

ONWA[®]
KP-622/623/823

KP-622/623/823
OPERATOR'S MANUAL

3 Series GPS Chart Plotter

Product Introduction



KP-622



KP-623



KP-823

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FOREWORD

The ONWA 3 series of ONWA GPS navigation aid are specially designed for the vessel traffic management, ONWA is a professional brand of the domestic and foreign navigation products.

The products are designed to be all-sealed and waterproof, can be rapid position-fixing and resistant to poor environment. The software is powerful by using the advanced ARM9 processors, can be capable to display faster, and the design for operation is professional and reasonable, can be easy to use. The built-in Large-capacity map storage space provides intuitive and accurate indication to navigation. It's applicable to the navigation and position-fixing of various vessels at sea and rivers, as well as the hydrographic information collection, river management, etc. For the application for different types of the products please refer to the following:

| Type | Display | AIS interface | Application Scope |
|--------|----------------------------|---------------|--|
| KP-622 | 5.7" FSTN 8 grades of grey | Available | Harbor shipping, fishing, Inland river, lake and sea |
| KP-623 | 5.7" TFT bright, color | Available | Inland river, sea and pleasure craft |
| KP-823 | 8.0" TFT bright, color | Available | Harbor shipping, fishing, Inland river, lake and sea |

1. Keypad instruction

Keypad instruction(Figure 1-1)

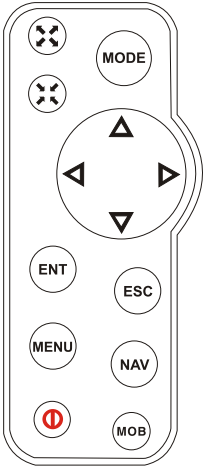


Figure1-1

MENU: Pressing it displays the menu of the current page, pressing twice enters the main-menu.

☒: Enlarges the scale of the maps and charts,16 grades totally. Display the listed items of the page by revers e-scrolling.

☒: Reduces the scale of the maps and charts,16 grades totally. Displays the listed items of the page by scrolling.

NAV: MOB navigation, cursor navigation, achieve way-point navigation, route navigation, return voyage.

⏻: Turn the power on/off, adjust the back light brightness and the volume, display the battery capacity.

ESC: Withdraw from the optional operation, or display the previous page in reverse-cycle order.

ENT: Confirms the input or data.

Arrow: Move the cursor or select the number or letter.

MODE: Display the four main screens circularly, turn over the listed interfaces.

MOB: The MOB mark denotes man overboard position.

The basic input principles for the equipment : Press **【MENU】** key to enter the menu setting accordingly, then press the **【Arrow】** keys to move the cursor to select items, press **【ENT】** to enter.

the required state. Press **【up/down Arrow】** keys to select the letter or number.

The number contains from 0 to 9, the letter contains from A to Z. Press **【left/right Arrow】** keys to move the cursor.

During the input, press **【ESC】** key at any time to cancel the current operation and return to the previous menu or operation; Press **【ENT】** key to confirm the current input, and continue to enter the next operation or menu. In relation to the similar operations, this manual will not repeat again.

2. BASIC OPERATION

2.1 Main Screens

The five main screens are as following: Plotter screen, Navigation screen (see Figure 2), Route screen, AIS Radar View and Position screen(see Figure 3). Keep pressing **[arrow]** key displays accordingly the four main screens by a positive cycle, keep pressing **[exit]** key displays them by a reverse cycle:

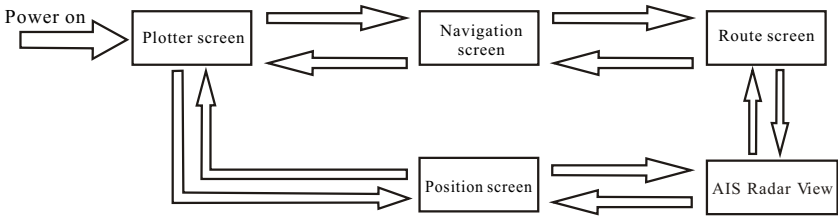


Figure 2

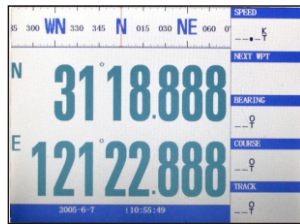


Figure 3

(1) Plotter screen : Pressing **【MENU】** key displays the following menu, see Figure 4), press [ENT] to enter sub-menu(see Figure 5).

Measure Distance ——Measure the distance from own ship to the target.

Set Up Map ——Hide or display the waypoint name, the direction, the route, the place name, grid lines, fishing lines, the first flight line, the dynamic track, history of the track, the name of obstacles, water depth, etc.. Figure 5



Figure 4



Figure 5

Show Ship Center——The position of the vessel does not move during the sailing, keep it centered and move the charts.

Auto Ship Center —— When the navigation of the vessel is beyond the plotter screen, the vessel will be automatically centered.

Hide Data Window——Hide the data field, enlarge the plotter screen.

