

KSN55-C SERIES

USER MANUAL Ver.1.2



Dual Channel AIS Receiver

Model: KSN55-C



SAFETY WARNING:

IT IS IMPORTANT TO KNOW AS AN ELECTRONIC AUXILIARY EQUIPMENT FOR DATA TRANSMISSION OF SHIP AIS PILOT PLUG, THE PILOT OF SHIP SHOULD ALWAYS BE ALERT TO THE TRAFFIC IN THE SURROUNDING SEA AREAS AND ENSURE THE SAFETY OF NAVIGATION WHILE USING THIS EQUIPMENT. IN THIS REGARD, THE COMPANY SPECIFICALLY DECLARES THAT IT WILL NOT BEAR ANY SAFETY ACCIDENTS AND LEGAL LIABILITY ARISING FROM THE USE OF THIS EQUIPMENT.



SAFETY POWER ON/OFF: PLEASE SWITCH THE MACHINE ACCORDING TO THE MANUAL STEPS. MISOPERATION MAY LEAD TO EQUIPMENT DAMAGE.



INTERFERENCE: ALL WIRELESS DEVICES ARE LIKELY TO BE INTERFERED AND AFFECTING THE USE OF EQUIPMENT.



MAINTENANCE OF EQUIPMENT: ONLY PROFESSIONAL TECHNICIANS CAN REPAIR THE EQUIPMENT OR RETURN TO FACTORY.



SELECTION OF ACCESSORIES: USE FACTORY APPROVED ACCESSORIES AND PREVENT BATTERIES FROM BEING USED IN HIGH TEMPERATURE ENVIRONMENT.



WATERPROOF: THIS EQUIPMENT IS WATERPROOF, BUT IT CAN NOT BE PUT INTO THE WATER.

FEATURES:

- Independent Dual channel AIS Receiver, receiving channels CH1 87B and CH2 88B AIS message;
- Automatic switch own AIS receiver and ship's AIS pilot plug working mode;
- The AIS PILOT PLUG female connector with IMO standards, suitable for all ships;
- Built-in an automatic sensor to correct polarity reversed issue (TX+- or RX+-) in some ship's AIS pilot plug socket;
- LCD true color display for working status;
- Built-in ROT sensor, Accuracy 0.5°/m, Resolution 0.1°/m;
- Built-in GNSS, Concurrent reception of up to 3 GNSS (GPS, Galileo, BeiDou),
- GPS HDOP: Autonomous<2.5m average; SBAS<2.0m average; Speed<0.1m/s;
- Wi-Fi, Bluetooth and USB all work at the same time and can be closed by menu.
- Wi-Fi 2.4G,allows Max 3 clients to access at same time;
- Wi-Fi SSID name and network password can be changed manually;
- Removable battery 20~40hrs continue working battery status post to App(Supported by SEAiQ);
- Own GPS&ROT output at NMEA sentence together with ship's AIS at same time(Can be selected ON/OFF in unit menu or Apps);
- Water Proof IPX55;

SPECIFICATIONS:

Independent AIS Receiver	
Receiving Channels	Dual channels CH-1 87B,CH-2 88B
Frequency Range	161.975MHz~162.025MHz
Channel Baud Rate	9600bps
Channel Bandwidth	25KHz
Receive Sensitivity	-117dBm @PER≤20%
GNSS Navigation	
Channel	50 Chanel
Message	GNSS at NMEA 0183
Sensitivity	Tracking:-162dBm Reacquisition :-160dBm
Work mode	Concurrent reception GNSS (GPS, Galileo, BeiDou)
Time-To-First-Fix	Cold Start 30s,Warm Start 29s,Hot Start1s
Accuracy(Average)	HDOP <2.5m,SBAS <2.0m,Velocity 0.1m/s
Connections	
Wi-Fi	2.4Ghz 802.11 b/g/n, AP mode Max 3 clients
HOST TPC/IP Address	192.168.2.1
PORT	8888
Bluetooth	2.4Ghz EDR&BLE
USB	USB Serial port
Power Supply	
Input	DC 5.0v,1.2A
Battery Capacity	7000mAh
Duration-of-Battery	20-40 hrs approx.
Charging Time	10 hrs
Antenna & Interface	
AIS Antenna	Built-in Antenna with MCX interface
GPS Antenna	Built-in High Gain
AIS PILOT PLUG input	Micro USB(APP)
Power supply input	Micro USB(DC IN)
Temperature Range & Dimensions	
Operating Temperature	-20°C~+60°C
Storage Temperature	-30°C~+80°C
Dimensions	110mm*62mm*28mm

