

KS-200A+ / B+

OPERATOR'S MANUAL

AIS Class B+ Transponder KS-200A+
AIS Receiver KS-200B+

SAFETY INSTRUCTIONS

Safety Instructions for the Operator

WARNING

Do not open the equipment.

Only qualified personnel should work inside the equipment.

Do not disassemble or modify the equipment.

Fire, electrical shock or serious injury can result.

Immediately turn off the power at the switchboard if the equipment is emitting smoke or fire.

Continued use of the equipment can cause fire or electrical shock. Contact an ONWA agent for service.

Use the proper fuse.

Use of the wrong fuse can damage the equipment or cause fire.

Be sure that the power supply is compatible with the equipment.

Incorrect power supply may cause the equipment to overheat.

Safety Instructions for the Installer

WARNING

Do not open the cover unless totally familiar with electrical circuits and service manual.

Improper handling can result in electrical shock.

Turn off the power at the switchboard before beginning the installation.

Fire or electrical shock can result if the power is left on.

Be sure that the power supply is compatible with the voltage rating of the equipment.

Connection of an incorrect power supply can cause fire or equipment damage.

Use the proper fuse.

Use of the wrong fuse can damage the equipment or cause fire.

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How AIS Works

1. What is AIS

AIS stands for Automatic Identification System. AIS increases navigational safety and collision avoidance by transmitting vessel identification, helping to reduce the difficulty of identifying ships when not in sight (e.g. at night, in radar blind arcs or shadows or at distance) by broadcasting navigational intentions to other vessels by providing ID, position, course, speed and other ship data with all other nearby ships and land based stations.

According to IALA regulations, AIS is defined as follows:

AIS is a broadcast Transponder system, operating in the VHF maritime mobile band. It is capable of sending ship information such as identification, position, course, speed and more, to other ships and to shore.

It can handle multiple reports at rapid update rates and uses Carrier Sense Time Division Multiple Access (CSTDMA) technology to meet these high broadcast rates and ensure reliable and robust ship to ship operation.

The IMO defines the performance standards as follows:

Ship to ship working, ship to shore working, including long range application, automatic and continuous operation, provision of information messaging via PC and utilization of maritime VHF channels.

2. What AIS classes do exist?

There are two classes of AIS units fitted to vessels, Class A and Class B. In addition AIS base stations may be employed by the Coastguard, port authorities and other authorized bodies. AIS units acting as Aids to Navigation (AtoN) can also be fitted to fixed and floating navigation markers such as channel markers and buoys.

2.1 Class A

Class A units are a mandatory fit under the safety of life at sea (SOLAS) convention to vessels above 300 gross tons or which carry more than 11 passengers in International waters. Many other commercial vessels and some leisure crafts may also be fitted under A units.

The Class A operation consists of three different types of messages:

Dynamic information:

- position of the ship (derived from GPS)
- time, when the position was measured in UTC
- course over ground (COG)
- speed over ground (SOG)
- heading (HDG)
- ship status
- rotational speed/turn rate

Static information:

- MMSI number
- call sign and name of the vessel
- length and width of the vessel
- IMO-number of the vessel, if existent
- type of vehicle
- position of the GPS sensor onboard

Journey-related information:

- draught of the vessel
- type of cargo
- port of destination and estimated time of arrival (ETA)
- route plan, optional compulsory way, depending on the vessels movement.

2.2 The New Class B+ Technology

The new Class B+, often referred to as “Class B SOTDMA” or “Class B 5W” , has been defined to bridge the gap between Class A and Class B transponders, offering some clear advantages for some types of vessels and applications. Class B+ uses the same SOTDMA technology as Class A and therefore has the same priority when it comes to reserving a

time slot, guaranteeing that it will always be able to transmit, even in busy AIS congested waters. For fast moving vessels this is important as a missed transmission can result in a vessel moving a long distance before it next manages to send a transmission. Another feature that the new Class B+ technology it has taken from Class A, is the increased and automatic changing of transmission rates depending upon speed. Unlike Class A, the update rate is unaffected by whether the vessel is manoeuvring, but as the vessels speed increases, the number of transmissions increases so that other vessels get a clearer and more up to date view of where the boat is. For slow moving vessels the increased update rates of Class B+ are not so important, but a fast power boat travelling at say 23 knots, will move 360 meters in 30 seconds, which is the update rate of a normal Class B transponder. On a Class B+ vessel travelling at 23 knots or more, the update rate is 5 seconds, so (using the above example) only 60 meters would be moved between updates. Finally, Class B+ transponders have a higher power transmission 5 Watts instead of 2 Watts and this not only increases the range over which the vessel's transmission will be received, assuming good antenna height and performance, but it also significantly improves the AIS Satellite reception, enabling global tracking.

2.3 Comparison of AIS Classes

The following tables have been created to provide a “side by side” comparison of the three different classes of AIS.

Class A, B and B+ Functionality

Function	Class A	Class B+	Class B
Transmit Power	12.5W	5W	2W
Transmit Rate	Up to every 2-3 secs	Up to every 5 secs	Every 30 secs
Minimum Keyboard + Display (MKD)	YES	NO	NO
Technology	SOTDMA	SOTDMA	CSTDMA
Guaranteed Time Slot Allocation	YES	YES	NO
Voyage Data	YES	NO	NO
External GPS Connection	YES	NO	NO

As can be seen from the table above, in normal operation a Class A transponder transmits at a much higher power than a Class B. In “real-life” terms a well installed Class B transponder should be able to transmit up to 7-8NMs whilst a Class A transponder maybe seen as far as 20-25NMs away. With its 5W output, a Class B+ will be better than a Class B (2W), but not x2.5 better, typically 10-12NM should be seen.

As illustrated in the following table, Class B and B+ transmit the same data, a sub-set of the data transmitted by a Class A transponder.