Set Data Fields —— Change the items showed in the data field. May choose to display the data including: PDOP, Bearing, Start BRG, Steer, Cross Track, Destination Distance, Next Waypoint Distance, ETA Destination, ETA Next Waypoint, ETE Destination, ETE Next Waypoint, Elevation, Location, Destination Location, Next Location, Speed (SOG), Time, COG, Turn, Destination Waypoint, Next Waypoint, Pointer, Fishing Area

Edit Route——Establish the routes rapidly on the plotter screen.

About——the version number, the contact information of the product and service, and the serial number.

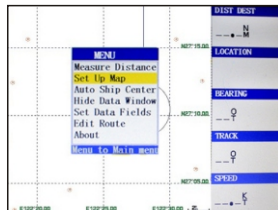


Figure 6

(2) **Navigation screen:** Pressing **【MENU】** key displays the following menu.

Hide Bug Indicator—Hides the markings of initial course.

Set Data Fields—Change the items showed in the data field . Same as above.

Heading up—Press the **【up/ down Arrow】** keys to move the cursor to the "heading up" column, then press **【ENT】** key, the top of the compass should be the direction to the navigation of vessels. Press the **【left/ right Arrow】** keys to rotate the direction of the compass. See Figure 7

North-up—Press the **【up/down Arrow】** keys to move the cursor to the "north up" column, then press **【ENT】** key, the top of the compass should be the direction of the north. Press the **【left/ right Arrow】** keys to rotate the direction of the compass. See Figure 8

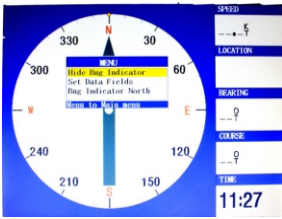


Figure 7

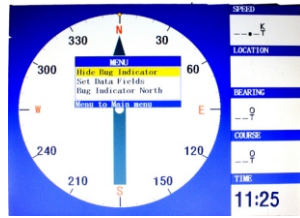


Figure 8

(3) **Route screen :** Pressing **【MENU】** key displays the following menu.

Select the corresponding menu item to carry out the following operations: to start navigation, map editing, add the waypoints, delete waypoints, insert the waypoint, route reversal, remove the route, copy the route, reverse the track. See Figure 9

(4) **Position screen :** Pressing **【MENU】** key displays the following menu. See Figure 10

Set Data Fields—Change the items showed in the data field . Same as above.

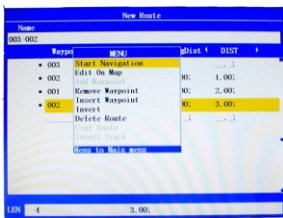


Figure 9



Figure 10

2.2 Operation

2.2.1. Turning the power on/off, adjusting the brightness and the contrast

Power on :

Pressing and holding the **【Power】** key till it beeps turns the power on, the screen displays pictures.

Power off :

Pressing and holding the **【Power】** key till it beeps turns the power off, it displays the countdown screen then disappears after 5 seconds.

Adjusting the brightness and contrast :

Shortly pressing the **【Power】** key displays "brightness" and "contrast", press **【up/down Arrow】** keys or the **【Power】** key to adjust brightness, use the **【right/left Arrow】** keys to adjust the contrast. See Figure 11

2.2.2. Establish waypoints and position storage :

Establish a new waypoint on plotter screen by cursor :

Press the **【MODE】** key to enter Plotter screen, press the **【Arrow】** keys to move the cursor to the position which required to establish the waypoints, and press **【ENT】** key, then press **【ENT】** key again, this equipment will automatically establish and number the new waypoint . See Figure 12

Input the longitude and latitude to establish a new waypoint :

Press key **【MENU】** twice to enter the main menu, move the cursor to the "Point" column. Press **【MENU】** key and move the cursor to the "New WPT" column, then press **【ENT】** key. Displays the new waypoint screen, it's ready to edit the waypoint. Move the cursor to the "name" column, press **【ENT】** and input the waypoint number or symbol, press the **【ENT】** key again to finish. Then move the cursor to the "position" column, press **【ENT】** and input the latitude and longitude, press **【ENT】** to finish.

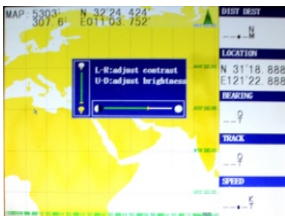


Figure 11

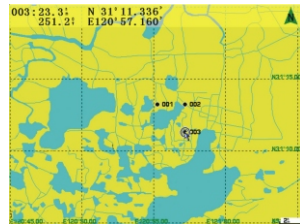


Figure 12

Then move the cursor to "OK" column, and press the **【ENT】** key to complete the establishment of a new waypoint. See Figure 13 Position storage and the establishment of a new waypoint.

Establish a new waypoint by ship's position: After get satellite fix, press and hold the **【ENT】** key on either Plotter screen, Navigation screen or Positioning screen until a beep sound is heard. A new waypoint is established according to the current ship's position.

2.2.3. Delete the waypoint

Press the **【MODE】** key to enter the Plotter screen, and move the cursor to the waypoint required to be removed, then press the **【ENT】** key, it appears "Edit Waypoint screen". Move the cursor to "delete", press the **【ENT】** key to delete the waypoint. See Figure 14.