DIAGRAM:

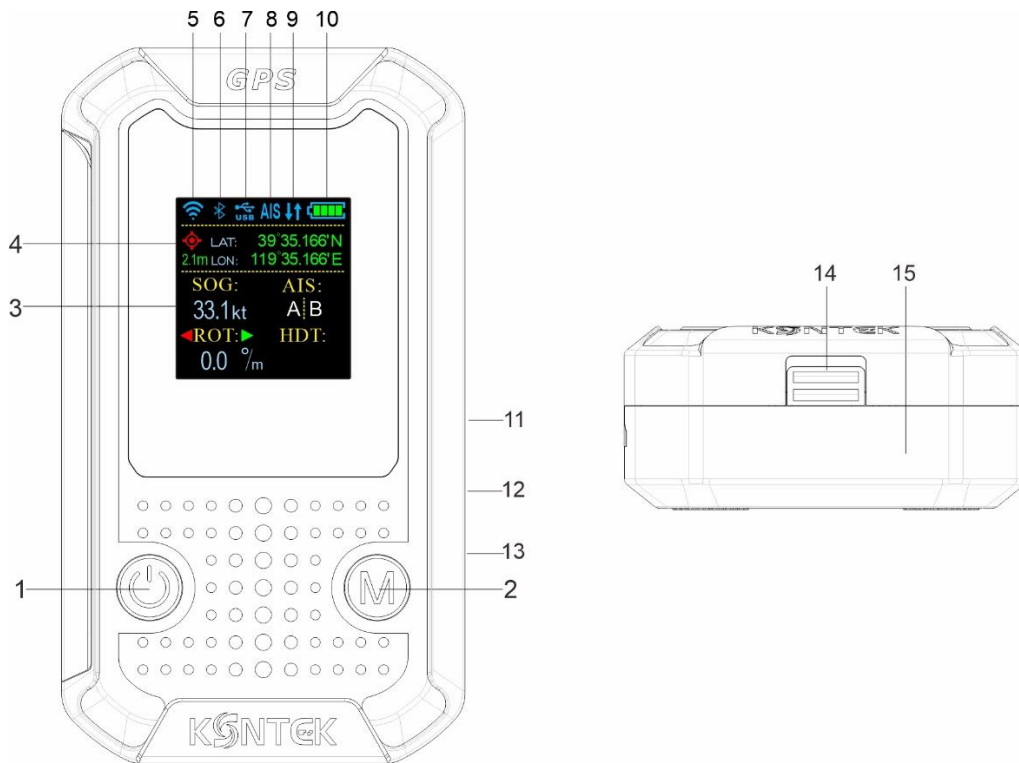


Figure 1.

1	Button for Power ON,Press and Hold on 3s to ON/OFF
2	Button for MENU,Press and Hold on 3s to enter MENU
3	Display for SOG,ROT,Independent AIS receiver(A,B),HDT from unit.
4	Display GPS position and HDOP from unit after GPS fixed
5	Wi-Fi:Green-connected;Blue-disconnect;Non-Off
6	Bluetooth:Green-connected;Blue-disconnect;Non-Off
7	USB:Green-connected;Blue-disconnect,Non-Off
8	Own AIS working status,blink Green receiving AIS targets
9	AIS PILOT PLUG INPUT: Down Arrow with Green-received from ship;Blue-No input
10	Battery level status: less 5% blank icon, full charged Standby
11	AIS Pilot Plug input,own AIS receiver will auto off after received data from ship
12	Reset,unit screen will become black after set this key,press power key to start
13	DC Power input,DC 5.0V 1.2A
14	Battery lock,slide out battery by release this lock.
15	Removable Li-poly battery,capacity 7000mAh

