

FOREWORD

Congratulations on choosing our DP-38A 5 inch Marine GPS Navigator.

It is used the high-performance true color LCD for the product display with bright color and stable pictures. Our imported satellite receiver suits to marine. The high-performance 32 bits ARM chip used for the product processor has fast speed and consumes less. All the data achieves real time storage and it uses solidified storage, which is able to realize lifelong preservation and get rid of the worry about the loss of data caused by accident power-off. The user manual contains full information for easy operation. It has number key for fast operation. It's convenient and practical will bring you a new pleasure.

We also provide upgrade service for the software and chart for this unit for free. Please contact your local SHUNHANG dealer for latest information.

Attention: This machine is mainly used to assist your navigation. The chart and navigation data provided by this machine are for reference during your driving. For your navigation safety during the driving, please use this machine based on the actual circumstances observed and together with other navigation devices, relevant navigation chart and data provided by navigation notice.

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1. Keypad Usage

The unit has altogether 9 keys with at least one function each.

- []
 - Long press: Turn power off (3secs)
 - Short Press: Turn power on
 - When the screen is on, press [] will pop up window for the adjust brightness and Contrast. Use arrow key to adjust.

- []
 - Long press: will pop up MOB window for emergency navigation.
 - Short press: to create mark at ship position

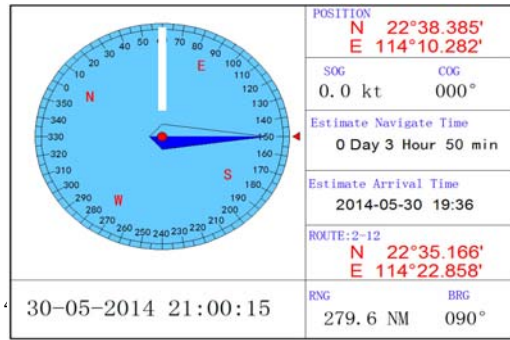
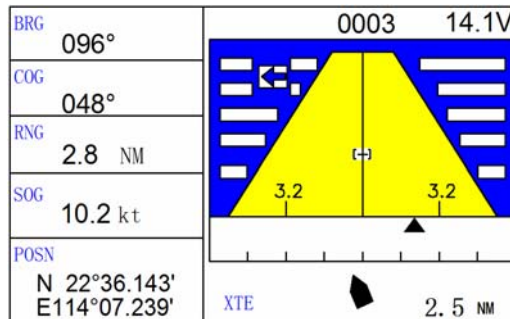
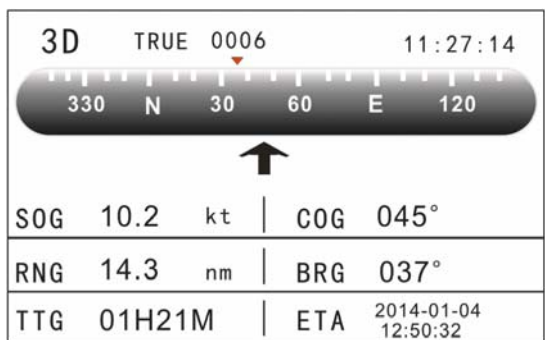
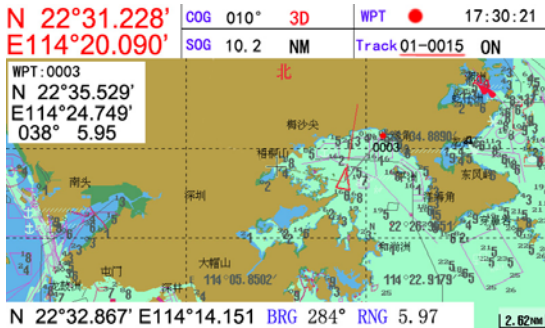
- []
 - Set destination navigate modes
 - Cancel navigation