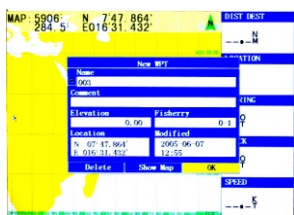


Figure 13



Figure 14

Delete the waypoint with the main menu :

Press the **【MENU】** key twice to enter the main menu, move the cursor to the "Point" , then move the cursor to "the waypoint required to be deleted", press the **【MENU】** key, and the menu window pops up. Move the cursor to the "Delete" column, and press the **【ENT】** key to confirm.

Delete all the waypoints with the main menu :

Press the **【MENU】** key twice to enter the main menu, move the cursor to the "Point" column , press the **【MENU】** key and move the cursor to "Delete All", press the **【ENT】** key , and then move the cursor to the "OK", press the **【ENT】** key to delete all the waypoints.

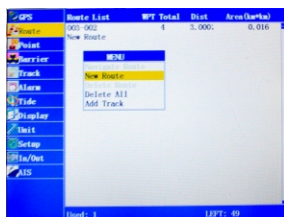


Figure 15

2.2.4. Single point navigation and cancel navigation

Single point navigation

Pressing the **【NAV】** key at any screen appears the navigation menu. Move the cursor to the "Go To Point" column and press **【ENT】** key to select the single point navigation. If cursor navigation is required, move the cursor to "cursor navigation" column and press the **【ENT】** key to select cursor navigation. See Figure 16.

Cancel navigation

Pressing the **【NAV】** key at any screen appears the navigation menu, select "Stop Navigation" to cancel navigation operation.

2.2.5. Route setting and route navigation

New routes :

1) Press the **【MENU】** key twice to enter the main menu, move the cursor to the "Route" column and press the **【MENU】** key to enter the sub-menu, move the cursor to "New Route" column and press the **【ENT】** key, displays the new route screen. Press **【ENT】** and use **【Arrow】** keys to set the route name (numeric or alphanumeric), press the **【ENT】** key to confirm the name, move the cursor to the "Waypoint" and press the **【ENT】** key, use the cursor to select the desired waypoint and press **【ENT】** to add it into the route, then press the **【MENU】** key to open the menu window, move the cursor to "Edit on Map" column and press the **【ENT】** key, that is, the establishment of new routes. See Figure 17



Figure 16



Figure 17

2) Press the **【MODE】** key to enter the plotter screen, press the **【MENU】** key and move the cursor to the "Edit Route" column, then press the **【ENT】** key, the route window pops up, move the cursor to "New Route" column, press the **【ENT】** key, appears the new route screen. Pressing the **【MENU】** key pops up the menu window, move the cursor to "Edit on Map" column, and press the **【ENT】** key, move the cursor to cover the waypoints on the charts, and press the **【ENT】** key, and then move the cursor the cover the next waypoint, follow the above operations to establish the route. See Figure 18.

3) Establish routes on the Route screen: Press the **【MODE】** key to enter the Route screen, and set the route name, then press the **【ENT】** key, move the cursor to the next column and press the **【ENT】** key , displays the list of the waypoints, move the cursor to the waypoint and press the **【ENT】** key, then move the cursor again to the next waypoint and follow the above operations. Press the **【MENU】** key, the menu window pops up, move the cursor to the "map editor" column, press the **【ENT】** key to complete the establishment of the route.

Delete the route :

Press the **【MENU】** key twice to enter the main menu, move the cursor to the " Route " , then move the cursor to a certain route, press the **【MENU】** key and select "Delete Route" column, press the **【ENT】** key and select "OK", again press the **【ENT】** key to delete the route. See figure 19.



Figure 18

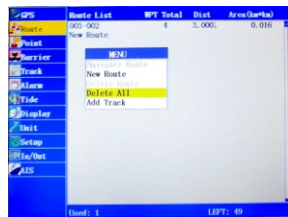


Figure 19

route/reverse route navigation :

Press the **【MODE】** key to enter the Route screen, then press **【MENU】** key and move the cursor to the "Start Navigation" column (being implemented), or "Invert" column (in reverse order), and then press **【ENT】** to begin navigation. See Figure 20

2.2.6. The operation for track recording

This equipment adopts the new way for track recording, it provides a large storage space for track recording, the simple and intuitive operation, and the strong editing feature, the specific feature is as following:

- 39 storage tracks, can be set to display on/off respectively, segmentation edit, save and copy, there are 4 kinds of lines and 8 colors to choose.
- One real-time track record, with two kinds of recording methods, may regulate the interval, pause etc. at any time during the process of recording.
- A total of 40 track lines, 2100 track points for each track , can store 84,000 track points in total.

New track/Stop/Pause

Double-click the **【MENU】** key to enter the main menu, move the cursor to the "Track" column, and then press the **【right Arrow】** keys to move the cursor to the "New", click **【ENT】** key to start recording the track, see Figure 21. After the track record begins, the "New" changes into "Stop"; the "Record" changes into "Pause". If move the cursor to the "Pause" on the left and click **【ENT】** key, the "Pause" will be changes into "Record" , then track record will be paused, Click **【ENT】** key at the "Record" , the "Record" will be changed to the "Pause" , then it will continue to record the track.

Note: The track would not be recorded during the period of the pause, there would be blank displayed on the charts, without track connection.