HOW TO START:

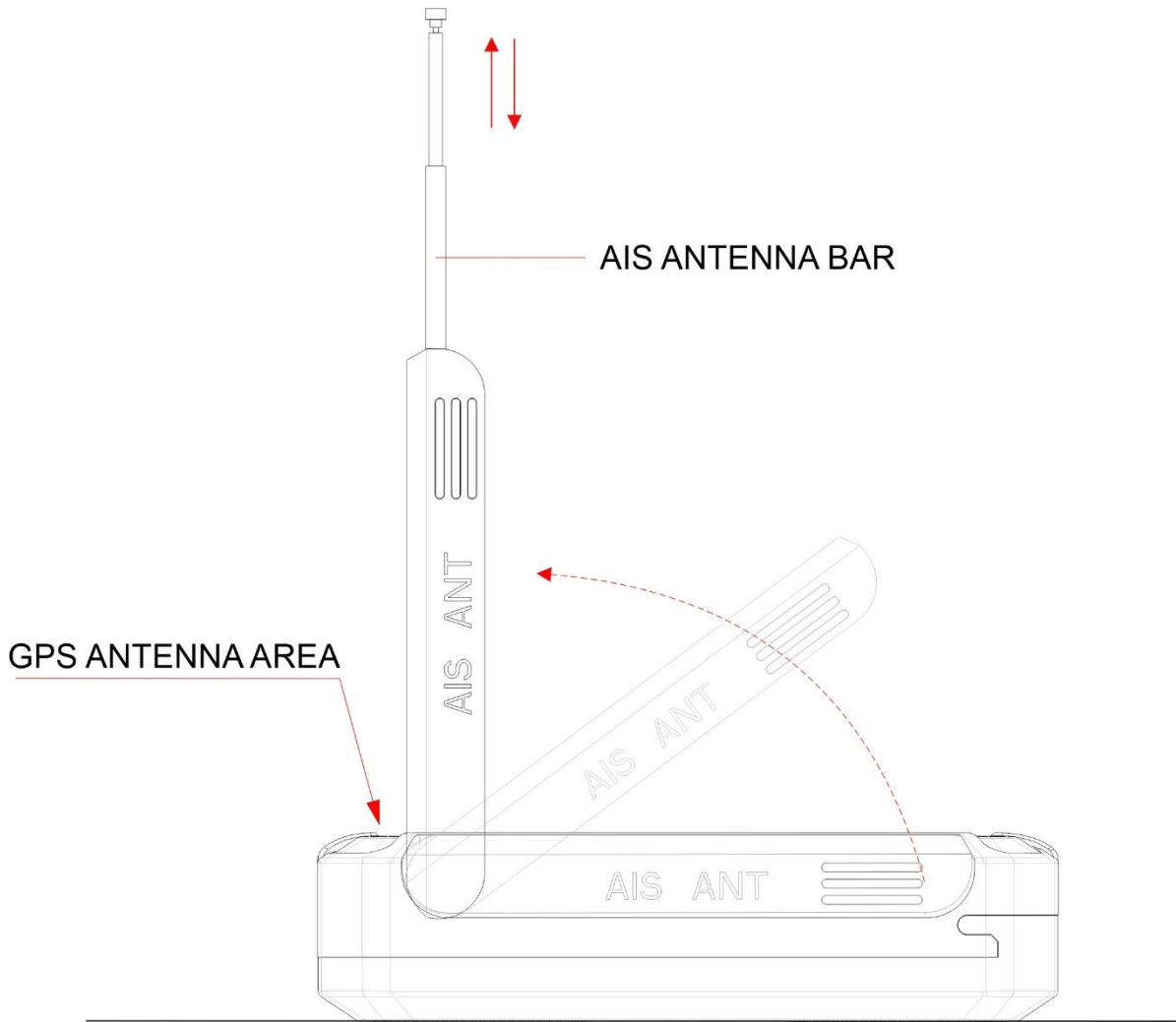


Figure 2.