Class A, B and B+ Transmitted Data

Data Transmitted	Class A	Class B and B +
MMSI + Vessel Name + Call Sign	YES	YES
Position + COG + SOG	YES	YES
True Heading	YES	YES
Rate Of Turn	YES	NO
Nav Status	YES	NO
IMO Number	YES	NO
Type of Vessel	YES	YES
Vessel Dimensions	YES	YES
ETA + Destination + Draught	NO	NO

Finally, the table below shows the different data transmit rates of the three systems. As can be seen, Class A transponders have several different transmit rates, based on speed, manoeuvring and Nav Status, whereas the Class B+ transmission rate is purely based on speed.

Comparing Class B+ to the original Class B, it can be seen that the simple two update rate (underway or stationary) of the original Class B has been expanded and increased in Class B+. For any boat that regularly travels at over 15 knots and particularly for boats capable of travelling at over 23 knots, the increased transmission rates offered by Class B+ are an important benefit.

Class A, B and B+ Transmit Rates

Ship's Dynamic Conditions	Class A	Class B+	Class B
Ship at Anchor or Moored	3 mins	3 mins	3 mins
SOG 0-2 knots	10 secs	3 mins	3 mins
SOG 2-14 knots	10 secs	30 secs	30 secs
SOG 2-14 knots and changing course	3.3 secs	30 secs	30 secs
SOG 14-23 knots	6 secs	15 secs	30 secs
SOG 14-23 knots and changing course	2 secs	15 secs	30 secs
SOG > 23 knots	2 secs	5 secs	30 secs
Ship Static Information	6 mins	6 mins	6 mins

SPECIFICATIONS

Physical:

- Dimension: 200mm(length) x 138.7mm(width) x 45.8mm(height)
- Weight: 0.45kg

Power:

- Input: 11 ~ 30VDC
- Power consumption: 0.20A nominal

Electrical Interface:

- RS232 38,400 baudrate bi-directional

Environment:

- IEC 60945(Cat C)
- Operating Temperature: -25°C to +60°C

WIFI

- Mode: Hotspot (default) or WIFI terminal
- User name: KS200xx_xxxxxxx
- Password: 12345678 (default)
- IP: 192.168.4.1

For KS200A+ and KS200A+_SART:

GPS Receiver (AIS Internal)

- IEC 61108-1 compliant

Connectors

- VHF Antenna connector PL259 female
- GPS Antenna connector SMA female
- NMEA 2000 Interface

VHF Transceiver

- Frequency:
 - 161.975 MHz (AIS Channel 1: CH87B)
 - 162.025 MHz (AIS Channel 2: CH88B)
- Transmitter x 1
- Receiver x 2
- Output Power: 5W
- Channel bandwidth: 25KHz
- Modulation modes: GMSK
- Bit rate 9600 b/s GMSK
- Rx Sensitivity: < -112dBm @20%PER

For KS200B+ and KS200B+_N:

Connectors

- VHF Antenna connector PI259 female
- NMEA 2000 Interface

VHF Receiver

- Frequency:
 - 161.975 MHz (AIS Channel 1: CH87B)
 - 162.025 MHz (AIS Channel 2: CH88B)
- Receiver x2
- Channel bandwidth: 25KHz
- Rx Sensitivity: < -112dBm @20% PER

Compliant with the following standards:

- IEC62287-2 (IEC standard, Class B shipborne equipment)
- IEC60945 Edn 4.0 (IEC standard, environmental requirements)
- ITU-RM.1371-4 (Universal AIS Technical Characteristics)
- IEC61162-1 Edn. 2.0 (IEC standard, digital interfaces part 1)
- IEC61108-1 (IEC standard, GPS receiver equipment)
- IEC61993-2 (IEC standard, Marine navigation equipment)

KS200A+ BASIC OPERATION

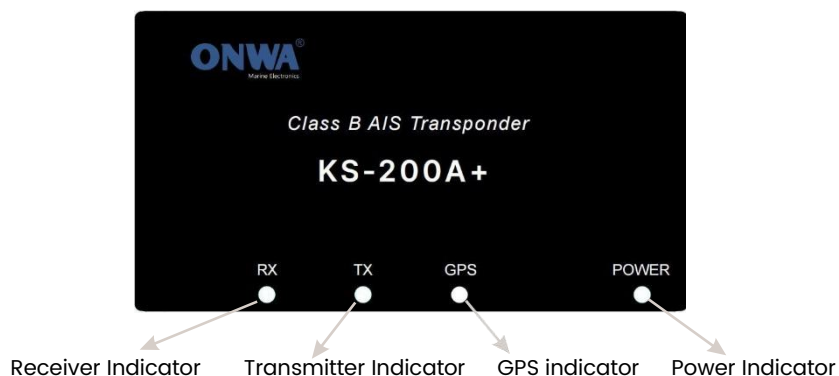
Turning Power ON/OFF

Turning Power ON

Press [ON/OFF] to ON direction to turn on the power.

Turning Power OFF

Press [ON/OFF] to OFF direction to turn off the power.



Indication	Light	Description
POWER	Red, continuously lit	When the device is turned on, the power indicator is solid red.
GPS	Orange, blinking	If GPS positioning is unavailable, the Orange LED will flash.
	Green, continuously lit	The GPS positioning success LED is steadily lit Green.
TX	Red, blinking	Transmits a light that flashes when a signal is emitted.
		The Tx indicator flashes at the following intervals. The reporting interval is: Dynamic Ship Data: Boat speed <2kn: 3 minutes Boat speed >2kn: 30 seconds Static vessel data (similar to Category A): 6 minutes.
RX	Green, blinking	The indicator light flashes green when the signal is received.
Reset hotspot		After successfully resetting the hotspot, GPS lights will go off for five seconds. They will then return to normal after five seconds.

