SANDEMARINE

MANUAL

AP200

Autopilot Display Unit

EN

2024-08

V1.0

Contents

Important Notices

1. About this manual

- The operator of this equipment must read and follow the instructions in this manual. Wrong operation or maintenance may void the warranty or cause injury.
- Do not copy any part of this manual without written permission.
- The contents of this manual and equipment specifications can change without notice.
- The example screens (or illustrations) shown in this manual can be different from the screens you see on your display, and the screens you see depend on your system configuration and equipment settings.
- Save this manual for future reference.
- Any modification of the equipment (including software) by unauthorized persons will void the warranty.

2. Safety reminder

Please follow the safety reminders in this manual to prevent damage to the equipment or vessel and to prevent injury to the operator or other persons on board.

It is your responsibility to operate your boat safely and carefully. The autopilot is a steering aid. Avoid navigation hazards and ensure that no one is at the helm.

When driving at high speed or in bad weather conditions, please steer manually to avoid danger.

When entering or leaving the port or when there are many ships nearby, the autopilot cannot automatically avoid the ships. Please steer manually to avoid danger.

If a fault occurs, please turn off the power, unplug the drive unit from the controller, and steer manually to avoid danger.

Foreward

1. Overview

Thank you for using the SANDEMARINE autopilot. This manual provides a detailed explanation the installation method, operation method and precautions of the autopilot. In order to give full play to the performance of this device and maintain a good operating state, please read this manual carefully and use the device correctly. Please keep this manual properly to avoid loss or damage. Be sure to carry this manual when going out to sea.

2. Features

- 7 -inch color LCD display with high brightness and wide viewing angle .
- Five steering modes: Standby, Automatic, Follow-up, No drift, and Navigation , and the switching is convenient and flexible.
- The steering is sensitive and the parameters can be adjusted flexibly.
- Supports rudderless steering to avoid damage to the rudder angle feedback device and make it unusable.
- The status of accessories connected to the display unit can be monitored in real time to ensure the smooth operation of the equipment.
- Supports compass automatic calibration function

3. Manuals

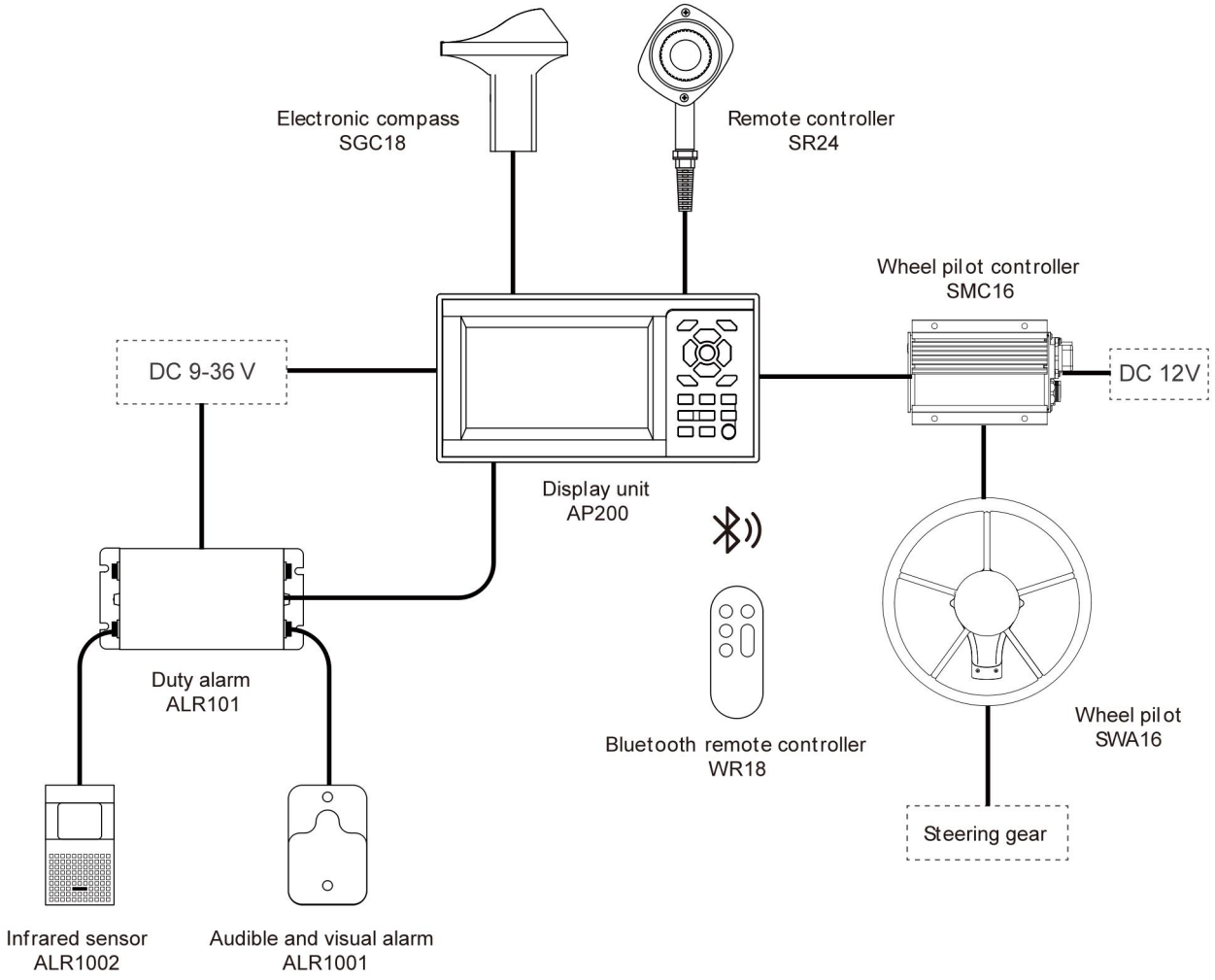
The following documents apply to the AP200 autopilot system:

- AP200 Autopilot User Manual (this manual)
- EC20X Electronic Compass User Manual
- AD2805 Wheel Pilot Controller User Manual
- ALR101 Duty Alarm User Manual
- AD1015 Solenoid Valve Controller User Manual
- AW2006 Wheel Pilot User Manual
- AR2004 Remote Control User Manual

You can obtain the latest electronic version of the manual from www.sandemarine.com.