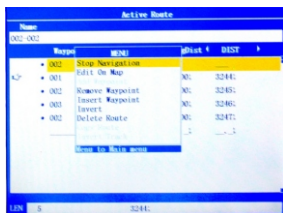


Figure 20

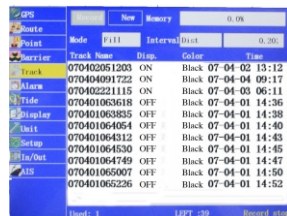


Figure 21

After the beginning of track record, even if it's under the pause state, move the cursor to the "Stop", click **【ENT】** key to turn off the record. And will automatically name the track record for the user to edit. At the beginning of track record, the "scale ruler" on the chart screen will be a red background, otherwise be white.

Note: The status of starting, stopping or pausing the track record will be saved, the original state before being shut down will be maintained.

Track record setting

Double-click the **【MENU】** key to enter the main menu, move the cursor to the "Track" column, see Figure 22, the options for the track record method are as following: "Mode" and "Interval". The "Mode" includes the two options: "Fill" and "Wrap". The "Fill" mode is: When a track record is completed, the system will save the current track and meanwhile start a new track record. The "Wrap" mode is: When it reaches the 2100 track points for the current record, remove the track point on the end of track line, and store the newest track point, make a cycle use of a track's storage space.

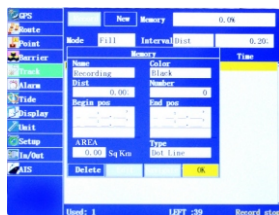


Figure 22

The "Interval" determines the span of the adjacent track points recorded, one is to determine the span of track record by the "Time"; The other is to determine the span of track record by the "Dist". Thus, the options for "Interval" include: the measurement of the record and the interval of the record. The measurement of the record is "Time" and "Dist", and the corresponding units of measurement are "hh:mm:ss" and "nm".

The "Time" mode for the track record is as following: it takes time as the measure unit for track record interval, and records 1 track point in a specific time interval. The smallest time interval is 1 second, under the recording mode of time, the track points which change less than ± 0.001 points at the latitude and longitude will not be continuously recorded.

The "Dist" mode for the track record is as following: it takes length as the measure unit for track record interval, and records 1 track point in a specified distance range. The smallest distance interval is 0.01 nm (about 18 m).

Choosing a suitable interval value for the track record can make a full use of the track storage space, e.g., if take 0.5 nm (about 900 m) as the record interval, for a track record of 2100 track points, it can record at least nm miles of the routes; If sail at the speed of 10Knots, you can record the track points for 100 hours.

Note: The track recording method can be changed during the track record; The original state before being shut down will be maintained.

Track editing

Double-click the **[MENU]** key to enter the main menu, move the cursor to the "Track" column, and then press the **[right Arrow]** keys to move the cursor to the "saving or saved track", click **[ENT]** key, and the "Memory" window pops up, see Figure 22.

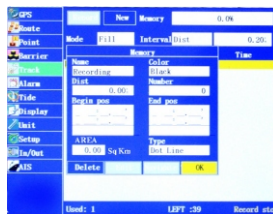


Figure 22

Selecting "Type" means to adopt a different way of drawing to display the tracks on the chart screen, the line types include the following four kinds of line : dashed / thin solid line / thick solid line / point solid line. The "color" selecting refers to use different colors to display the track on the chart screen, a total of 8 kinds of colors to choose.

Note: The track line named as "Recording" or "New Record" is the track line being recorded for real-time track points, can not be edited, the track lines which have been saved can only be edited after the record is "stop".

Track display on/off :

Double-click the **[MENU]** key to enter the main menu, move the cursor to the "Track" column, and then press the **[right Arrow]** key to move the cursor to the track need to be edited, press **[MENU]** key, Move the cursor to the "Open Display" column and then press **[ENT]** key , this track will be displayed on the charts; Press **[ENT]** key on the "Close Display" column, this track will not be displayed on the charts. The "Open Display" and "Close Display" option are multiple choice, will not appear at the same time.

Note: whether or not to display the track also depends on the option of "Control the track display according to the scale", if it is out of the scale, the track line will not be displayed. Please refer to the **[Display tracks by scale] section.**

Copy/Delete the track :

Double-click the **[MENU]** key to enter the main menu, move the cursor to the "Track" column, and then press the **[right Arrow]** key to move the cursor to the track need to be edited, press **[MENU]** key, see Figure 23.



Figure 22

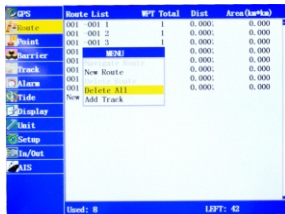


Figure 23

Move the cursor to "Copy" or "Delete" or "Delete all" and then press **[ENT]** key, can respectively copy or delete this track line, or delete all the track lines.

Track back :

Double-click the **[MENU]** key to enter the main menu, move the cursor to the "Track" column on the left, and then press the **[Arrow]** keys to move the cursor to the track need to be edited, press **[MENU]** key, the "Track editor " window pops up, Or press the **[MENU]** key to enter the "Track menu", Move the cursor to the "Track back" and press **[ENT]** key, then enter the track back navigation. The ship will be firstly navigated to the nearest point from this track line by the navigator, and then follow this route through "return the same way" navigation, with the navigation data such as steering angle, drift angle, drift distance etc provided by the navigator to sail along the track line.