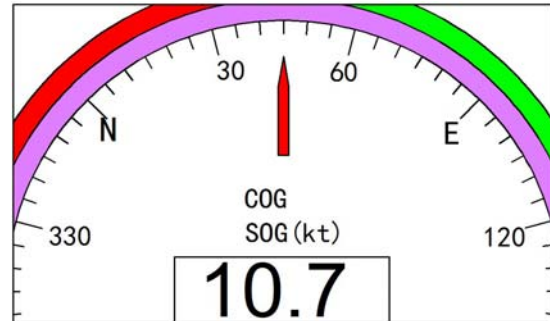
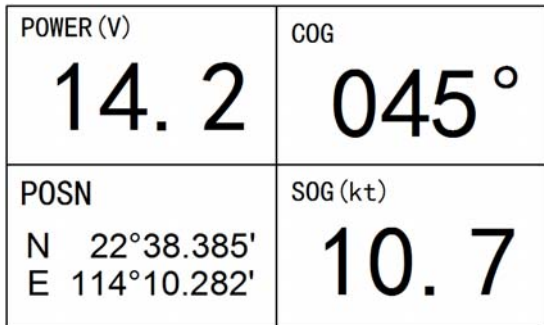
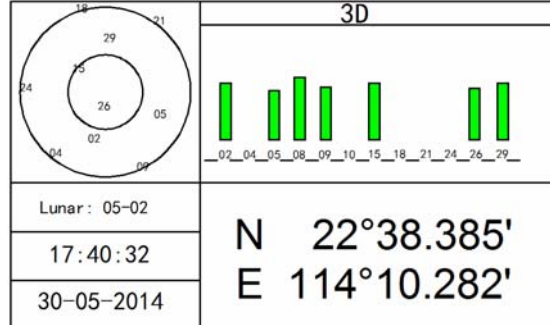
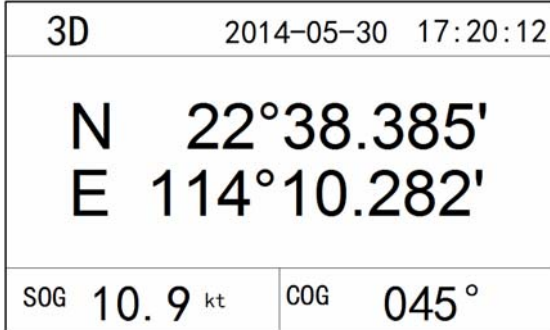
- []
 - Shift between the screens
- []
 - To confirm
- []
 - Enter main menu setting
- []
 - Zoom in the chart
- []
 - Zoom out the chart/ long press open the ais list detail
- []
 - To select items
 - For direction selection



2. Display Modes

This unit has 9 main display modes, including **Chart Plotter Screen1**, **Chart Plotter Screen 2**, **Highway Screen**, **Steering Screen**, **Compass Screen**, **Nava Data Screen**, **Satellite Screen**, **User Digital Screen**, **Speedometer Screen**, shift via [DISP].





3. Basic Operation

3.1 Power On/Off

Functions: Power On and Language Selection

Operation: Press **[DIM POWER]** to switch on the machine, and it will display the starting screen. After the machine is started, it will first initialize the system and check the data, and then enter the plotter screen.

Power Off, long press **[DIM POWER]**, the screen will show a 3 sec count-down. Do not release **[DIM POWER]** until the Data Storage window is popped up. The machine will be automatically switched off after the data is stored. Otherwise, it will cancel the switch off operation.

Noted: To ensure the navigation data, please normally shut off the machine. Data being processed maybe loose if forced power outage

3.2 MOB Emergency Navigation

Functions: During the sailing, If meet emergency, long press[**MARK MOB**] →pop up a dialog for MOB setting→use arrow key for selection→**OK**→[**ENT**]

3.3 Brightness /Contrast Adjustment

Press [**DIM POWER**] and the adjustment window will appear. Use arrow key to decrease or increase the brightness and contrast

3.4 Screen Switch

Press [**DISP**] can switch different display screens.