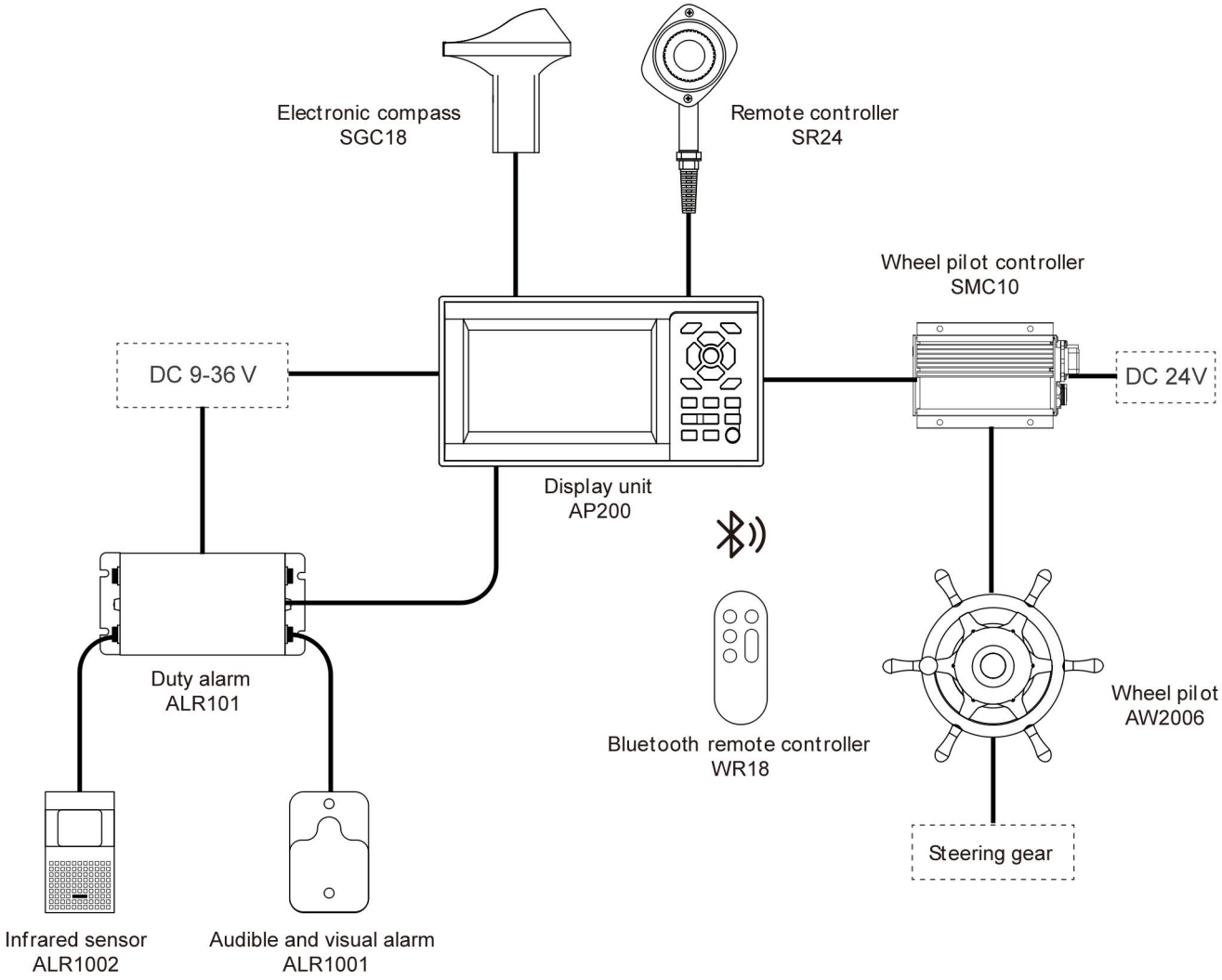
System Configuration

Drive unit: Wheel Pilot SWA16



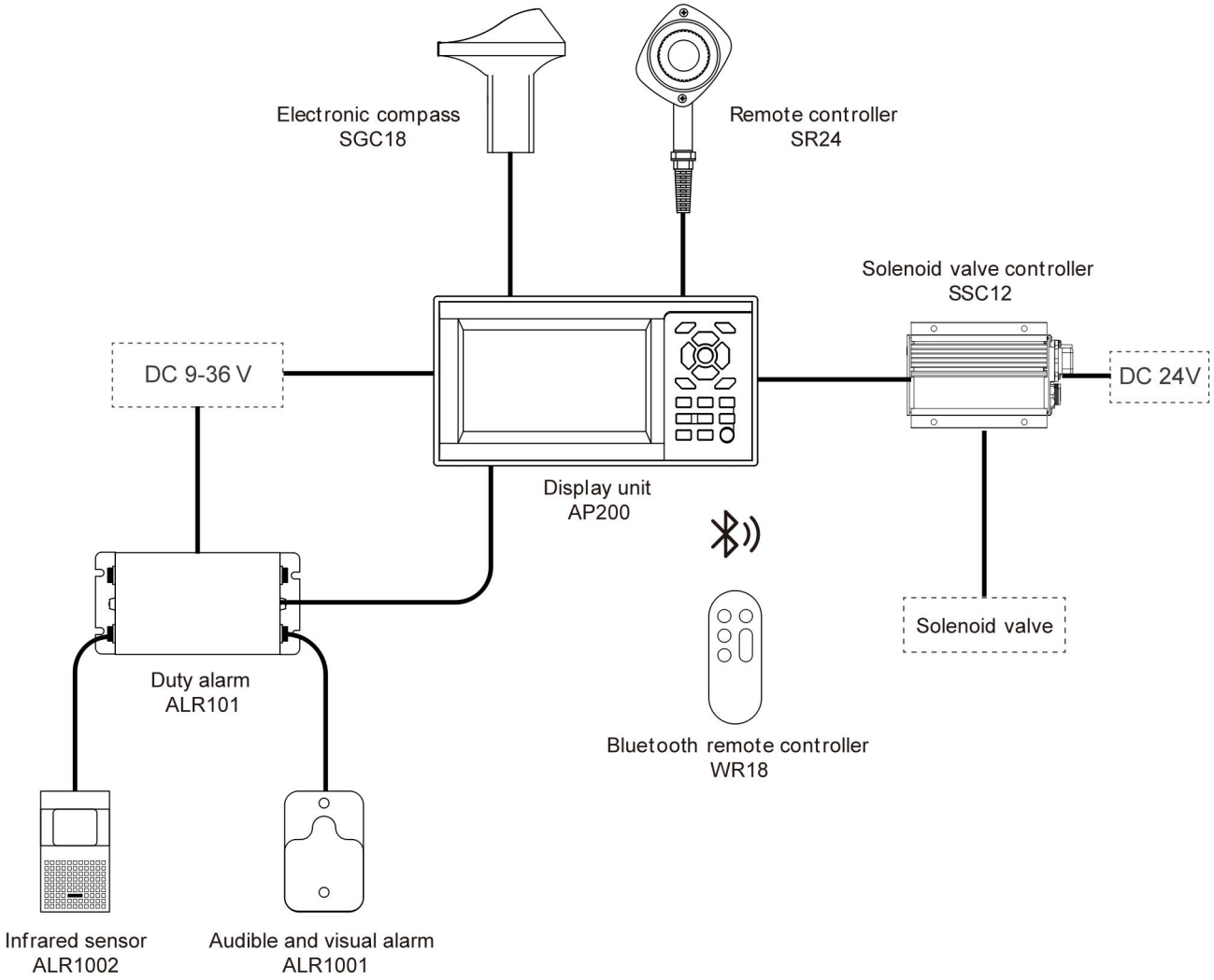
Equipment	Model	Configuration
Display unit	AP200	Required
Electronic compass antenna	SGC18	System Configuration
Wheel pilot controller	SMC16	System Configuration
Wheel Pilot	SWA16	System Configuration
Duty alarm	ALR101	System Configuration
Remote controller	SR24	System Configuration
Rudder angle feedback	AF1003	Optional
Bluetooth remote controller	WR18	Optional