Note: The AIS SART button on the KS200A_SART+ is only used to send distress signals in emergencies. When the SART button on the side of the device is pressed, the device will send an AIS SART message, which can be received by all AIS devices. When the danger has passed, you can press the SART button again to restore the normal state.

KS200B+ BASIC OPERATION

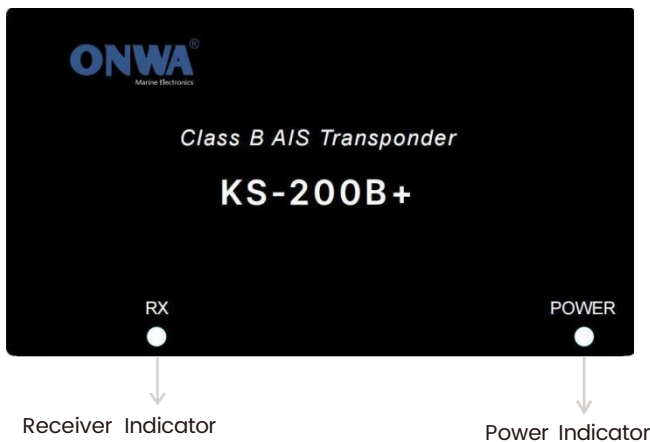
Turning Power ON/OFF

Turning Power ON

Press [ON/OFF] to ON direction to turn on the power.

Turning Power OFF

Press [ON/OFF] to OFF direction to turn off the power.



1. Receiver Indicator will blink when AIS information of other vessels is received.
2. Power Indicator lights up when equipment is turned on.

INSTALLATION

1.Scope of Delivery

Description	Quantity	Remark
Main unit	1	
Power/data Cable	1	
Quick installation Manual	1	

2.Power Connection

Connect power cable to 12VDC (11 ~ 30VDC) supply, Red wire to supply Positive +ve and black wire to supply negative -ve.

3.Antenna Connection

Connect the GPS antenna (supplied as an option) to the SMA female connector on the Main unit. (KS200A+/KS200A+_SART only)

Connect VHF antenna (supplied as an option) to the PL-259 female connector on the Main unit.

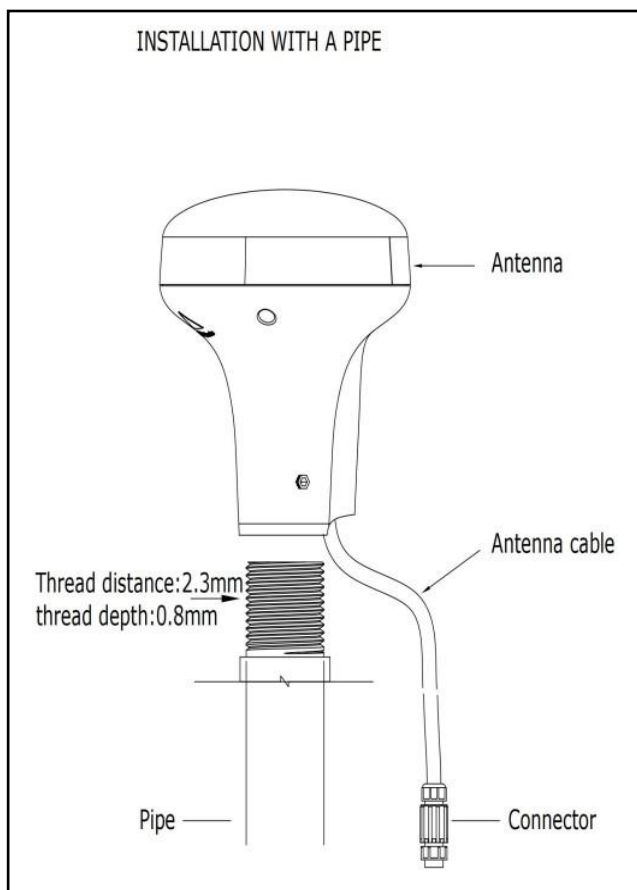
4.Installation of GPS Antenna (KS200A+/KS200A+_SART only)

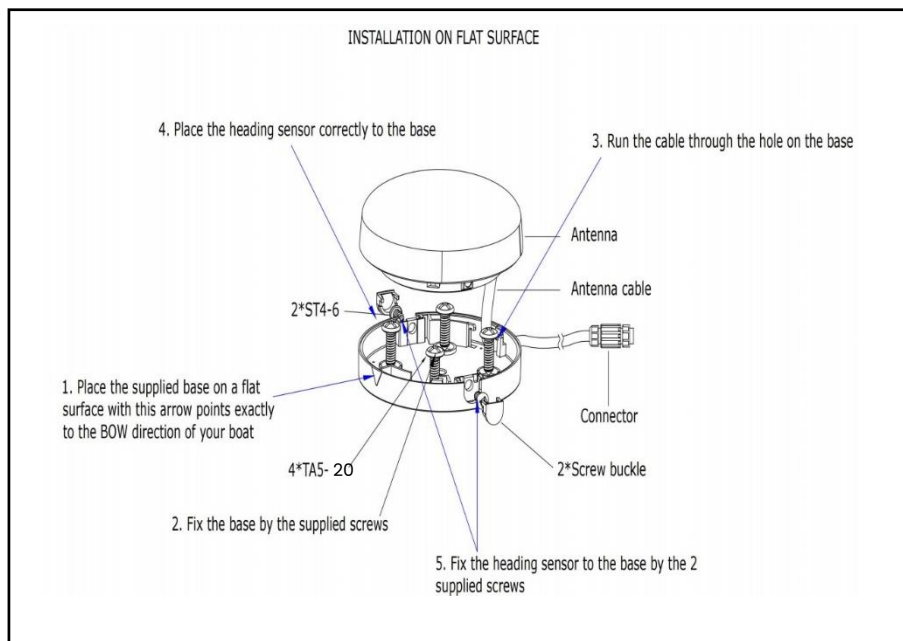
The GPS antenna is mounted in an elevated position and free of shadow effect from the ship's superstructure.