The other way to enter track back navigation is as following: Click the **【NAV】** key at any screen, move the cursor to "Navigate Track" column and press **【ENT】** key, see Figure 24. Press **【ENT】** key on the "Navigate Track" column, and then choose a track line and press the **【ENT】** key to enter the track back navigation.

Display the track as per the scale :

Press **【MENU】** key on the charts screen, and move the cursor to "Set Up Map", then click the **【ENT】** key.

At the left side of the "Show Track" option, if is selected, the track can be displayed on the charts, for the specific track to be displayed, it depends on whether or not the track is set to be displayed on; If is selected, whether the track is set to be displayed on or not, the tracks will not be displayed on the charts.

The scale option is at the right side of the "Show Track" option, only when the chart is enlarged to be within the selected scale, the track lines set to be "Track display on" will be displayed on the chart screen. The "ALL" means under any scale the track lines set to be "Track display on" will all be displayed on the chart screen. To set track line to be "Track display on", please refer to **【Track Display On/Off】** section.

Delete all the tracks :

Press **【MENU】** key twice to enter the main menu, move the cursor to the "Track" column, and then move the cursor to "Track history", then press **【MENU】** key, the menu window pops up, move the cursor to "delete all the history tracks" column, press **【ENT】** key can clear all the tracks.

2.2.7. Emergency (MOB) navigation

In case of any emergency occurs at sea, press the **【NAV】** key. Move the cursor to the "MOB" column and press **【ENT】** key; Or press and hold the **【NAV】** key, till the "MOB" confirmation option pops up. Move the cursor to "Confirm" column, press **【ENT】** key, the satellite navigation will in automatic navigation to the emergency point and also establish the waypoint. See Figure 25

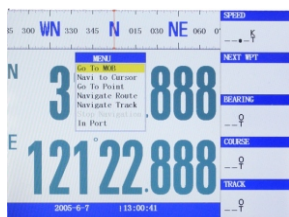


Figure 24



Figure 25

3. THE MAIN MENU FUNTION

Pressing the **【MENU】** key twice at any of the main screens can enter the main menu, move the cursor to a column, press the **【right Arrow】** key to enter that column for setting or adjusting.

GPS :

The satellite distribution is on the left of the upper half screen, the longitude and latitude of the current location, the year, the month, the day and the time on the right. The lower half is about the satellite signal strength. The latitude and longitude whose color turns into black color is the positioning latitude and longitude. See Figure 26

Route :

Enter the "Route" column and press the **【MENU】** key may establish a new route or check, route navigation, delete a particular route or delete all, adding the track into the route. See Figure 27



Figure 26

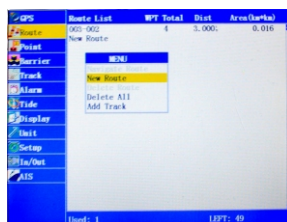


Figure 27

Point :

Entering the "Point" column can establish a new waypoint and make a list of the existing waypoints. Move the cursor to the "Waypoint list", and then move to the waypoint required, then press the **【MENU】** key can select the operation of "New waypoint", "Delete waypoints" or "Delete all".

Barriers :

Enter the "Barrier" column, there is two ways to establish the barrier point.

1) Press the **[MENU]** key to select "New Barr", press **[ENT]** key to enter the New Barrier window, move the cursor to the "symbol" option beside the "Name" column, pressing **[ENT]** key appears 99 kinds of symbols (see Figure 28), press the **[Arrow]** keys to move the blue box onto the symbol selected, and press **[ENT]** key, move the cursor to the "Location", input the latitude and longitude, move the cursor to "OK", press **[ENT]** key. If need to show barriers on the chart, press the **[MODE]** key to enter the charts, pressing the **[MENU]** key appears the menu window, move the cursor to "Set Up Map" column, pressing the **[ENT]** key appears the map setting window, move the cursor to "Show Barrier Name" column, press **[ENT]** key , and then press the **[ESC]** key.

2) To establish barrier points on the chart: press the **[Arrow]** keys to move the cursor to the position of establishing the barrier, pressing **[ENT]** key appears the "New WPT" window, pressing the **[MENU]** key appears the menu window, move the cursor to "Insert to Barri" column (see Figure 29), pressing the **[ENT]** key appears "View Bar" window, move the cursor to the "symbols" of the "Name" column, pressing **[ENT]** key appears 99 kinds of symbols, and then press the **[Arrow]** keys to move the blue box onto the symbol selected, and press **[ENT]** key, move the cursor to the "OK" and press **[ENT]** key.



Figure 28

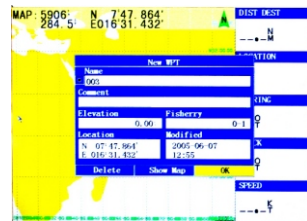


Figure 29

Enter the "Barrier" column, there are two ways to delete barrier points.