Drive unit: Wheel Pilot AW2006



Equipment	Model	Configuration
Display unit	AP200	Required
Electronic compass antenna	SGC18	System Configuration
Wheel pilot controller	SMC10	System Configuration
Wheel Pilot	AW2006	System Configuration
Duty alarm	ALR101	System Configuration
Remote controller	SR24	System Configuration
Rudder angle feedback	AF1003	Optional
Bluetooth remote controller	WR18	Optional

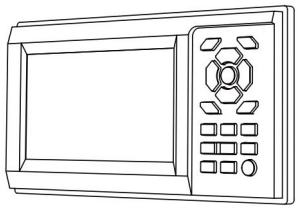
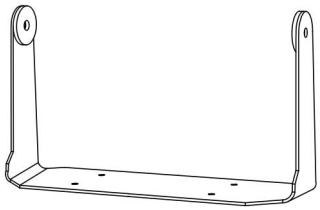
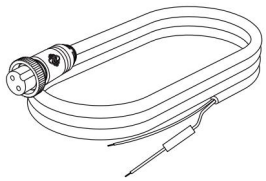
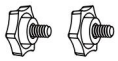
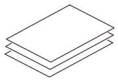
Drive unit: Solenoid valve controller



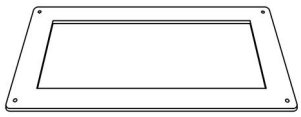
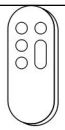
Equipment	Model	Configuration
Display unit	AP200	Required
Electronic compass antenna	SGC18	System Configuration
Solenoid valve controller	SSC12	System Configuration
Duty alarm	ALR101	System Configuration
Remote controller	SR24	System Configuration
Rudder angle feedback	AF1003	Optional
Bluetooth remote controller	WR18	Optional

Equipment List

Standard

		
1×AP200 Display unit	1×Display unit bracket	1×Power cable
		
2×Bracket fixing knob	4×fixing screws	Warranty card, certificate, manual
		
1×fuse		

Optional

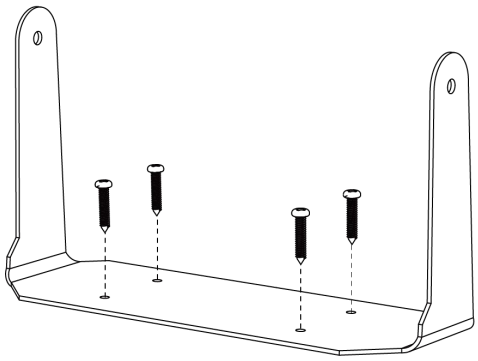
		
Embedded Panel	Flush Mounting Screws	Bluetooth remote controller

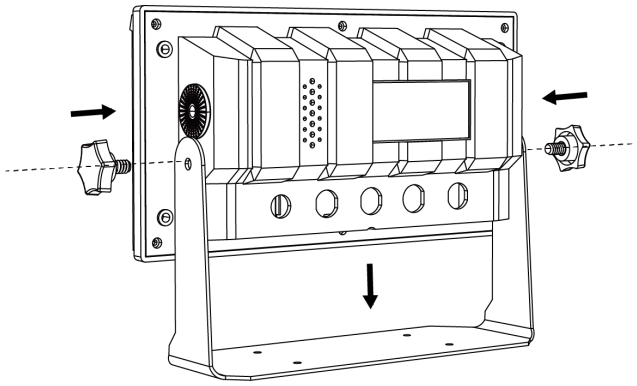
Installation and wiring

AP200 display unit supports three installation methods: desktop installation, ceiling installation and embedded installation.

1. Desktop/ceiling installation

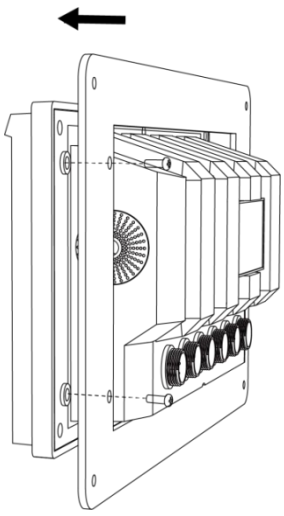
1) Use fixing screws (M4×19mm) to fix the bracket in selected place.
2) Connect the cable to the display unit. For detailed interface description, refer to '3 Interface connection'.
3) Place the display unit on the bracket, screw in the fixing knob, adjust the angle to a suitable level, and tighten the knob.





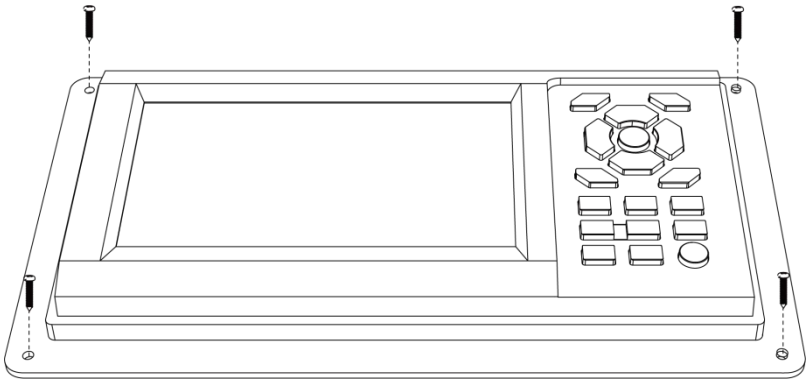
2. Embedded installation

1) Take out the embedded mounting plate (not included in the standard product, please contact the company if necessary).
2) Use four M2.5×7 screws to fix the embedded mounting plate to the display unit.
3) According to the embedded hole size, drill a hole on the countertop where it needs to be installed.