3.5 Menu Operation

On plotter screen, press [**MENU**] to enter the main menu setting.

MENU	
Waypoint	Messages
Route	Tide
Track	User Display
Alarm	Smooth
Delete	System Set
Display Set	Data Transfer
Calculation	Other

Main menu includes waypoint, route, track, alarm, delete, display set, calculation, messages, tide, user display, smooth, system set, data transfer, other

4. Chart Plotter Operation

4.1 Destination Navigation

On chart plotter screen, press [**GOTO**] will pop up a window as follow:

Goto	
WPT Name:___	WPT List?
Route No.:__(1-100)	WPT-Near?
LOG Route?	Route List?
Cursor?	Off Goto?

4.1.1 Waypoint Name Navigation

Press [**GOTO**] →**WPT Name**→input waypoint name→[**ENT**]

4.1.2 Route No. Navigation

Press [**GOTO**] →**Route No.**→input waypoint name→ [**ENT**]

4.1.3 LOG Route Navigation

Press [GOTO] → **LOG Route** → Forward/Reverse → [ENT]

4.1.4 Cursor Navigation

Turn the cursor on, move the cursor to your desire position → press [GOTO] → Cursor? → [ENT]

4.1.5 WPT List Navigation

Press [GOTO] → **WPT List** → select the waypoint number → [ENT]

4.1.6 WPT-Near Navigation

Press [GOTO] → **WPT-Near?** → select the near waypoint number → [ENT]





4.1.7 Route List Navigation

Press [GOTO] → **Route List** → select the route number → **Forward/Reverse** → [ENT]

4.1.8 Off Goto Navigation

Press [GOTO] → **Off Goto** → [ENT]

4.2 Zoom In/Out Chart

On chart plotter screen, Press [ ] to zoom in the screen, press [ ] to zoom out the screen.

4.3 Cursor

Use arrow key to move the cursor.

4.3.1 Cursor On

When you move the cursor, on the bottom of the plotter screen will display "+ the cursor's longitude and latitude"

4.3.2 Cursor Off

Press [DISP] the cursor will be off, and back to ship position.

4.3.3 Quick Delete the Waypoint with Cursor

More the cursor to the waypoint number, when it display "0", press [ENT] → **1Goto/2Modify/3Delete/4Quit** → **Delete** → [ENT]

4.3.4 Move Screen

Move the cursor to the edge of the screen, the plotter screen will move.

4.4 Quick Set Waypoint

On chart plotter screen, move the arrow key to turn on the cursor, move the cursor to your desire place, and press [ENT] to quick set a waypoint number. If you long press [ENT] to the enter the waypoint edit screen, you can change the new waypoint number, latitude & Longitude, Icon style, Color, etc, after finish setting, select "OK" then press [ENT] to confirm.

4.5 Quick Set Route

On chart plotter screen, move the cursor to your desire place → [MARK MOB] → edit the waypoint → [LOG RTE?] to set

a quick route. Quick setting route only keep record for the current one. The new LOG RTE is set; the old one will be deleted. If you want to save the LOG RTE →[MENU] →[ENT] →[LOG RTE] →[ENT] →**MOVE** →[ENT] the LOG RTE will move to be saved in the route list. If you want to add more waypoints to the LOG RTE, move the cursor to your desire place, long press [ENT] → edit the waypoint→[LOG RTE] →[ENT] the waypoint is set and add to the LOG RTE. Press [MENU] →[Route] →**LOG**→**Change** then you can check the LOG RTE all waypoint number. If you want to add more waypoint, just follow before steps.

5. Main Menu

5.1 Waypoint

The modification of the waypoint is to use as navigation. The waypoint data is used to destination navigation as well as route navigation

DP-38A with 5000 waypoints, waypoint number **0001~4999**

Press [MENU] to enter the main menu. Use arrow key to select the **Waypoint** and edit the information.