1) pressing the **[MENU]** key appears the menu window, press the **[Arrow]** keys to move the cursor to the "Delete" column or "Delete all" column, and then press the **[ENT]** key.

2) To remove the barrier points on the charts: move the cursor to the barrier point required to be removed on the chart, pressing **[ENT]** key appears the "View Bar" window, move the cursor to the "Delete" and press **[ENT]** key.

Alarm :

Enter the "Alarm" column to review and set the alarm as following: Next WPT point alarm, Arrival alarm, Offset alarm, Anchor Drag alarm, Impact(Collision) alarm, PDOP (accuracy) alarm. See Figure 30

Tide :

Enter the "Tide" column, move the cursor respectively to "At" column, and press the **【ENT】** key, the tides situation of the major ports along the coast on any particular date can be found. Move the cursor to the Tide screen, press the **【left/ right Arrow】** keys, the time of the high/low tides on that current day and the tide height can be found. The vertical axis is representative of the height of tides. See Figure 31

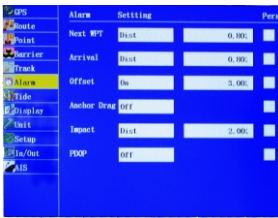


Figure 30

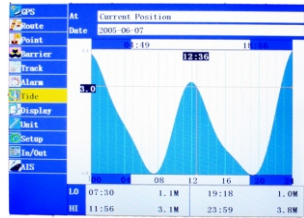


Figure 31

Unit :

Enter the "Unit" column to set the distance and speed (Nautical, Statute and Metric), the elevation unit, naming rules and magnetic declination.

Setup :

Enter the "Setup" column to review and set the manner as following :

System Mode: Marine or Simulator

Data Source: Inside, SD or Auto

Speed Filter: (continuously adjustable from 0 to 99 levels): The users may set the filtering levels of the speed according to the needs, suggest that the larger the winds and waves are, the higher the level is. The specific level can be set according to the hull length and antenna height as well as the user's habits.

Time Zone: Enter the local time zone.

Rotate Map: Users may set up the charts display setting according to the needs, that is, upper for the north, upper for the East, upper for the South, or upper for the West.

Remain Space: Indicate the remaining memory space after the storage of the waypoints, routes, and tracks.

Oil Used Rate: Enter the fuel consumption to estimate the fuel needed to reach the destination

Time Format: Set to display 24-hour or 12 hours. see Figure 32

In/Out :

Output NMEA0183, input and output the waypoints, the routes, and the tracks. At the same time, the user may set it to be the different baud rate. See Figure 33

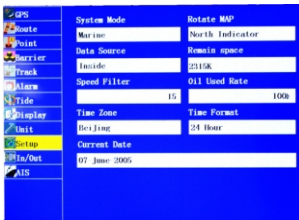


Figure 32

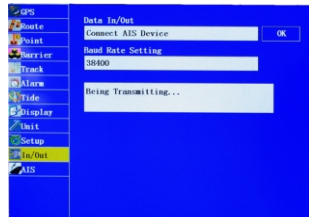


Figure 33

Press the **[MENU]** key to clear all the stored data and save all the data.

4. THE AIS FUNTION

4.1 Start AIS function

Enter the "Main Menu", select the "In/Out" column, at the "Data In/Out" column select "Connect AIS Device", and then move the cursor to the "OK", press the **【ENT】** key to connect AIS equipment. See Figure 34

4.2 Vessels list

Enter the "Main Menu", and select the "AIS" to check all the AIS vessels received by the current AIS equipment. See Figure 35

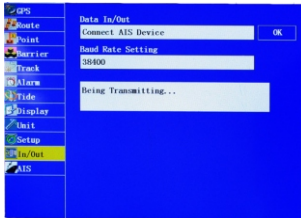


Figure 34

| GPS | MMSI | Course | BIDR | Type |
|---------|-----------|--------|-------|------|
| Route | 412270980 | 17.31 | 7.701 | A |
| Point | 412370240 | 14.11 | 7.901 | A |
| Barrier | 412372140 | 7.71 | 8.191 | A |
| Track | 412044730 | 66.11 | 8.431 | A |
| Alarm | 4132211 | 208.21 | 8.501 | BASE |
| Tide | 354358000 | 322.81 | 8.591 | A |
| Display | 413373630 | 23.31 | 8.731 | A |
| Unit | 412324620 | 323.51 | 8.741 | A |
| Setup | 413371980 | 29.51 | 8.751 | A |
| In/Out | 309504000 | 40.21 | 8.901 | A |
| | 4132206 | 324.31 | 8.891 | BASE |
| | 412616000 | 41.61 | 8.901 | A |
| | 412438840 | 86.51 | 9.011 | A |
| | 413402170 | 96.01 | 9.041 | A |
| | 412550240 | 352.71 | 9.181 | A |

Figure 35

4.3 The collision alarm

Enter the "Main Menu", and select the "Alarm", and then select the scope of the collision alarm according to the time and distance. See Figure 36

There are an optional feature comes with the collision alarm as following: the live audio broadcast and also the capability to broadcast the distance, it has to be indicated in the purchasing order for this optional function if needed.

| GPS | Alarm | Setting | Pass |
|---------|-------------|------------|--------------------------|
| Route | Next WPT | Dist: 0.90 | <input type="checkbox"/> |
| Point | Arrival | Dist: 0.90 | <input type="checkbox"/> |
| Barrier | Offest | No: 0.90 | <input type="checkbox"/> |
| Track | Anchor Drag | Off | <input type="checkbox"/> |
| Alarm | Impact | Dist: 0.90 | <input type="checkbox"/> |
| Tide | POOP | Off | <input type="checkbox"/> |

Figure 36

4.4 Own ship's information

Enter the "vessels list", and press the **【MENU】** key, and then select the "Own Ship Info" to check all the information of own ship, see Figure 37.