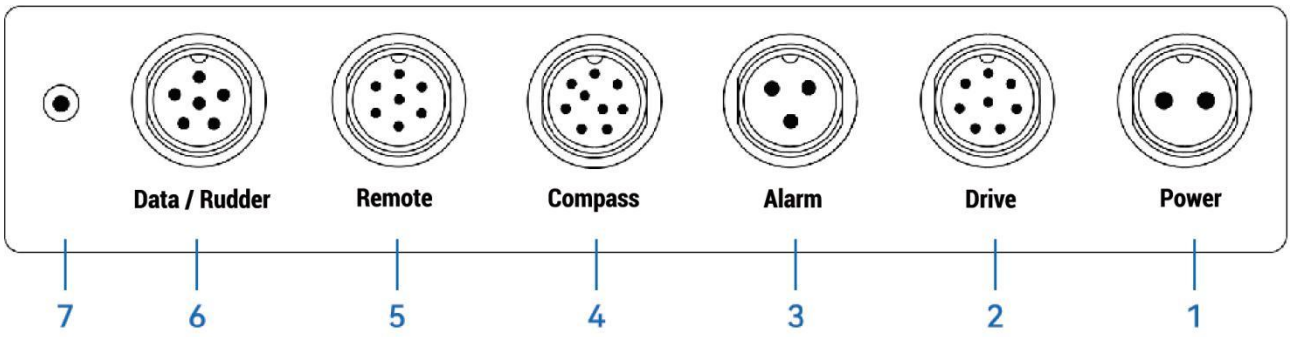


4) Connect the cables to the display unit.

5) Place the display unit into the hole and secure it with the fixing screws (M4×19mm) .



3. Interface Connection

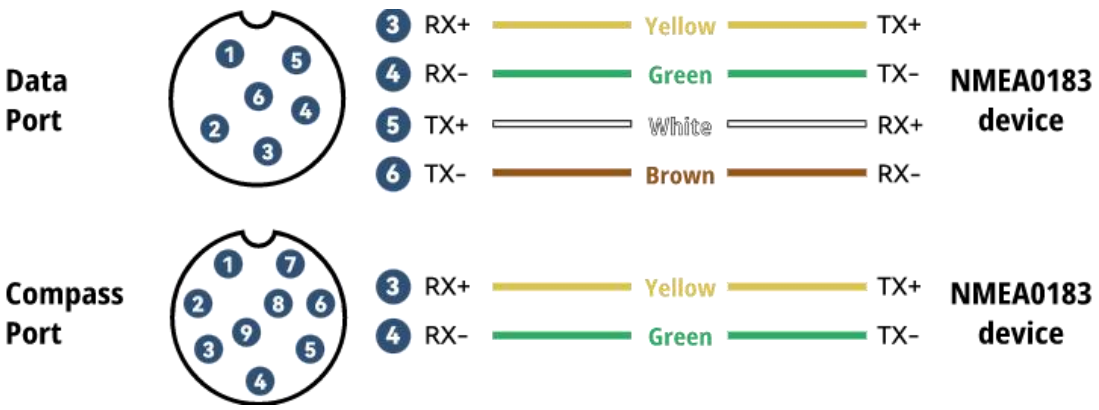


No.	Interface	Description
1	Power	Connect power supply 9-36V DC
2	Drive	Connect wheel pilot controller / solenoid valve controller
3	Alarm	Connecting the duty alarm
4	Compass	Connecting the compass antenna
5	Remote	Connecting the remote controller
6	Data/rudder	Connect the rudder angle feedback or external NMEA0183 device
7	Bluetooth	Connect the Bluetooth antenna (different versions have different configurations)

AP200 autopilot supports data input and output

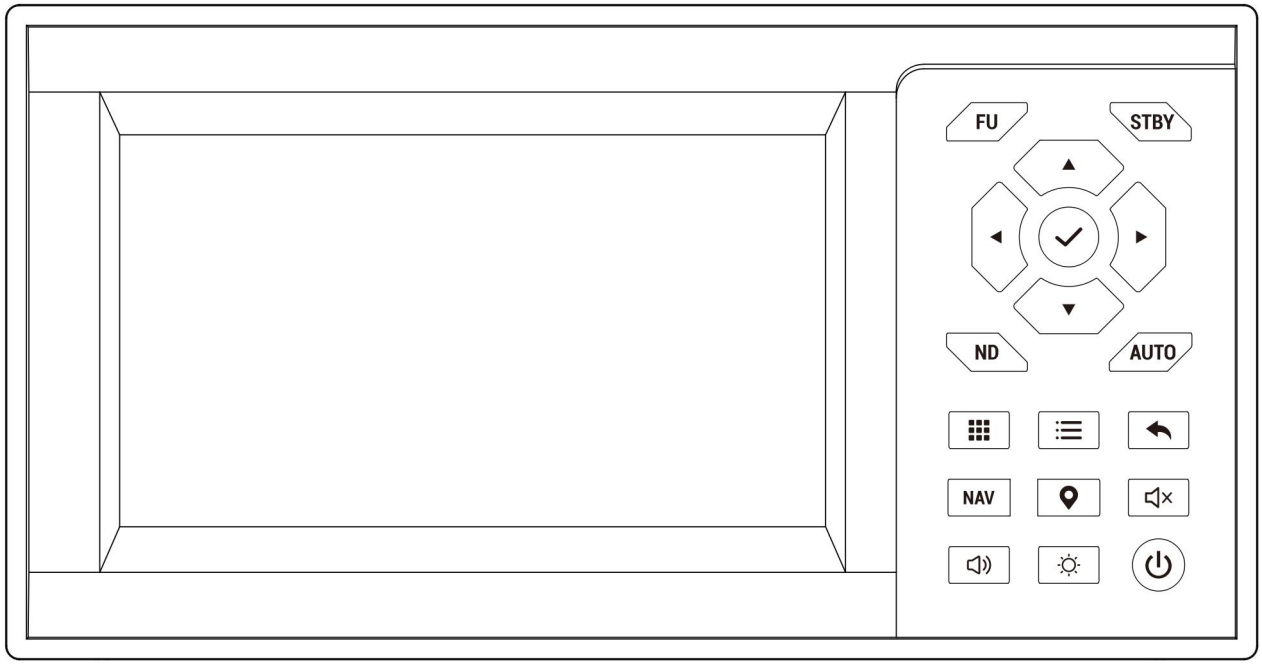
Compass interface supports: input compass data (HDG), GNSS positioning data (RMC)

The data/rudder angle interface supports: input of GNSS positioning data (RMC), output of GNSS positioning data and compass data.