5.1.1 Waypoint List

1. Press [MENU] → **Waypoint** → [ENT] → **List / Nearest** → **List** → [ENT]

WPTs / Marks (List)		
[NEW?]	0001	
0002	0003	0004
CURSOR	MOB	START

Select **NEW?** → [ENT] → to edit the waypoint → **ok** → [ENT] a waypoint is created at the current ship position.

CURSOR: Means the current cursor position waypoint

MOB: Means the MOB position waypoint

START: Means the ship begin navigating waypoint

If select other waypoint number, it will display the follow window:

Modify WPT		
Name: 0001		
22°32.772'N	Icon	Color
114°05.349'E	↖	
01-04-2015 03:51 17:01		
TTG: 00H02M	ETA: 17:23	
OK	LOG RTE?	

TTG: Time to go

ETA: Estimated time for arrival-----this is calculated automatically

You can edit the waypoint name, latitude & longitude, icon style and color.

5.1.2 Waypoint Nearest

Select **Nearest** it will display the nearest 10 waypoints; you can modify the waypoint as above.

5.2 Route

Route Setting	
Voyage Route	Stop
Interval Distance	0.200NM
NO. [NEW?]	
LOG 0043>0049	
001	0001→0003
002	0001→0005
003	0002→0008

Route navigation means the vessel sails to destination by route navigation. The route is created by different existing waypoints in certain order. To use the route navigation, the route must need to be created and saved first.

DP-38A the unit can create 100 routes of up to 100 waypoints each, route number:001~100.

Press **[MENU]** to enter the main menu. Use arrow key to select the **Route** and edit the information.

In the route menu you can see all the routes detail and edit the route such as all the waypoint number in the route, modify the waypoint, insert waypoint, delete the waypoint or quit.

The LOG RTE also can change the waypoint number or you can move the LOG RTE to be saved in the route list. Then the LOG RTE will be empty route.

Voyage Route: select "Start" it will begin to set the waypoint in the LOG RTE according to the interval distance or time.

The LOG RTE can use to navigate.

5.3 Track

The direction of movement relative to a ground position also referred to as "ground track".DP-38A the unit can record the track and display it as track line on the chart. The unit can save 12 single tracks(No.01~12) all the tracks can display simultaneously. Each track can record up to 16384 track points with adjustable colors.

Press **[MENU]** to enter the main menu. Use arrow key to select the **Track** and edit the information

Track Setting	
Record Distance	Show On
Interval 0.030NM	Color
Current Track	01(01-12)
01 141->	
	141/16384
02 No Record	
	0/16384

Track record by Distance/Auto/Off
 Show On/off
 Interval distance setting
 Color for the track setting
 Current track number

5.4 Alarm

Alarm		
Alarm Sound	Long	
ARV/ANC	Off	0.010nm
XTE	Off	0.010nm
Clock	On	12:00
Odometer	Off	1000nm
No GPS Fix	Off	120 Sec

5.4.1 ARV Alarm

Sets an alarm to sound when you are at specified distance or time away from a destination waypoint. Enter a distance radius or time for sounding the alarm and use the control field to set the alarm to "off", "distance" or "time"

Functions: arrival alarm on/off; alarm range setting.

Operation: press **[MENU]**→**Alarm**→**ARV/ANC/Off**→**ARV**→**[ENT]**→edit the distance→**[ENT]** to confirm→**[MENU]** back to previous menu

5.4.2 ANC Alarm

Set an alarm to sound when you are exceeded a specified drift distance. Enter a distance up to xx NM in the distance field and use the control field to turn the alarm on and off

ANC: anchor drag alarm, you have drifted out of the specified distance range.

Functions: to set alarm for the anchor drag alarm and the alarm range.

Operation: press [MENU] → **Alarm** → **ARV/ANC/Off** → **ANC** → [ENT] → edit the distance → [ENT] to confirm → [MENU] back to previous menu.

5.4.3 XTE Alarm

Set an alarm to sound when you are off a desired course by a specified distance. Enter a distance in the distance field and use the control field to turn the alarm on and off.