The GPS antenna has a free view through 360 degrees with a vertical angle of 5 to 90 degrees above the horizon.

As the received GPS signal is very sensitive to noise and interference generated by other onboard transmitters, ensure that the GNSS antenna is placed as far away as possible from radar, Inmarsat and Iridium transmitters and ensure that the GPS antenna is free from direct view of the radar and the Inmarsat beam.

It is also important that the MF/HF and other VHF transmitter antennas are kept as far away as possible from the GNSS antenna. It is good practice never to install a GNSS antenna within a radius of 2 meters from these antennas.





5. Installation of VHF Antenna

For the VHF antenna, there is a VHF female bulkhead connector used that mounts to the back of the case.

The VHF antenna intended for AIS use:

For optimum performance, a dedicated antenna is strongly recommended. Must be suitable for marine shipboard applications (ingress protected, ruggedness, means of mounting, etc.).

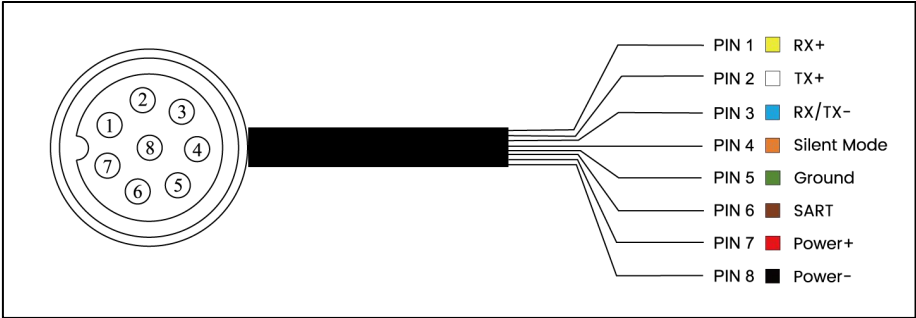
Should be omnidirectional and vertically polarized with unity gain (0dB) with a bandwidth sufficient to maintain VSWR <1.5 over the frequency range 156–163 MHz. As a minimum, the 3dB bandwidth must cover the two AIS channels and the DSC Channel.

Should be mounted with at least two meter vertical separation distance from any other VHF antenna used for speech or DCS communication.

6.Data transmission mode

There are three ways to output data from the KS200 to navigation devices: connecting via the power/data cable, integrating into the NMEA2000 network, and establishing a WiFi connection (via a TCP port).

6.1 Power/data cable connection



Power/data cable connection diagram

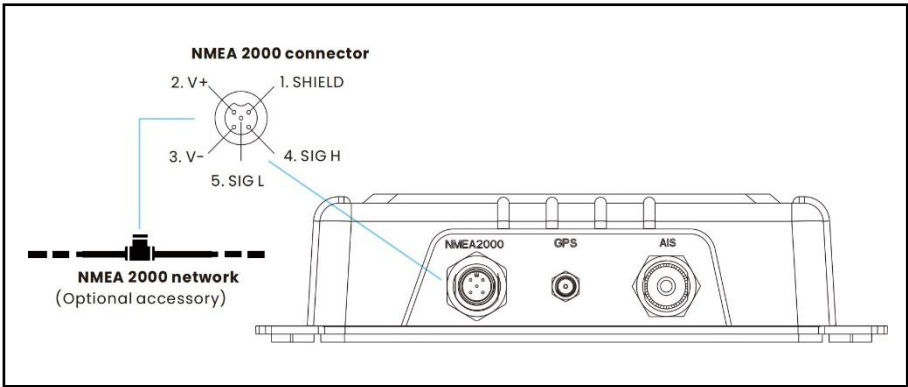
According to the Power/data interface shown in the figure above, connect the TX + (Pin 2, white wire) and TX - (Pin 3, blue wire) of the Automatic Identification System (AIS) data output to the AIS input of your navigational equipment.

The output baud rate is 38,400 (38.4K) with 8 data bits, one stop bit and no parity. The data interface conforms to IEC61162-1. The sent messages are conformed to NMEA0183 V3.01:

For KS200A+ and KS200A+_SART: VDM, VDO, RMC, GSV, GGA and GSA

For KS200B+ and KS200B+_N: VDM and VDO

6.2 NMEA 2000 connection



After the KS200+ series products are connected to the NMEA2000 network, the devices in the network can receive the NMEA 2000 data output by the KS200+ device.

Output PGN:

GNSS: 126992, 129026, 129540, 129033, 129029, 129025, 129539

AIS: 129810, 129809, 129798, 129040, 129039, 129038, 129041, 129802, 129801, 129794, 129795, 129797, 129793, 129811, 129812

6.3 WIFI connection

Connect to the KS200+ series hotspot with default password.

Default Then connect via TCP on port 10110.

7.Connect to PC

Connect the wires of power/data cable to PC as below:

KS200A+/B+	9-pin serial port of the computer
Pin2, White-TX+	2-Receive data
Pin1, Yellow-RX+	3-Send data
Pin3, Blue-RX-/TX-	5-GND

8.Use of silent and SART functions

silent mode: Silent mode can be achieved by setting "TX OFF" on the web page or connecting the corresponding wire (Pin 4 - silent mode) to the ground (Pin 5, green wire).

SART: If you want to use the Search and Rescue Transponder (SART) function, please connect the corresponding wire (Pin 6 - SART) to the ground (Pin 5, green wire).