Operation

1. Keys

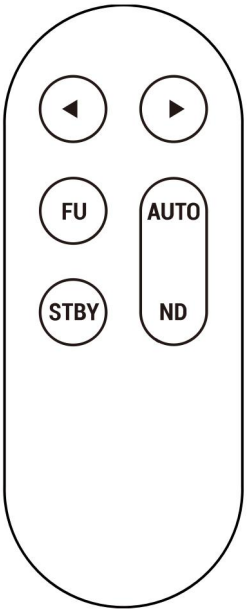


Key	Description
[STBY]	Press to switch to STBY (standby) mode In STBY mode, press and hold to switch the heading direction (forward/backward)
[FU]	Press to switch to FU(follow-up) mode
[AUTO]	Press to switch to AUTO(automatic) mode
[ND]	Press to switch to ND(no-drift) mode
[◀][▶] [▲][▼]	In ND / AUTO mode Press the [◀] [▶] keys to adjust the set course/heading In FU mode Press the [◀] [▶] keys to set PORT/STBD In menu and dialog Press to move up and down/adjust a value.
[✓]	Press to confirm the option

[⋮⋮⋮]	Press to show the menu
[☰]	Press to show the quick settings dialog
[↩]	Press to return to the previous menu or exit a dialog
[NAV]	Press to show the navigation menu
[📍]	Press to pop up a new waypoint dialog
[🔇]	Press this key to turn on/off mute mode
[🔊]	Press to show system settings dialog
[☼]	Press to show system settings dialog
⏻	Press to turn on Press and hold to turn off

2. Keys of Bluetooth remote controller (Optional)

Keys	Description
[STBY]	Press to switch to STBY (standby) mode In STBY mode, press and hold to switch the heading direction (forward/backward)
[FU]	Press to switch to FU(follow-up) mode
[AUTO]	Press to switch to AUTO(automatic) mode
[ND]	Press to switch to ND(no-drift) mode
[◀][▶]	In ND / AUTO mode Press to adjust the set course/heading In FU mode Press to set PORT/STBD



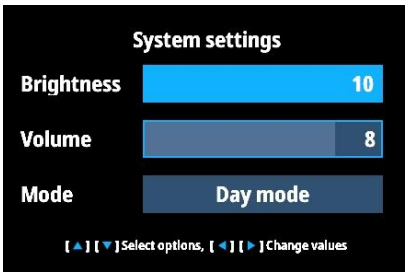
3. Turning the power on/off

When the device is turned off, press the ⏻ key to turn the power on.

When the device is turned on, press and hold the ⏻ key for 3 seconds to turn the power off.

After the first startup and factory reset, the AP200 will display a guide, Follow the guidance prompts and select the basic settings options to complete guidance.

4. Adjust the Brightness/Volume/Display mode



Press the [☼] / [🔊] key to pop up the system settings dialog.

Press the [▲] [▼] keys to select the select options.

Press the [◀] [▶] key to change values.

Brightness	Adjust screen brightness
Volume	Adjust system volume (excluding key tone)
Mode	Adjust display mode

Press the [🔇] key to turn on/off mute mode.

Wizard

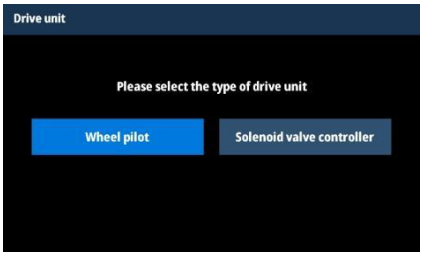
After the first startup and factory reset, the device will display a wizard. Follow the guidance prompts to complete wizard.

1. Enter/skip wizard

You can skip the wizard, But you still need to make settings later to use the automatic steering function.

2. Drive unit calibration

Select the drive unit type according to your system configuration: Wheel pilot / Solenoid valve controller

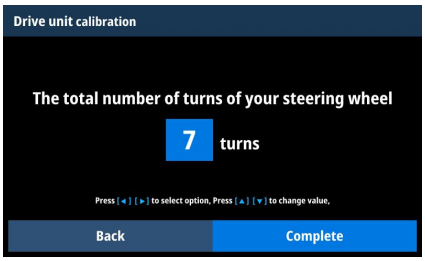


- **Wheel pilot calibration**

Enter the total number of turns of your steering wheel.

- **Solenoid valve controller calibration**

Before calibration, please ensure the connection of the solenoid valve controller. During the calibration process, the solenoid will automatically steer once, and you need to enter the real-time rudder angle.

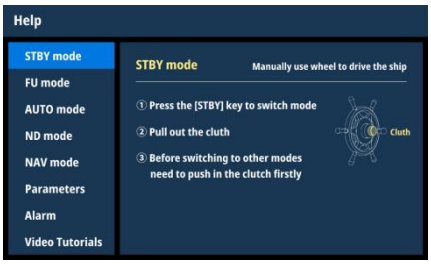


3. Select the compass unit type

Select the compass unit type according to your system configuration.

4. Help

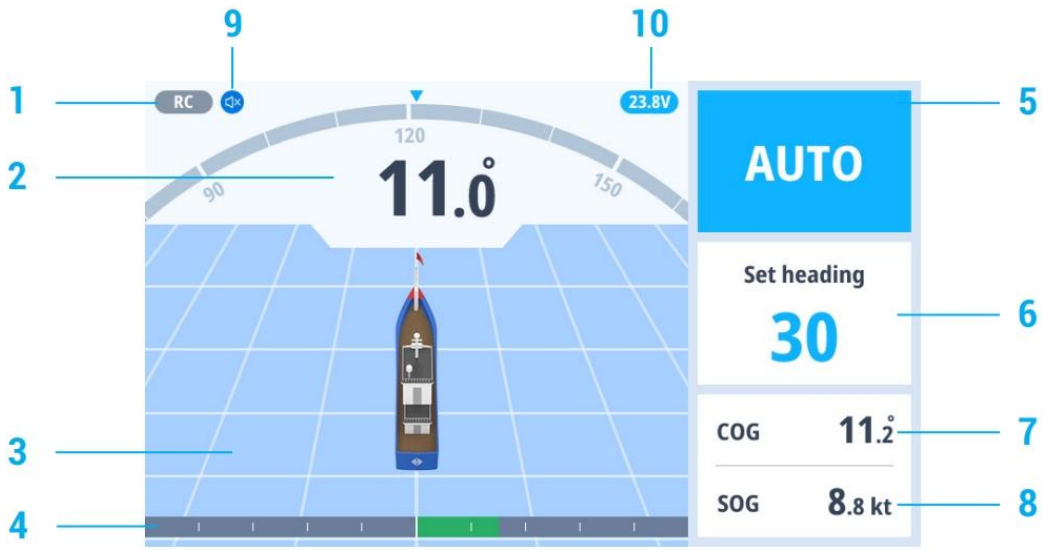
After wizard, the system's quick help will be displayed. You can also scan the QR code to view a detailed usage video.you can view it in 'Menu-Settings-Autopilot-Help '.



Autopilot Mode

AP200 supports five steering modes: STBY (Standby) mode, FU (Follow-up) mode, AUTO (Automatic) mode, ND (No drift) mode and NAV(Navigation) mode.