XTE: cross-track error, the XTE alarm sounds when the boat is off a desired course in either direction, left or right.

Functions: to set alarm for the cross-track error and the alarm range.

Operation: press [MENU] → **Alarm** → **XTE** → [ENT] → edit the distance → [ENT] to confirm → [MENU] back to previous menu.

5.4.4 Clock

Operation process: press [MENU] → **Alarm** → [ENT] → **CLOCK** → [ENT] → **Off/On** → Select **On** → input the time → [ENT] → press [MENU] back to previous menu.

5.4.5 Odometer

When the total navigation distance is longer than the setting range, the alarm will sound

Operation process: press [MENU] → **Alarm** → [ENT] → **Odometer** → [ENT] → **Off/On** → Select **On** → input the distance range → [ENT] → press [MENU] back to previous menu.

5.4.6 No GPS Fix

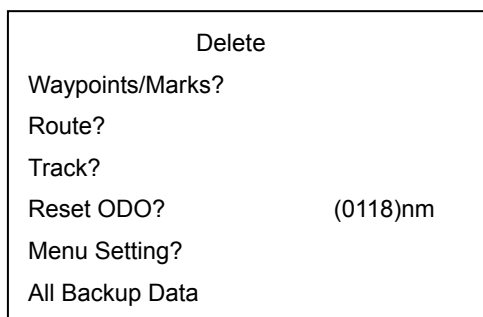
When the GPS is not fix or fail to pick up the GPS signal, you can set the alarm for that.

Operation process : press [MENU] → **Alarm** → **No GPS Fix** → [ENT] → **Off/On** → edit the time. Minimum is 120 Seconds, when you input the time, need to more than 120 seconds. If the time is less than 120 seconds, the number cannot be input. It will remain at 120 seconds.

5.5 Delete

In this **Delete** menu can delete many items, such as **Waypoints/Marks**, **Route**, **Track**, **Reset ODO**, **Menu Setting**, and **All Backup Data**.

Press [MENU] → **Delete** → [ENT] → Select the item [ENT] to edit the items.

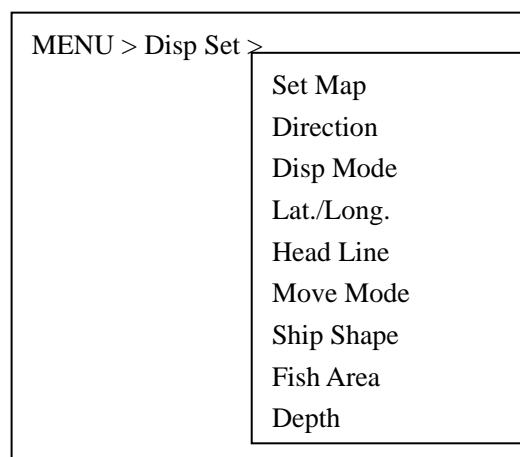


Select "Menu Setting" all the menu data not including the waypoint/marks, route, track will be restore to factory setting.

Select "All Backup Data" all the data will be restored to factory setting. The navigate data will be lost.

5.6 Disp Set

Press [MENU] → **Disp Set** → to edit (Set Map, Direction, Disp Mode, Lat./Long., Head Line, Move Mode, Ship Shape, Fish Area, Depth)



5.6.1 Set Map

Press[MENU] → **Set Map** → **Area Color** →to edit the colors for (Land; Sand; Shallow water; Middle Water; Deep Water; Sea Color)

5.6.2 Direction

Set the placement of map direction.

Press[MENU] → **Disp Set** → **Direction** →to set “north-up, west-up, south-up, east-up, head-up and dest up”

When “Dest-Up” or “Head-Up” mode is selected, Move Mode will automatically select “Move Map” mode.)