CONFIGURATION AND UPGRADE OF KS200A+

Preparations before use: It is necessary to program the MMSI, vessel name, and vessel type. The following are the configuration methods.

1. PC-side Configuration Tool (Only for AIS Part Configuration)

Download the programming software and instructions from

<http://www.onwamarine.com>.

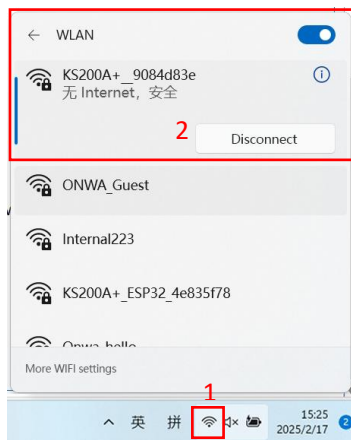
2. Connect to the Wi-Fi of KS200A+ and log in to the configuration webpage for setup

2.1 Connect the PC Wi-Fi to KS200A+

Step 1. Move the cursor to the Wi-Fi connection icon (1) and left click to open Network and Internet settings

Step 2. Connect to KS200A+ Wi-Fi connection (2)

Default password: 12345678



2.2 Open your Internet browser (example IE or Chrome) and type http://192.168.4.1

The screenshot shows the KS200A+ web interface. At the top, there are buttons for "Reset" and "Upgrade". Below the header, the "Device Instance" is set to 1 and the "System Instance" is also 1. The "AIS TX Switch" is currently set to "TX_ON". A "TX_OFF" button is visible on the right. The "AIS Information" section shows the "AIS Connection Status" as "OK". Various fields are filled out: MMSI Number (1100211), SART Number (170041234), IMO Number (123), Call Sign (KAC), Ship Name (ONWASHENZHEN), and Ship Type (10 - Reserved). A diagram of a GPS antenna is shown with dimensions A, B, C, and D. The "Trading Group" is set to 100. The "AIS Software Version" is 2.2.0.00002. At the bottom, the "Wi-Fi Setting" section shows the "AIS Monitor Port (TCP)" as 10110, "Hostport Name" as "KS200A_KS200A", "Hostport IP" as 192.168.4.1, "Wi-Fi Name" as "KS200A", and "Wi-Fi Password" as "12345678".

2.3 Once the KS200A+ webpage is open, You can now configure all settings of the ONWA KS200A+, simply click on the item you want to change.

Example: If you want to change the KS200A+ AIS Tx Switch from "ON" to "OFF", all you need to do is click "TX_OFF".

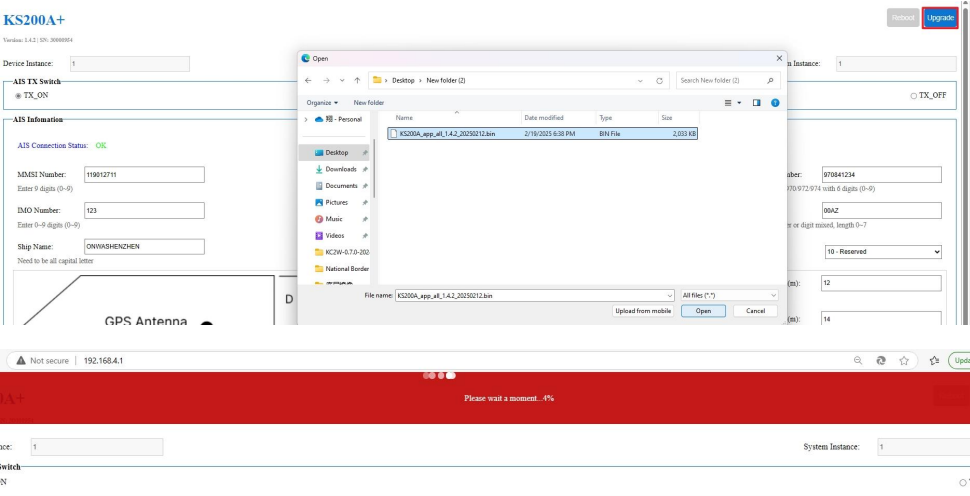
Then, you will see a "Success" message appear on the screen, indicating that the configuration has been accepted.

The screenshot shows the KS200A+ web interface after the AIS TX Switch has been changed to "OFF". The "TX_OFF" button is now highlighted with a red box. A "SUCCESS" message is displayed in a red box in the center of the screen. The "AIS Information" section shows the "AIS Connection Status" as "OK". The "MMSI Number" is 110000885, "IMO Number" is 087654321, "Ship Name" is ONWASHENZHEN, and "Ship Type" is 57 - Unknown. The "Distance A(m)" is 15. The "Wi-Fi Setting" section is also visible at the bottom.

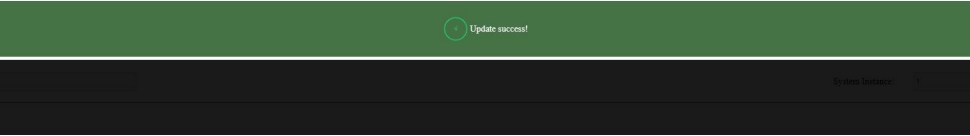
3. Operation Guide for Software Upgrade of KS200+

Before upgrading the software, you need to Prepare the software program for upgrade on a PC, tablet, or mobile phone.

3.1 Find the "upgrade" button at the top - right corner of the web page and click it. At this time, a file selection window will open. Locate the prepared KS200 program for upgrade, select it, and click "Open" below to directly enter the upgrade state, As shown in the second



3.2 When the page is displayed as shown in the following figure, it means the software program has been successfully upgraded. At this time, if the web page doesn't refresh automatically, you can reconnect to the device's hotspot. When you open the web page at 192.168.4.1 again, you can see at the "Version" section that the program is already the latest upgraded version.