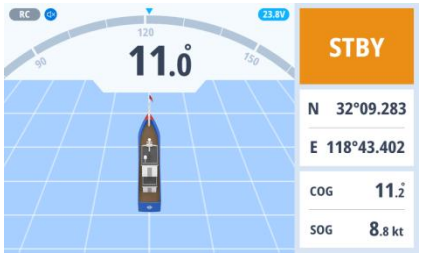
1. Screen display



1	Remote controller icon RC Connected RC Activated	6	STBY mode: The latitude and longitude of the ship AUTO mode: Set heading FU mode: Set PORT/STBD
2	Heading indicator	7	COG (Couse over ground)
3	Speed grid, changes with speed	8	SOG (Speed over ground)
4	Rudder Angle The exact rudder angle value is not displayed without rudder angle feedback	9	Mute mode icon
5	Autopilot mode	10	Drive unit real-time voltage

1	Autopilot mode	6	COG (Couse over ground)
2	ND mode: Set course NAV mode: Destination waypoint	7	Remaining distance (NAV mode only)
3	Heading	8	Remaining time (NAV mode only)
4	Set XTE	9	Set XTE line
5	Set XTE (Cross track error)		

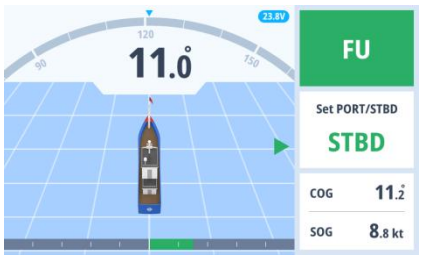
2. STBY (Standby) Mode



Manual steering of the ship.

- Press the [STBY] key to switch mode.
- Press and hold the [STBYl] key for 3 seconds to switch heading direction (forward/backward).

3. FU (Follow-up) mode



Set to steer the ship to PORT/STBD.

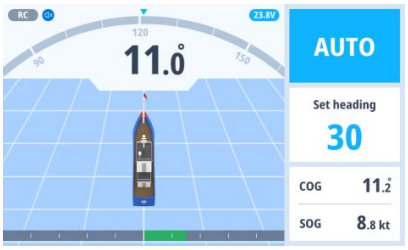
- Press the [FU] key to switch mode.
- Press and hold the [◄] [►] key to move the rudder to port/starboard. Release to stop the movement.

4. Remote controller FU mode

The mode is activated by rotating the knob of the remote controller. Rotating different angles changes the rudder angle value of port/starboard, which is usually used for emergency avoidance. After the knob of the remote controller is restored, the mode returns to the mode before activation.

- Rotate the knob clockwise to move the rudder to STBD.
- Rotate the knob counterclockwise to move the rudder to PORT.

5. AUTO mode



Set the heading to steer the ship. When switching the mode, the system will use the current heading as the set heading.

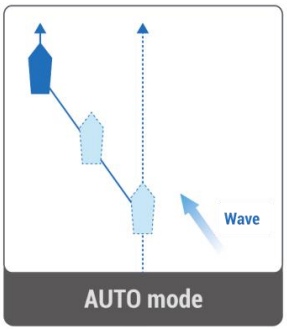
- Press the [AUTO] key to switch mode.
- Press the [◄] [►] key to change the set heading.

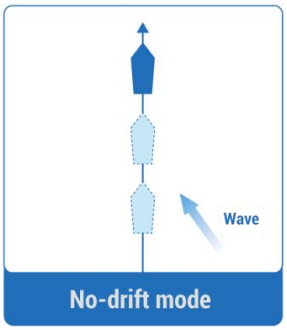
6. ND (No drift) mode

Set the course to steer the ship. In ND mode, the ship will sail in a straight line and the autopilot will not drift due to water currents and wind direction.

When switching the mode, if the current speed is greater than 1 knot, it will use the current COG as the set course. If the speed is less than 1 knot, it will use the current heading as the set course.

- Press the [ND] key to switch mode.
- Press the [◄] [►] key to change the set course.





In ND mode, the autopilot will draw an invisible route from the ship's position according to the set course, and the ship will travel in a straight line along the route. ND mode requires the system to access positioning data before it can be used.

7. NAV Mode

Select a waypoint from the waypoint list or select a history record from the navigation history to navigate. NAV mode requires the system to access positioning data before it can be used.

(1) Waypoint navigation

- Press the [NAV] key to display the navigation menu, select "Waypoints" to display the waypoint list.
- Press the [▲] [▼] keys to move up and down, press the [◄] [►] keys to turn the page, select a waypoint you want to go to, and press the [NAV] key to start navigation.

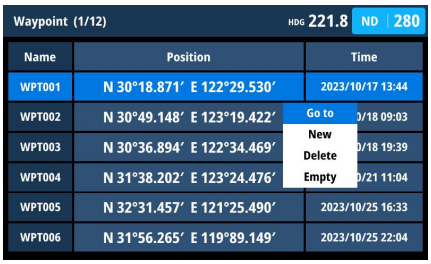
- Press the [✓] key to pop up a dialog to operate the waypoints.

(2) History record navigation

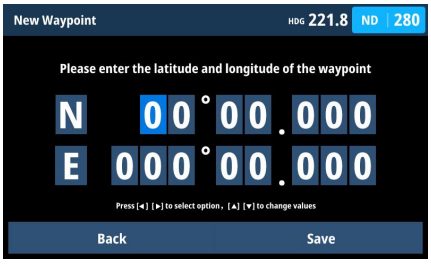
The system saves the latest twelve navigation records, and only the latest record is saved for the same waypoint.

- Press the [NAV] key to display the navigation menu, select "NAV records" to display the history navigation records list.
- Press the [▲] [▼] keys to move up and down, press the [◄] [►] keys to turn the page, select a record you want to navigate again, and press the [NAV] key to start navigation.
- Press the [✓] key to pop up a dialog to operate the records.

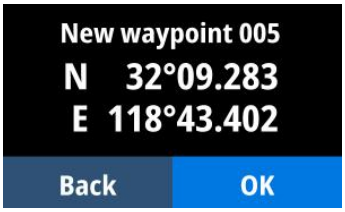
(3) Create a new waypoint by entering coordinates



- Press the [NAV] key to display the navigation menu, select "NAV records" to display the history navigation records list.
- Press the [✓] key to pop up a dialog and select 'New' to display new waypoint screen.
- Press the [◄] [►] keys to move the cursor and press the [▲] [▼] keys to adjust the value.
- Move the cursor to 'Save' and press to the [✓] key to complete the creation.

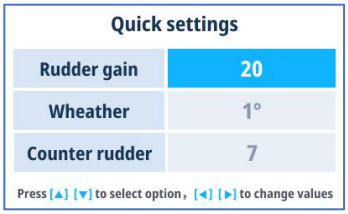


(4) Quickly create a new waypoint at the ship's location



- Press the [📍] key to pop up a new waypoint dialog and the system automatically picks up the latitude and longitude.
- Press the [✓] key to save the new waypoint.

8. Quick parameter adjustment



Press the [☰] key to pop up the quick settings dialog. You can adjust three main parameters: rudder gain, weather and counter rudder.