5.6.3 Disp Mode

Set the display mode of map screen, shift via [ENT]

Press[MENU] → **Disp Set** → **Disp Mode** →[ENT]

Night Mode: the screen display mode for night view

Day Mode: the screen displays mode for daytime view

Auto Mode: automatically select night mode or day mode according the present time

User Mode: the screen displays color set by user

5.6.4 Lat./Long.

On/off Latitude/Longitude

Press [MENU] → **Disp Set** → **Lat./Long.** → **Off/On**

Noted: when select the “Dest-Up” or “Head-Up” mode, the Latitude & Longitude line will be off.

5.6.5 Head Line

Ship’s heading line on/off.

Press [MENU] → **Disp Set** → **Head Line** → **Off/On**

5.6.6 Move Mode

Ship Move: means that the map is not moved, but the ship moves on the map.

Map Move: means that the ship is not moved on the map, but the map moves.

Press [MENU] → **Disp Set** → **Move Mode** →shift via [ENT]

5.6.7 Ship Shape

Ship shape: circle icon or ship icon

Press [MENU] → **Disp Set** → **Ship Shape** →shift via [ENT]

5.6.8 Fish Area

On/off Display fish area

Press [MENU] → **Disp Set** → **Fish Area** →off/on

Noted: the Lat./Long. And the Fish-A cannot select on simultaneously. If you select Lat./Long. on, The Fish-A will automatically off, vice versa.

5.6.9 Depth

Display the water depth

Press [MENU] → **Disp Set** → **Depth** → **Off/On**

5.7 Calculation

To calculate the two waypoints distance or route distance, time to go, estimated arrival time, RNG, and BRG

Press **[MENU]** → **Calculation** → **[ENT]** → **Waypoints/Routes** → **Waypoints** → input the two waypoints number, it will display the calculate results for time to go, estimated arrival time, RNG, and BRG

Press **[MENU]** → **Calculation** → **[ENT]** → **Waypoints/Routes** → **Routes** → input the route number, it will display the calculate results for time to go, estimated arrival time, RNG, and BRG

5.8 AIS

Working frequency: 161.975MHz/162.025MHz

Output power: 5w

Channel Bandwidth: 25 KHz

Channel spacing: 25 KHz

Modulation mode: 25 KHz GMSK

Bit Rate: 9600b/s+50ppm (GMSK)

AIS receiver sensitivity: -116dBm

5.8.1 Basic Setting

Functions: Display Message on/off; Show Ship On Map on/off; Alarm Sound on/off; Interval Time; Stop Alarm; Allow Alarm; Disappeared; Show MMSI On Map on/off

Operation: Press **[MENU]** → use arrow key or numeric key "AIS" → Basic Setting → use arrow key to select items (Display Message on/off; Show Ship On Map on/off; Alarm Sound on/off; Interval Time; Stop Alarm; Allow Alarm (tug, large tug, dredger, submarine, naval ship, sailing ship, pleasure ship, speed ship, rescue ship, harbor launch, facility ship, medicine ship, passenger ship, cargo ship, tanker, other ship, all ship, shut off, ship A, ship B); Disappeared; AIS Work Mode, AIS Work State, MET Alarm Setting.

5.8.2 Static Setting

Operation: press **[MENU]** → AIS → Static Setting → (ship Name; destination; call no.; IMO; Draft; Ship type; Status; Length; Width) → **[SET]** → **[ENT]** → Input password: 201011 (initial password) → **[ENT]** to confirm

5.8.3 Other Ship Track

Operation: press **[MENU]** → AIS → Other Ship Track → Current Track/Track List

5.8.4 Send Message

Operation: press **[MENU]** → AIS → Send Message → **[ENT]** → press **[◀]** **[▶]** to select information type: (ABM;BBM;SAFE ABM;SAFE BBM), Send to: Input MMSI No. → **[ENT]** → use arrow key to input message → **[ENT]**

5.8.5 Outbox

Functions: to check the message already sent.