The own ship's information is also displayed on the upper right of the radar screen, see Figure 42.

For the own ship's information, such as MMSI, the antenna height, the location, draught, etc., please consult the suppliers. Before inputting the information, the system may not be able to work or can only receive the information.

| GPS | MMSI | Course | DIST | Type |
|-----------|-----------|--------|------|------|
| 412270980 | 412270980 | 37.35 | 7.70 | A |
| 413370240 | 413370240 | 14.11 | 7.90 | A |
| 412372140 | 412372140 | 7.71 | 8.19 | A |
| 412044730 | 412044730 | 66.11 | 8.43 | A |
| 4132211 | 4132211 | 238.21 | 8.50 | BASE |
| 354358000 | 354358000 | 322.81 | 8.59 | A |
| 413373630 | 413373630 | 23.31 | 8.73 | A |
| 412324620 | 412324620 | 323.51 | 8.74 | A |
| 413371980 | 413371980 | 29.51 | 8.75 | A |
| 304504000 | 304504000 | 40.21 | 8.86 | A |
| 4132206 | 4132206 | 324.31 | 8.89 | BASE |
| 412616000 | 412616000 | 41.61 | 8.90 | A |
| 412438840 | 412438840 | 86.51 | 9.01 | A |
| 413402170 | 413402170 | 96.01 | 9.04 | A |
| 412550240 | 412550240 | 352.71 | 9.18 | A |

Figure 37



Figure 42

4.5 Chart Screen

Users can check all AIS vessels being received in real-time on the chart screen, as well as the specific position and track of the own ship on the charts. See Figure 38

The track length of AIS vessels depends on the equipment memory space, generally not less than 20 track points.



Figure 38

4.6 View AIS vessels' information on chart screen

There're two ways to view AIS vessels' information: one is to move the cursor to select AIS vessel on the charts screen, and press the **【ENT】** key. See Figure 39
The other is to select the AIS vessel from the AIS vessels list, and press the **【ENT】** key. See Figure 40



Figure 39



Figure 40

4.7 Check all AIS ships within the scope of Radar(AIS screen)

Displays all AIS ships within the current scope of the Radar, the current location of the own ship is at the center of the map, appearing as a white hollow triangle, and the vertex angle of the triangle stands for the current direction of the own ship, the blue hollow triangle stands for the vessels of CLASS B, the green hollow triangle stands for CLASS A vessels, the green hollow square stands for BASE STATION, and the vertex angle of the triangle stands for the direction of the vessel, such as round, and the circle stands for no direction.

The collision alarm setting and the current scope of radar can be displayed on the upper left corner of the radar, and the scope be adjusted by pressing the **【↔】** key and **【✕】** key.

The message display frame on the upper right corner of the radar displays the following information: the own ship's position, the current time, the current speed / direction of the own ship.

4.8 Emergency alarm:

The information of the emergency alarm received is displayed on the bottom right corner. The emergency alarm is always available and can not be deleted, if the emergency alarm information is not read, after exiting the alarm menu, the "emergency alarm" window will pop up a little latter. The warning ship displayed on the Radar will be yellow and flashing. See Figure 42



Figure 42

The relevant data (including the time, place, the relevant ship's information, etc.) will also be saved by the display terminals, it can be the basis of an analysis in the event of any accident.

4.9 Entry/Departure setting

The Entry/Departure setting is for temporarily shut down or restart the collision alarm, when entering the port the collision alarm will be temporarily closed, when leaving the port the collision alarm will be opened. There are two ways for Entry/Departure setting:

- 1) Press the **【MENU】** key at the Radar window, and select "In Port" or "Out Port". See figure 43
- 2) Press the **【NAV】** key at any window, and select "In Port" or "Out Port". See figure 44



Figure 43



Figure 44

Navigation Terms

Bearing(BRG)— —The compass direction from your current location to a destination.

Start BRG— —The desired course between the active from and to waypoints.

Distance (Dist)— —The distance from current location to a destination.

Dist to Destination— —The distance from current location to a Goto destination, or the final waypoint in a route.

Dist to Next— —The distance from current location to a Goto destination, or the next waypoint in a route.

PDOP— —Dilution of Precision reflects the quality of the GPS signals and satellite geometry.

Elevation— —Height above mean sea level(MSL).

ETA(Estimate Time of Arrival)— —The estimated time you will reach your destination waypoint, based on current speed and track.

ETA at Destination— —The estimated time you will reach a Goto destination or the final waypoint in a route.

ETA at Next— —The estimated time you will reach a Goto destination or the next waypoint in a route.

