Delete the current MOB;
- ④ Enter the [MOB] list, find the corresponding MOB point, press [ENT], and then select [Cancel Navigation] to exit the navigation.

## 6.10 Chart Operation in Normal Voyage

### ● Move Chart

Press the [←] [→] [↑] [↓] to move the cursor to view the chart. When the cursor moves to the edge of the screen, the chart will be automatically refreshed and redrawn. When moving a chart, press the [Center] to center the ship and the cursor return to Ship's position.

### ● Zoom In / Zoom Out Chart

Press [Zoom Out] zoom out chart to view detailed charts. Press [Zoom In] zoom in chart to view a wide range of charts.

### ● Brightness adjustment

- ① Short press [POWER] can call out [Backlight Adjustment] option, and then press [POWER] in turn to select three parameters: the darkest, the standard, the brightest, ordinary brightness.
- ② Short press [POWER] can call out [Backlight Adjustment] option, press [←], [→] to adjust the brightness step by step.

**Note:** The voice adjustment method is same as backlight adjustment.

## **7 Upgrade Operation**

### **7.1 USB /SD Upgrade**

#### **1) Format USB /SD to FAT32 format**

#### **2) Download the upgrade package**

You can find the upgrade link on the official website of Xinuo Information Technology (Xiamen) Corporation Limited or the Wechat Public Number (or from the dealer).

#### **3) Unzip File**

#### **4) Update**

- Shut down the equipment.
- There is a USB/SD slot under the display. Open the cover and insert the USB/SD.
- Reboot the device, display the upgrade process and information on the screen, prompt the device is upgrading the program.
- After the upgrade is complete, you can unplug the USB/SD and restart the device again.

## 8. Hardware Configuration

HOST UNIT			
Frequency Range	156.025MHZ~162.025MHZ		
RX1(default)	CH87(161.975MHZ)		
RX2(default)	CH88(162.025MHZ)		
Output Power	1W/12.5W		
Modulation Mode	GMSK/FM		
AIS Transmission Channel	1		
AIS Receiving Channel	2(A Channel ,B Channel)		
DSC Receiving Channel	1		
DSC Receiver	CH70(156.525MHZ)		
Modulation rate	9600bps		
Bandwidth	25KHZ		
DISPALY(MKD) UNIT			
Display Type	TFT LCD		
Screen Size	7 inches		
Resolution	800*480		
Language	English, Simplified Chinese, Turkish, Thai, Traditional Chinese, Vietnamese		
Interface	Sensor	Input: DTM,GNS,RMC,VBW,HDT,HDG,ROT,CBS,GLL,VTG	
	External Display /Pilot interface	Input: ABM,ABK,ACA,ACK,AIR,BBM,SSD,VSD,AIQ,LRF Output: AIQ,ABK,ACA,SSD,VDM,VDO,VSD,TXT,ALR,LRI, LRF,AIQ	
	Romote	Input: LRLLRF	Output: LRF,LR1,LR2,LR3
WiFi		802.11 b/g/n	
Power		DC 18V~36V	
Power Consumption		18W or less (24VDC)	
Environment			
Working Temperature		-15℃ ~ +55℃	
Waterproof Grade		Display: IP65	Host: IP22
GPS/SBAS			
Receiving Frequency		L1(1575.42MHZ)	
Location Time		<60s(cold start)	
Horizontal Position Accuracy		GPS<15 m(95%)	
Rate Accuracy		0.1m/s	
Applicable Standard			
IEC 61993-2; IEC 61108-1 ; IEC 61162-1 ; IEC 60945 ; ITU-R M.1371-5 ; IMO MSC.74(69) ;IMO A.694(17)			

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