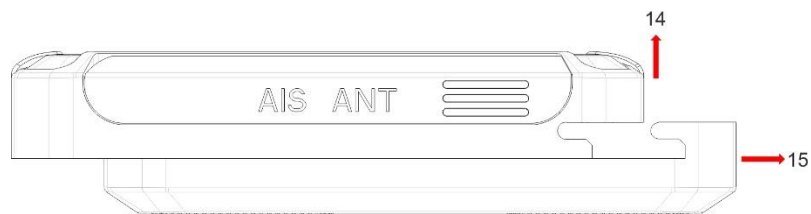


Figure 3.

1. Always place unit horizontal that ROT requested;
 2. If using own AIS receiver that “AIS ANT” should lift up then pull out the “AIS ANTENNA BAR” to obtain good AIS signals;
 3. The “GPS ANTENNA AREA” should be facing up to the clear sky in order to obtain good GPS signals;
 4. To replace new battery by release the Battery Lock “14” then slide Battery “15”
- (Note: The spare battery must be full charged before long time saved)

CONNECTIONS:

- a. **Wi-Fi:** SSID name: **KSN55-C**; Password: **12345678**
Protocol: **TCP**; Host IP: **192.168.2.1**; Port: **8888**
- b. **Bluetooth:** Bluetooth Spp name: **KSNTEK-BT(only for computer not iOS)**
- c. **USB:** Install USB driver for PC or Mac then find COM port No. on device manager

Note: For some of App on iOS already fixed connection settings, like in SEAiq just find the "KSNTEK KSN11-C ROT....." in Standard WiFi Devices then Enable on it.

BASIC OPERATION:

SHIP AIS PILOT PLUG MODE:

Default output data on unit are: GNSS,ROT,AIS Receiver on NMEA sentence,user can make them OFF in unit MENU to let it worked with ship's AIS Pilot Plug, it will repeat ship's data after both OFF.

Recommend setting:

SOG,COG,HEADING from ship and ROT from KSN55-C(Make the GPS OFF in unit MENU)

Note: Own AIS receiver will OFF automatic after AIS cable connected to ship,so it can at ON always.

INDEPENDENT AIS MODE:

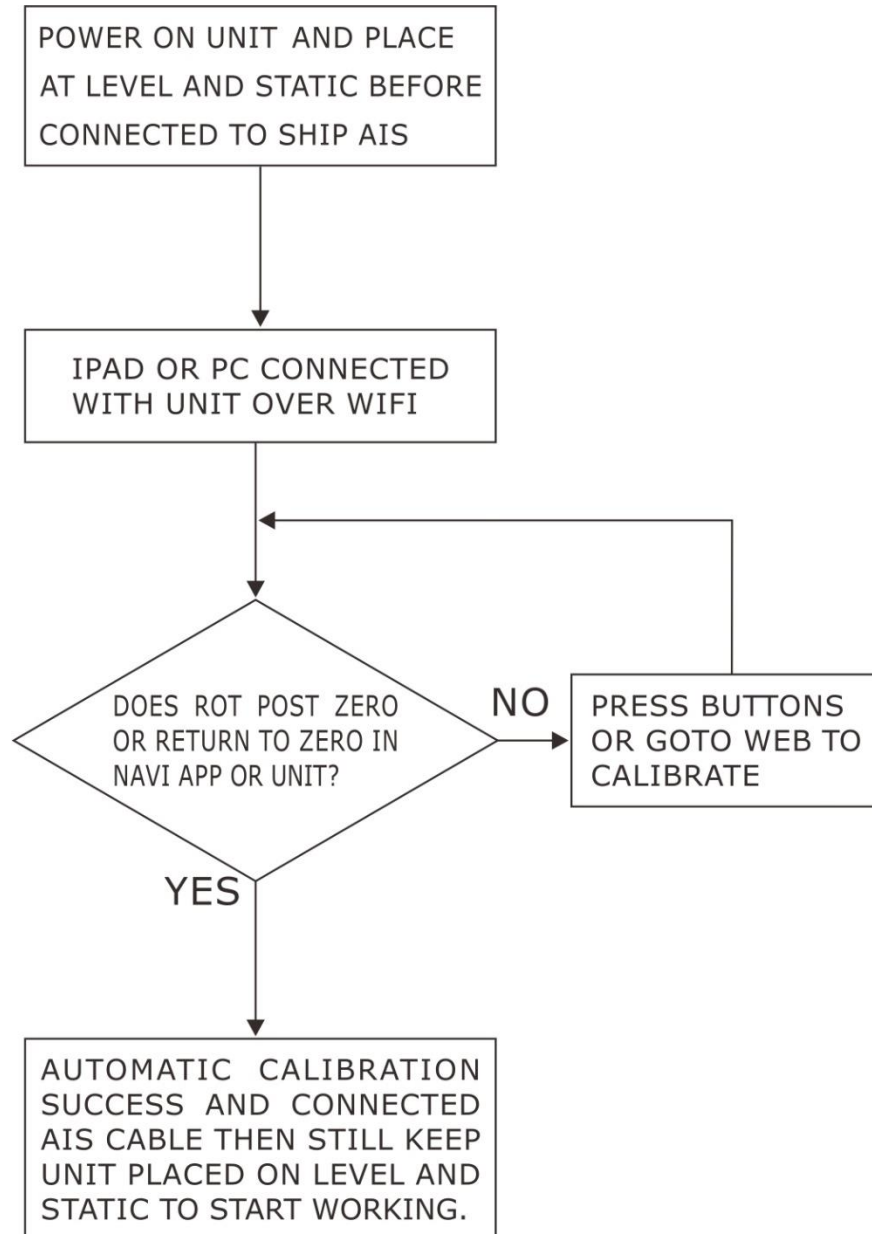
This mode is for backup normally when ship navigations are not working.