4. How to change the Wi-Fi network name or password on a KS200A+ device

4.1 After editing the 'Hotspot' or 'Hotspot password' as shown in the figure below, click on 'Setting Wifi' at the bottom. If the interface displays 'success', it means that the modification was successful. Next, you only need to log in with the new Wi-Fi name and password. Please follow the instructions below to proceed.

Tracking Group ID: 110
Enter 0-5 digits (0-9)

Distance D(m): 0 to 63

AIS Software Version: 2.2.3-240925

Setting3 AIS

Wi-Fi Setting

AIS Monitor Port (TCP): 10110

Note: Name and password should consist of letters(a~zA~Z), numbers(0~9) and special character(-!@#%&_etc).

Hotspot Name: KS200A+_9084d83e 1

Hotspot IP: 192.168.4.1

Wi-Fi Name: 1-32 letters

Wi-Fi Password: 8-64 letters, empty allowed

Setting Wifi 2

Tracking Group ID: 110
Enter 0-5 digits (0-9)

Distance D(m): 0 to 63

AIS Software Version: 2.2.3-240925

Setting AIS

Wi-Fi Setting

AIS Monitor Port (TCP): 10110

Note: Name and password should consist of letters(a~zA~Z), numbers(0~9) and special character(-!@#%&_etc).

Hotspot Name: KS200A+_9084d83e

Hotspot IP: 192.168.4.1

Wi-Fi Name: 1-32 letters

Wi-Fi Password: 8-64 letters, empty allowed

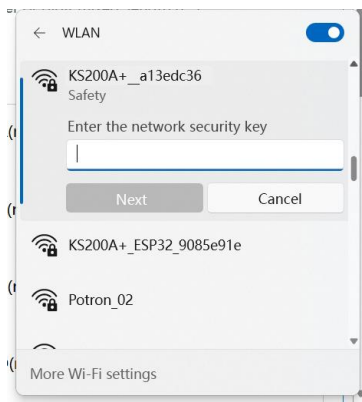
success

Setting Wifi

4.2 Scroll to the top of the webpage and click on 'Reboot' in the upper right corner of the page to restart the KS200A+ device



4.3 Move the cursor to the Wi-Fi connection icon on your computer and left-click to open the Network and Internet Settings. In the Wi-Fi list, find the Wi-Fi name you saved and click on it to connect. Wait for the window shown below to appear, enter the saved password, and click 'Next' to wait for the connection to be successful.



5. Wi-Fi Settings for KS200A+

When you want to connect the KS200A+ through another Wi-Fi router.

5.1 Enter the Wi-Fi name and password of the Wi-Fi you want to connect to in "Wifi name" and "Wifi password" respectively. Next, click on "Setting Wifi" at the bottom of the webpage and wait for the "success" prompt to appear on the page.

5.2 Power on the KS200A+ device again.

5.3 Reconnect your computer to the KS200A+ Wi-Fi network: Open the Wi-Fi list and connect to the KS200A+'s own Wi-Fi network (note that it is the Wi-Fi network mentioned in the

'Hotspot' on the webpage).

5.4 Refresh the previously opened KS200A+ configuration webpage or log in again. Scroll down to the bottom of the webpage to see the 'Wifi ip' address displayed below 'Wifi name'.

Wi-Fi Setting

AIS Monitor Port (TCP): 10110

Note: Name and password should consist of letters(a-z,A-Z), numbers(0-9) and special characters(-!@#%&_etc.).

Hotspot Name: Hotspot Password:

Hotspot IP: 192.168.4.1

Wi-Fi Name: Wi-Fi Password:

Wifi IP: 192.168.7.89

5.5 Log in to the KS200A+ configuration webpage using the recently added Wi-Fi: Open the Wi-Fi list again, find the Wi-Fi you just added (corresponding to the "Wifi name" on the webpage), connect to it, and once connected, copy the address from "Wifi ip" and paste it into the browser to log in to the webpage.

Browser address bar: 192.168.7.89

KS200A+

Device Instance: System Instance:

Reboot Upgrade

Note: For a more stable usage experience, it is recommended not to use KS200A+'s hotspot mode and station mode simultaneously.

Hotspot mode: KS200A+'s own Wi-Fi, for example, when a phone shares its network hotspot.

Station mode: KS200A+ functions as a Wi-Fi client, for example, when a phone connects to a router, it operates in station mode.

6. Hotspot Reset

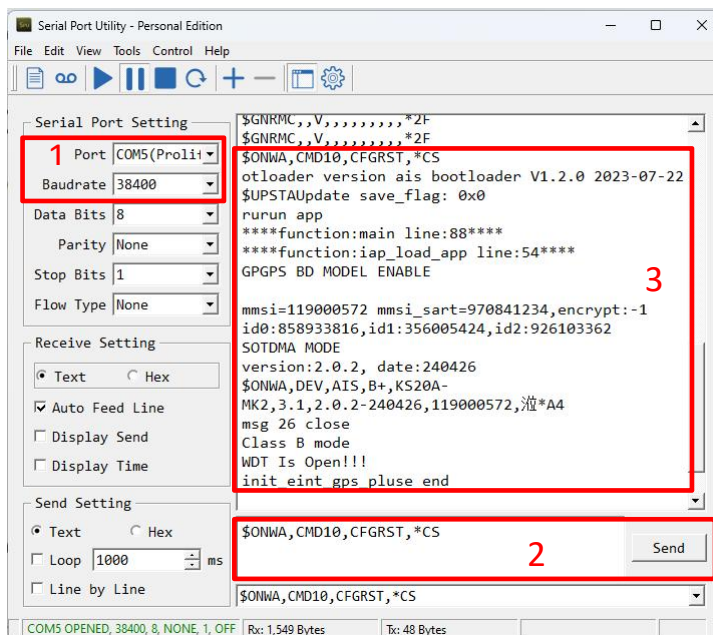
If you have forgotten the device's hotspot password, you can use the hotspot reset function to restore the hotspot name and password to their factory default values.