Parameter	Description
Rudder gain	● Range:1-50, default:20 ● If the value is too large, excessive steering can lead to overshoot and S-shaped driving. ● If the value is too small, too little steering, unable to approach the set heading. ● Adjustment method: ● Fast speed / smooth sea conditions / light load, decrease ● Slow speed / rough sea / heavy load, increase
Weather	● Range:1-5, default:1 ● When the sea is rough, the heading fluctuates port and starboard. The autopilot will frequently steer to maintain the direction, which may wear out the steering gear. You can increase the weather parameter value so that the autopilot will not adjust frequently. ● When the sea is rough, the boat's heading fuctuates to port and starboard. If the rudder is driven very often to maintain the set course, the helm mechanism maywear out. To prevent this, you can increase the value. ● Adjustment method: ● Rough sea conditions, increase ● Smooth sea conditions, decrease
Counter rudder	● Range: 1-10, default: 7 ● If the ship is overloaded, could change excessively because of inertia, causing the ship to overshoot the intended course. You can adjust the value to offset this situation. ● Adjustment method: ● Small boats usually do not need to adjust this parameter ● Heavy load/fast speed, increase ● Light load/slow speed, decrease

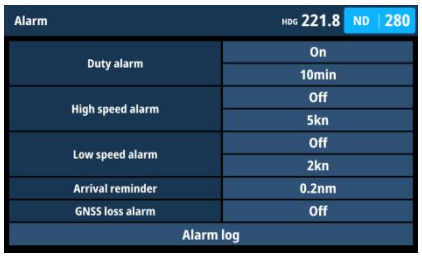
Alarm

The system will continuously check the status of the equipment and system faults. If the alarm settings are exceeded, the alarm will be sounded

1. Alarm settings

You can set alarms according to their needs.

- Press the [⁞⁞] key to display menu, select 'Alarm' and press the [✓] key to display alarm settings.
- Press the [▲][▼] keys to move up and down, press [◀] [▶] keys to change value.



ALarm	Description
Duty alarm	It needs to be connected to the duty alarm. If the infrared sensor does not detect the movement of people within the set time, an alarm will be sounded.
High speed alarm	When the ship speed is higher than the set speed, the alarm will be sounded.
Low speed alarm	When the ship speed is lower than the set speed, the alarm will be activated.
Arrival reminder	Used in navigation mode, draw a circle at the target waypoint with the set distance as the radius as the navigation arrival end range.
GNSS lost alarm	If this alarm is off, there will be no further alarm for the loss of positioning signal.

2. Alarm interaction

When the system activates the alarm, a voice prompt will be given and the alarm prompt will be displayed in the lower left corner of the screen.

If the alarm affects the automatic driving function, a alarm dialog will pop up and automatically switched to STBY mode.

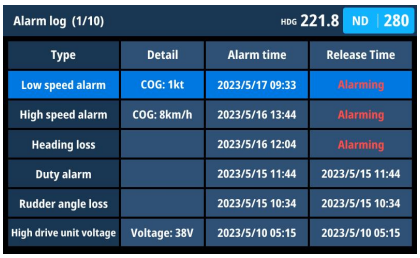
3. System alarm type

Alarm	Description
Heading lost	Unable to switch to AUTO, ND, NAV modes
GNSS data lost	Unable to switch to ND, NAV modes
Drive unit not connected	Only STBY mode available Unable to switch to other autopilot modes
Drive unit voltage high	
Drive unit voltage low	
Drive unit temperature high	
Drive unit motor error	
Drive unit not calibrated	

4. Alarm log

Select 'Alarm log' in the alarm settings to display historical alarm records.

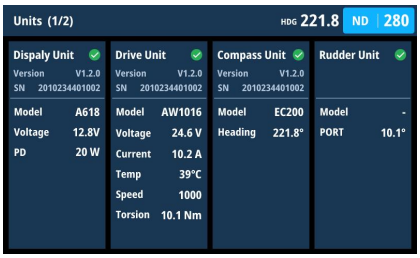
Press the [◄] [►] keys to turn the pages to view the historical alarm records, so as to facilitate your troubleshooting of equipment malfunctions.



Units

The AP200 autopilot supports viewing the information and status of the device and other accessory units connected to the device.

1. View units status

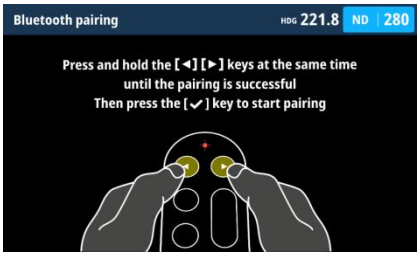


Press the [⁞⁞] key, then press the [◄] [►] keys to select 'Units', and press the [✓] key to display the status page.

2. Rudder angle feedback

This device supports virtual rudder angle, you can steer without rudder angle feedback. It also supports connecting to a rudder angle feedback for you to check your rudder angle.

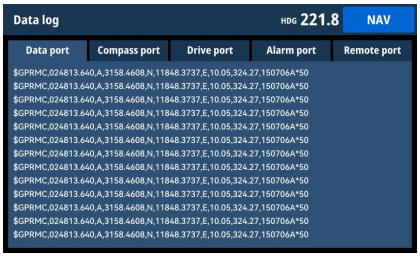
3. Bluetooth remote control



AP200 supports bluetooth remote operation.
Press the [⁞⁞] key, then press the [✓] key to display the settings page.
Press the [▲][▼] keys to select 'System' and press the [✓] key to move to next level page.

- Press the [▲] [▼] keys to select 'Bluetooth pairing', and press the [✓] key to display the pairing page.
- Press the [▲] [▼] keys of the Bluetooth remote controller at the same time until the red light flashes.
- Then press the [✓] key and wait for the pairing to be completed.

4. View each port data log



AP200 supports viewing the communication data between the AP200 and each port. This page is usually used by maintenance personnel to view.

- Press the [⁞⁞] key, then press the [✓] key to display the settings page.

- Press the [▲][▼] keys to select ‘Data’ and press the [✓] key to move to next level page.
- Press the [▲] [▼] keys to select ‘Data log’, and press the [✓] key to display the data log page.
- On the data log page, press the [◀] [▶] keys to switch each port data log page.

Settings

You can press the [⠿] key to display the menu page, and press the [✓] key to display the settings page. Adjust the settings according to your needs.