The GPS,ROT,AIS,HDT should be ON in unit MENU,Heading value must be initiated in the web page "192.168.2.1/ksntek.html' CAL option.

Note: ROT CALIBRATION will requested if it opened whatever ship mode or own ,HDT not recommend to use for the moment.

ROT CALIBRATIONS:

The calibration of ROT on equipment is very important before use it. the value of ROT will be inaccurate if it not calibrated correctly. ROT status should be observed after each boot. unit has the functions of automatic and manual calibration. please follow below steps:



1.AUTOMATIC CALIBRATION:

HOW IS THE AUTO CALIBRATION WORK:

Firstly, do not connect the AIS cable before power on.place unit horizontal position and keep the device relatively static. ROT will automatically calibrate within 10 seconds after booting. Then the iPad or laptop will connected with device by Wi-Fi, open navigation app or observe the value of ROT through the device screen. If the ship is at berth or in a steady course, the ROT will display 0°/m or return to zero automatically. That means device has been automatically calibrated successfully. At this time, the AIS cable can be connected then keep relatively static which will cause the output value of ROT to change during the wiring process, but after being stationary, It will return to zero automatically and the automatic calibration process will end. On the contrary, if the ROT value is not 0°/m after turn on or it will not return to zero automatically, the following manual calibration is needed.

2.MANUAL CALIBRAION:

Short press once the Power and M button at the same time for manual calibration or open the IE browser or Safari, enter the address “192.168.2.1/ksntek.html” in the address bar (please type all the letters including the end “html” and lowercase letters, pay attention to the direction of the slash) and enter, the page will open as the following and click the CALIBRATE button to manually calibrate the device, if the calibration is completed. ROT will return to zero automatically. This step will not request internet connections, the page was integrated in unit.

CONTROL PANEL

ROT:	<input type="button" value="ENABLE"/>	<input type="button" value="CALIBRATE"/>
	<input type="button" value="DISABLE"/>	
HDT:	<input type="button" value="ENABLE"/>	<input type="button" value="DISABLE"/>
CAL:	<input type="text"/>	<input type="button" value="SEND"/>

(CAL VALUE FOR HDT INPUT BY CORRECT HEADING)