6.1 Connect the PC to the device's serial port as described in the "7. Connect to PC" section of this document.

6.2 Set the switch on the KS200 device to the "ON" position.

6.3 Open the serial port tool on your PC, select the corresponding COM port, and set the baud rate to 38400.

6.4 In the input field, enter the command "\$ONWA,CMD10,CFGRST,*CS", then click "Send." The output information will appear on the serial tool interface as shown below. Meanwhile, the GPS indicator on the device will turn off for 5 seconds. Once the GPS indicator lights up again, the factory reset process is complete, and the device has returned to normal operating status.



7. Recieving AIS/GPS data over the network

Wi-Fi Setting

AIS Monitor Port (TCP): 10110

Note: Name and password should consist of letters(a~zA~Z), numbers(0~9) and special characters(-!@#%&_etc.).

Hotspot Name:

Hotspot Password:

Hotspot IP: 192.168.4.1

Wi-Fi Name:

Wi-Fi Password:

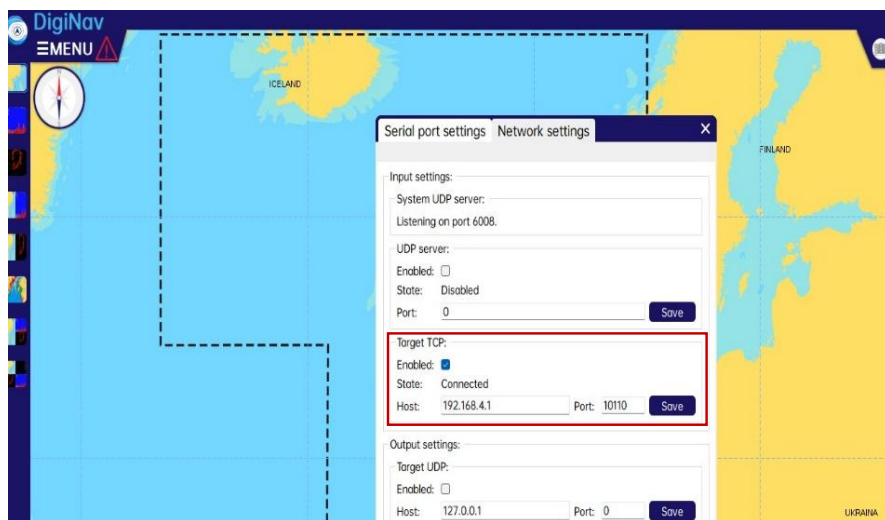
Wifi IP:

Setting Wifi

The AIS/GPS data can be received through the network ports"10110" . Additionally, these data can be shared with other products like ONWA DigiNav. The details are as follows:

- 1) Connenct to the KS-200A+ hotspot.
- 2) Set up the network settings.

The following instructions will use the PC version of DigiNav as an example: In the "Target TCP" section of the "Input settings" module, enter the "Host" (192.168.4.1) and "Port" (10110). Check the "Enabled" option. When the "State" displays "Connected," it indicates a successful connection. DigiNav has started receiving NMEA0183 data from either "10110".



MAINTENANCE AND TROUBLESHOOTING

1. Maintenance

Unauthorized opening of the KS200A+, KS200A+_SART, KS200B+, KS200B+_N system will invalidate the warranty. Avoid using chemical solvents to clean the KS200 series as some solvents can damage the case material. To clean, wipe down with a damp cloth. The KS200 series contains no user serviceable parts. Contact your Service Agent for repair or for replacing.

2. Troubleshooting

Question type	Possible reasons	Solutions
Unable to boot	The power cord connection is loose or poor contact	Check the power cable connection and reconnect it securely.
	The power fuse blown	Replace the fuse and reconnect the power supply.
Hotspot cannot connect	The number of devices connected to the hotspot has reached the maximum limit.	Check the number of connected devices; the hotspot supports up to 4–5 devices simultaneously. Note: For stability, it is recommended not to connect more than 3 devices.
	The hotspot name or password has been changed	Confirm whether the hotspot is connected correctly and connect the hotspot correctly
	Forgot hotspot password	Restore factory settings and reset password; Reset method: Send the factory reset command through the serial port (recommend) : \$ONWA,CMD10,CFGRST,%CS\r\n

The webpage cannot be refreshed and entered.	The browser cache is too full.	Clear the browser cache and try refreshing the web page.
	The device has been running for an extended period, which may cause webpage issues.	Restart the device and reconnect to the hotspot, refresh the web page
Unable to Obtain GPS Position	The GPS antenna is loose or not connected.	Check the GPS antenna connection and secure it.
	The environment is blocking GPS signals.	Relocate the device to a better position with less interference.
	The GPS antenna is faulty.	Replace with new GPS antenna
Unable to receive other AIS vessels	There are no AIS vessels near your location	Confirm whether there are AIS signals and ships nearby.
	The AIS antenna is loose or has poor contact.	Check the AIS antenna connection and ensure it is secure.
	The AIS antenna is faulty.	Replace the AIS antenna if it is defective.
Cannot Be Detected by Other AIS Devices.	The AIS antenna is loose or not functioning properly.	Check the AIS antenna connection and ensure it is functioning properly.
	The KS-200A device is in silent mode.	Access the web page to check the AIS TX Switch status: • If it is "OFF," switch it to "ON" and save the configuration. • Confirm whether the device is in normal transmission mode and can transmit data to other AIS devices.