1. Autopilot

Parameter	Description
Rudder gain	● Range:1-50, default:20 ● If the value is too large, excessive steering can lead to overshoot and S-shaped driving. ● If the value is too small, too little steering, unable to approach the set heading. ● Adjustment method: ● Fast speed / smooth sea conditions / light load, decrease ● Slow speed / rough sea / heavy load, increase
Weather	● Range:1-5, default:1 ● When the sea is rough, the heading fluctuates port and starboard. The autopilot will frequently steer to maintain the direction, which may wear out the steering gear. You can increase the weather parameter value so that the autopilot will not adjust frequently. ● When the sea is rough, the boat's heading fuctuates to port and starboard. If the rudder is driven very often to maintain the set course, the helm mechanism maywear out. To prevent this, you can increase the value. ● Adjustment method: Rough sea conditions, increase Smooth sea conditions, decrease
Counter rudder	● Range: 1-10, default: 7 ● If the ship is overloaded, could change excessively because of inertia, causing the ship to overshoot the intended course. You can adjust the value to offset this situation. ● Adjustment method: Small boats usually do not need to adjust this parameter

	Heavy load/fast speed, increase Light load/slow speed, decrease
Autotrim	● Range: 1-20, default: 7 ● The autopilot will automatically correct the deviation when the ship deviates to port or starboard due to sea conditions. The parameter setting indicates the speed of correction. ● Suggest professional maintenance personnel to adjust.
Maximum turning angle	● Range: 10°-20°, default: 12° ● Suggest professional maintenance personnel to adjust.
Heading direction	● Range: Forward/Backward, default: Forward ● In STBY mode, you can also press and hold the [STBY] key for 3 seconds to change direction.
Help	View the help for using the autopilot.
Simulation	Start/stop the simulation mode. In simulated mode, the system will automatically simulate sensor data to facilitate user demonstration and familiarity with the use of the autopilot.

2. Compass

Parameter	Description
Compass unit	Range: SDM electronic compass/SDM satellite compass/External data Select the compass unit type according to your system configuration. If you connect a non-SANDEMARINE brand compass unit, please select the 'External data'.
Compass port baud rate	Range: 4800/9600/38400/19200/115200 If SDM compass unit is connected, the baud rate is automatically adjusted. If external data is connected, you can change the baud rate according to the data source.
Aligning compass to GNSS	Range: On/Off, default: On The compass will automatically correct the compass deviation in combination with the GNSS data. This function is turned off if connected external data.
Automatic	Range: On/Off, default: On

calibration	The compass unit will automatically calibrate the magnetic field environment once after the compass unit rotates 360°. This function is disabled if connected external data.
Heading offset	Range: -180°-0°-180°, default: 0° Correct the heading deviation angle caused by the installation.
Heading smooth	Range: 0-9, default: : 2 It can make the data display more stable. When set to 1, the original data is displayed.
Compass calibration	After starting the calibration, drive the ship around for more than one circle, and the system will display that the calibration is successful. If calibration fails, you can try again after changing the position.

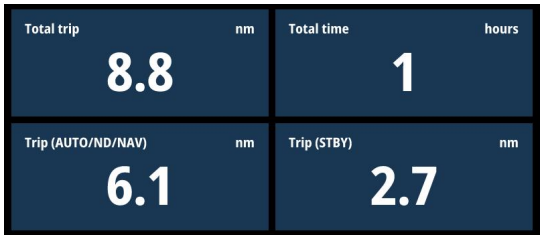
3. Rudder

Parameter	Description
Rudder accuracy	Range: 0.5°-2.0°, default: : 1.0° The rudder angle accuracy of the autopilot steering.
Maximum rudder angle	Range: 5°-45°, default: : 25° The maximum rudder angle for automatic steering in AUTO/ND/NAV modes.
Hard PORT limit	Range: -25°--60°, default: : -45° The rudder angle when steering to hard PORT.
Hard STBD limit	Range: 25°-60°, default: : 45° The rudder angle when steering to hard STBD.
Rudder angle offset	Range: -180°-0°-180°, default: : 0° Correct the rudder angle deviation caused by installing the rudder angle feedback.
Rudder reverse	Range: On/Off, default: : Off Correct the rudder angle PORT/STBD reverse caused by the installation.

4. Drive unit

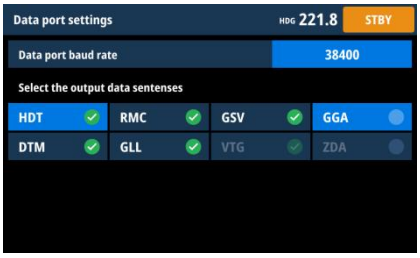
Parameter	Description
Drive unit	Range: Wheel pilot /Solenoid valve controller Select the drive unit according to your configuration.
Solenoid valve system	Range: Positive/Negative, default: Negative Only applicable to solenoid valve controller, selected according to your solenoid valve system.

5. GNSS

Parameter	Description
GNSS data source	Range: Compass port/Data port Select based on your GNSS data input port
COG smooth	Range: 1-99, default: : 10 It can make the data display more stable. When set to 1, the original data is displayed.
SOG smooth	Range: 1-99, default: : 10 It can make the data display more stable. When set to 1, the original data is displayed.
Distance unit	Range: nm/mi/km, default: nm
Speed unit	Range: kn, mi/h, km/h, default:kn
Time zone	Range: UTC-12.0—UTC+12.0, default: UTC+8.0
Set XTE	Range: 0.03nm/0.05nm/0.08nm, default: 0.05nm The set XTE(Crosstrack Error) in ND/NAV modes.
Trip log	Display the total trip / trip(AUTO/ND/NAV) / trip(STBY) / total time of your autopilot. 

6. Data

(1) Data port settings



In the data port settings, you can change the baud rate of the data interface, as well as the output compass and GNSS sentences.

If the data port is connected to a rudder angle feedback , the baud rate is fixed at 4800 and cannot be changed.

Press the [▲][▼][▲] [▼] keys to select an option, and press the [✓] key to select or deselect a sentence option.

(2) Data log

AP200 supports viewing the communication data between the AP200 and each port. This page is usually used by maintenance personnel to view.

(3) Wiring diagram

Displays the wiring diagram of the compass interface and data interface for easy viewing.

7. System

Parameter	Description
Display Mode	Range: Day/Night, default: Day
Brightness	Range: 1-10, default: 10
Volume	Range: 0-10, default: 8, 0 means mute mode
Key tone volume	Range: 0-10, default: 8, 0 means mute mode
Key brightness	Range: 0-7, default: 7, 0 means turn off the key backlight
Bluetooth pairing	Display bluetooth pairing page
Restore factory settings	Restore to factory settings. User settings and saved data will be cleared after restoration. Please operate with caution.

8. Software upgrade

You can check the software version in 'Menu-Units'. If you need to upgrade, you can contact your local dealer for software upgrade.

Menu Tree

Settings	Autopilot	Rudder gain
		Weather
		Counter rudder
		Autotrim
		Maximum turning angle
		Drive direction
		Help
		Simulation
	Compass	Compass unit
		Compass port baud rate
		Aligning compass to GNSS
		Compass automatic calibration
		Heading offset
		Heading smooth
		Compass calibration
	Rudder	Rudder accuracy
		Maximum rudder angle
		Hard PORT limit
		Hard STBD limit
		Rudder angle offset
		Rudder reverse
	Drive unit	Drive unit
		Solenoid valve system (solenoid valve controller only)
	GNSS	GNSS data source
		COG smooth
		SOG smooth
		Distance unit
		Speed unit
		Time zone
		Set XTE
		Trip log
	Data	Data port settings
		Data log
		Wiring diagram
	System	Display Mode
		Brightness
		Volume
		Key tone volume
		Key brightness
		Bluetooth pairing
		Restore factory settings

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