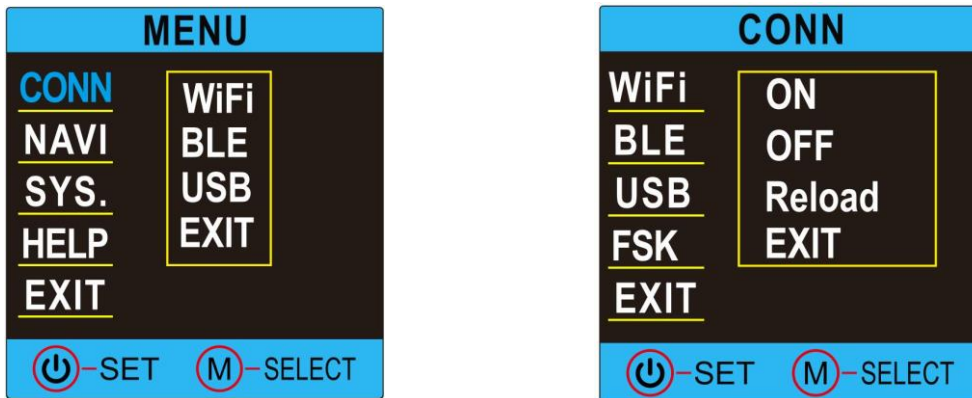
HDT: heading from KSN55-C,it can be Enabled or Disabled in this page;

CAL: the heading in KSN55C need to input value for initial,input a value then tap on SEND,unit must be no movements after the value set.

UNIT MENU:

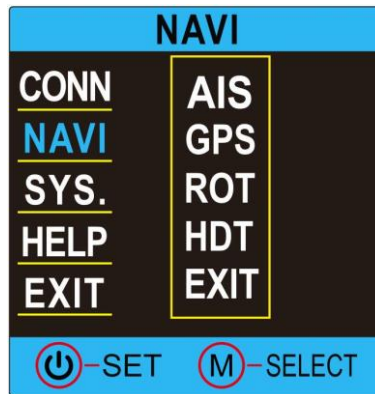
All functions on the device can be turned OFF / ON through the menu options. Press and holding M key for 3 seconds, it will enters the device operation menu. Use M key to chooses and Power key enter the sub menu and SET.

CONN:



To SET connections module ON/OFF in this MENU, Power key ENTER and SET,M key select.

NAVI:



In this menu can set own AIS, GPS, ROT, HDT to be ON/OFF,mostly use when KSN55-C working on Ship's AIS Pilot Plug.

AIS: Own AIS receiver can ON/OFF automatically after connected AIS cable to ship's AIS pilot plug or manually in this menu.

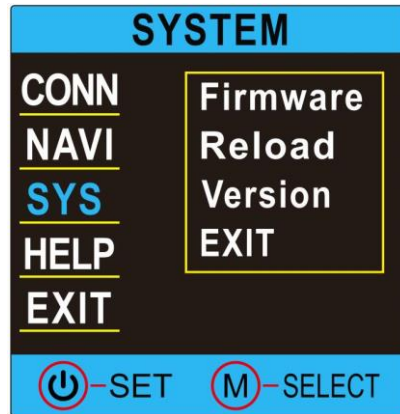
GPS: Own GNSS receiver, it will post NMEA sentence together with ship's AIS after connected AIS cable if it ON, can set it OFF when use ship AIS pilot plug mode.

ROT: Own Rate of Turn sensor, it will post NMEA sentence together with ship's AIS after

connected AIS cable if it ON, it can left with ON if ship AIS not provide ROT data.

HDT: Own Heading sensor, the factory default is OFF, recommend to leave it OFF when use ship AIS Pilot Plug mode.

SYS:



If some settings wrong or forget what have set that can be reloaded to the factory default by SYS-RELOAD. The factory default are: WiFi, Bluetooth ,USB,AIS,GPS,ROT with ON status.

If entering Firmware update just press and hold the Power key to exit then unit will OFF then power on again.

HELP:



This menu contains parameters of unit like Host IP address and WiFi network password, the Bluetooth pair key not requested anymore in this version.

Wi-Fi SETTINGS:

On the latest products from KSNTTEK that allow end users to customize on Wi-Fi settings like SSID NAME and Network Password...etc, this will avoid some unexpected connections due to the WiFi allows max 3 clients only.

Open Safari or IE Explorer type 192.168.2.1 in address bar then Enter

User Name: admin

Password: pilot

If there something wrong on settings that WiFi can be reloaded by factory default in MENU—
CONN—WiFi—Reload.