Cross Track— —The distance you are off a desired course in either direction, left or right.

Pointer— —an arrow pointing to you destination.

Speed— —The current velocity at which you are travelling, relative to a ground position. Also referred to as “ground speed.”

COG— —The direction of movement relative to a ground position, Also referred to as “ground track.”

Turn— —The angle difference between the bearing to your destination and your current track. “L” indicates you should turn left; “R” indicates you should turn right. **Waypoint Destination**— —The final waypoint in the route, or the destination waypoint.

Waypoint Destination— —The final waypoint in the route. or the destination waypoint.

Waypoint Next— —The next waypoint in the route.

5. Main Performance and Specifications

5.1 Performance and characteristics

5.1.1 The GPS function

- 1) Satellite receiver type: 16 discrete channels receiver, differential signals can be received
- 2) Positioning accuracy: 10 meters (CEP) the accuracy of 3 meters (CEP)
- 3) Speed accuracy: 0.1 Knots (RMS)
- 4) Positioning time: 15 seconds for warm start, 45 seconds for cold start
- 5) Update rate for positioning data: once per second

5.1.2 Navigation

- 1) Up to 18,000 waypoints, including the optional logo, or as geographic information.
- 2) Up to 50 routes: 50 (300 waypoints for each route)
- 3) Track Points: 40 Track points, including 1 real-time track record, 39 history track records, 2100 points for each track, 84,000 points in total, the information of each point including the time, location and direction
- 4) 40 track point lines (2100 points for each)
- 5) Up to 99 kinds of signs for various objects

5.1.3. Data Interface

RS-232 serial port: NMEA2.0 and the data exchange with other equipment.
USB1.0 Slave: To upgrade the software and map data.

5.1.4. Equipment Parameters

- 1) The shell: ABS all-sealed and waterproof design, metal stents.
- 2) Size:
KP-823: 262×172×65 mm
KP-622/623: 205×125×55 mm
- 3) Weight:
KP-622/623: 0.6 kgs approx.
KP-823: 0.8 kgs approx.
- 4) Display:
KP-823: 8" (162mm×121.5mm), 640×480 dot-matrix, TFT color LCD display
KP-622: 5.7" (119mm×97mm), 320×240 dot-matrix 8 grades of gray liquid crystal display.
KP-623: 5.7" (119mm×97mm), 640×480 dot-matrix, TFT color LCD display
- 5) Temperature: -30 °C to 65 °C (working temperature), -35 °C to 75 °C (Storage temperature)
- 6) Power Supply :10-38V DC, about 3W for power, with protection.

5.1.5. Configuration

- 1) Active GPS Antenna with 10m cable (KA-08) : 1 pc.
- 2) Display Mounting : 1 set
- 3) 8-core data and power cables: 1 pc., see figure 46
- 4) Operator Manual : 1 copy
- 5) 1A Fuse: 2 pcs.

5.1.6 Installation: (see Figure 45)



Figure 45-a Desktop installation



Figure 45-b Panel installation



Figure 45-c Ceiling installation

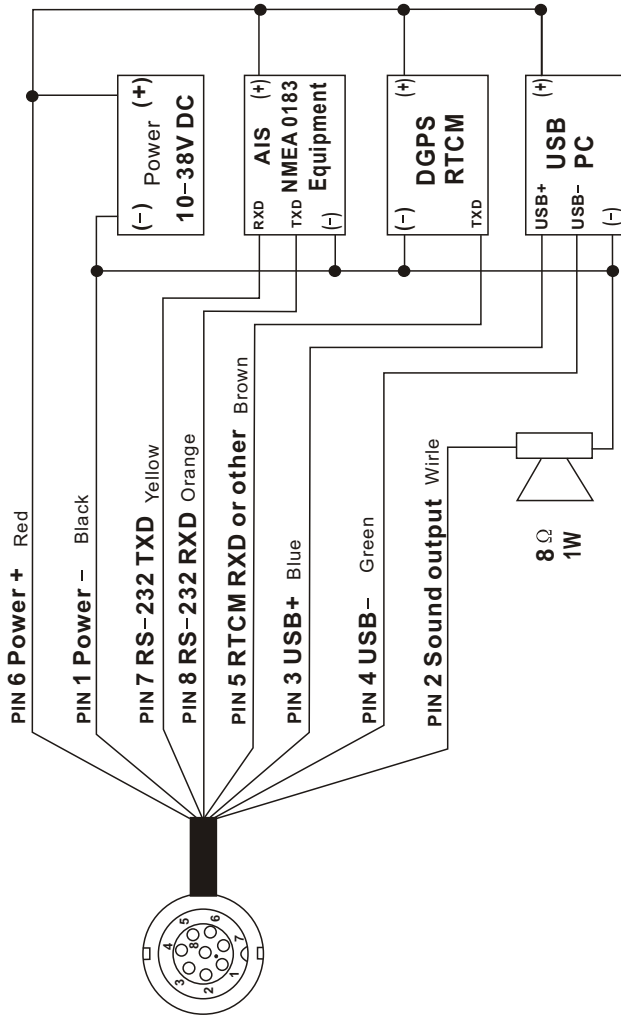


Figure 46 8-core electrical cable connection diagram