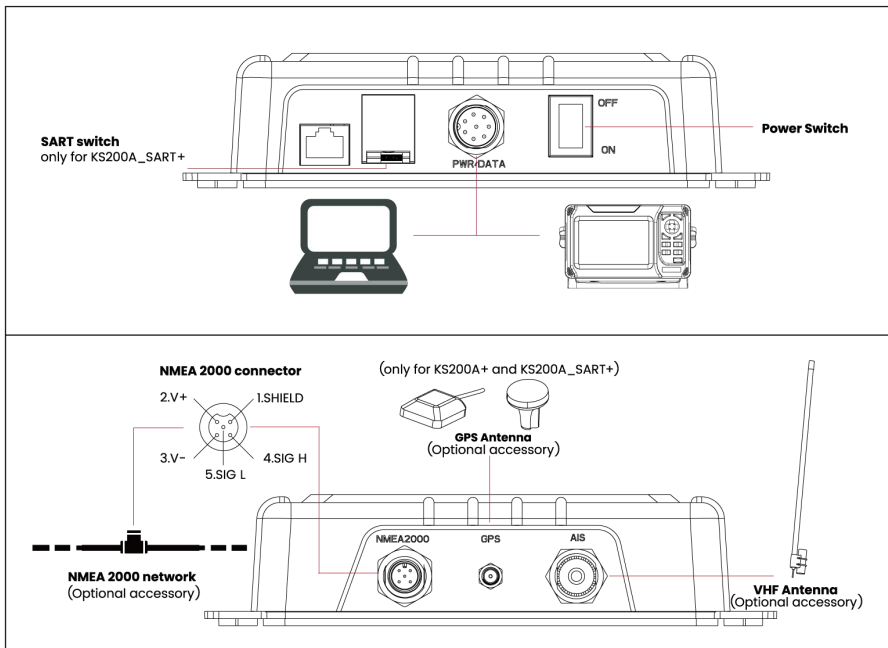
N2K network does not have this KS200A data	The N2K cable connection is loose or has poor contact.	Check the N2K cable connection and ensure it is secure.
	The KS200A+ device has no AIS reception and no positioning, resulting in no data output in the N2K environment.	Check the AIS reception and GPS positioning of the KS200A device to ensure there is a data source
	KS-200A+ equipment failure	Verify the AIS device status: • Log in to the web page and refresh. Confirm whether the AIS status is "OK." • If it is not "OK," contact technical support for further assistance.

CONNECTION DIAGRAM

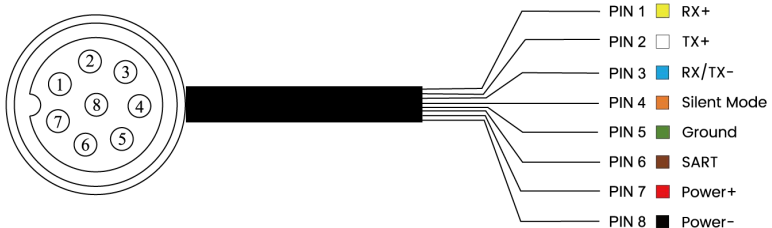
KS200A+ Connection Diagram

Connect the GX16 female connector of Power/data Cable to the GX16 male socket of KS200A+/B+.

Connect the other end of KS200A+ - Power/data cable to external navigational equipments according to the following diagram:



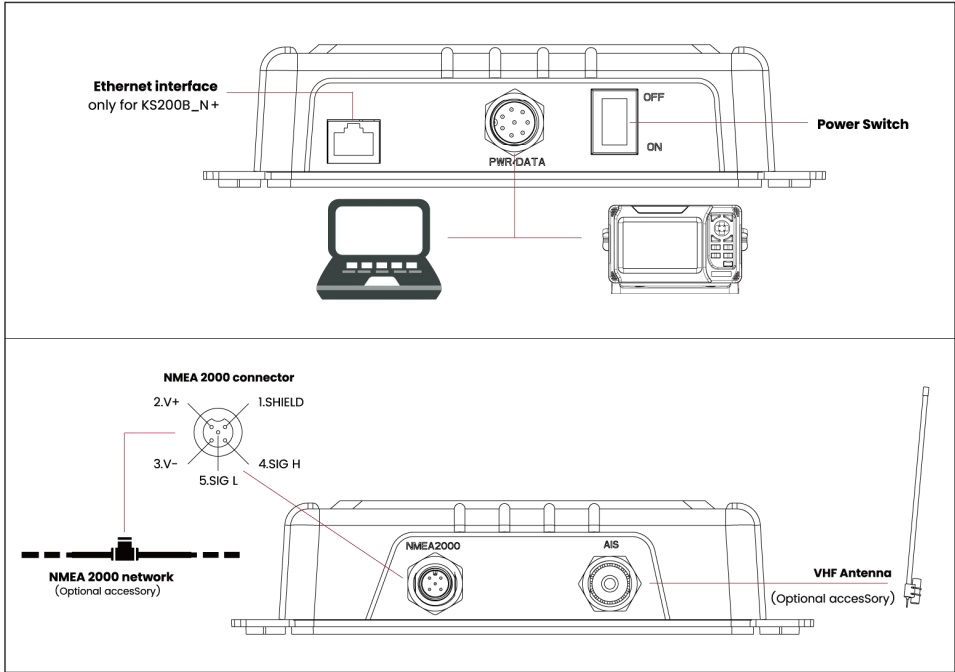
Power/data cable connection



Power/data cable connection diagram (KS200A+ - POWER/data)

According to the PWR/DATA interface shown in the figure above, connect the TX + (Pin 2, white wire) and TX - (Pin 3, blue wire) of the Automatic Identification System (AIS) data output to the AIS input of your navigational equipment.

KS200B+ Connection Diagram



DIMENSION