Operation: **[MENU]** → AIS → Outbox → press **[↓]** **[↑]** to check the messages → **[ENT]**

5.8.6 Inbox

Functions: to check the income message

Operation: **[MENU]** → AIS → Inbox → press **[◀]** **[▶]** to check the messages → **[ENT]**

5.8.7 MMSI Setting

Set the own ship MMSI, The initial password: 201211

Operation: **【MENU】** → AIS → MMSI Setting → **【ENT】** → input MMSI No. → **【ENT】** → set → input password:201011

Noted: only in AIS work mode: RX&TX Can set the MMSI for own ship

5.8.8 Show Ship On Map

Operation: **【MENU】** → AIS → Show Ship On Map → **【ENT】** → Ship Color by SOG/by AIS Type; Head Line: show when moving/flicker when moving; show ship on: ship name/Chinese name/mmsi/national flag

5.8.9 AIS Board Test

Operation: **【MENU】** → AIS → AIS Board Test → **【ENT】** → Power Test/Send MSG Test

5.9 Tide

Check the tide information in some ports of the local country.

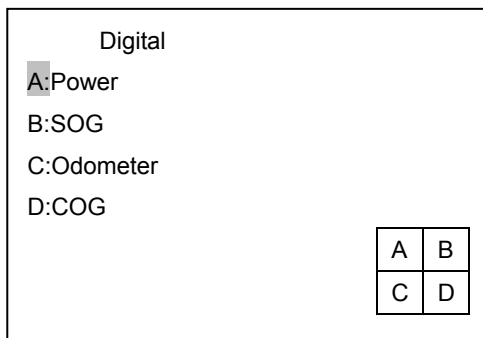
On the map screen, move the cursor to the desired point

Press **【MENU】** → **Tide** → **【ENT】** to check the local position tide information.

6.0 User Display

To display the items you want

Operation process: Press **【MENU】** → **User Display** → **【ENT】** → **Off / Digital / COG** → select **Digital** → **【ENT】** → select the form → **【ENT】** it will display as follow:



- COG
- SOG
- BRG
- TTG
- ETA
- XTE
- Power
- Odometer
- POSN
- Time
- WPT

Select "A: Power" → **【ENT】** → **COG / SOG / BRG / RNG / TTG / ETA / XTE / Power / Odometer / POSN / Time / WPT** can be selected.

7.1 Smooth

Press **【MENU】** → **Smooth** → **Speed Smooth** → **【ENT】** to edit the items (**Off / Auto / Manu**) → **【ENT】**

Press **【MENU】** → **Smooth** → **Course Smooth** → **【ENT】** to edit the items (**Off / Auto / Manu**) → **【ENT】**

7.2 System Set

7.2.1 Unit

Press **【MENU】** → **System Set** → **Unit** → press **【ENT】** to shift the distance unit in **nm,kt / km,kt / sm,mph**

System Set	
Unit	nm,kt
Language	English
Jet Lag	+08:00
Volume	5
WPT Name	Display All
BRG.REF	True
MAG.VAR	Auto

7.2.2 Language

Select the unit language (based on whether the device supports).

Press [MENU] → **System Set** → **Language** → [ENT]

7.2.2 Jet Lag

Set the time difference for the present time.

Press [MENU] → **System Set** → **Jet Lag** → edit the time difference → highlight “+” use arrow key up to change to “-” → use number key to edit the time.

7.2.3 Volume

Select the volume from 0-9 levels

7.2.4 WPT Name

To set display for the waypoint name:

Display GOTO: display GOTO waypoint name

Display Route: display waypoint name in the route

Display All: display all the waypoint name.

7.2.5 BRG.REF.

Magnetic North: the direction in which the north end of a compass needle or other freely suspended magnet will point in response to the earth's magnetic field. It deviates from true north over time and from place to place because the earth's magnetic poles are not fixed in relation to its axis.

True North: north according to the earth's axis, not magnetic north.

There is certain deviation between the north pole of magnetic field of the earth and the north in the map. Such deviation is called magnetic declination. The direction pointed by compass and magnetic compass is called “Magnetic North” while the north in geography is called “True North”. The included angle between magnetic north and true north is called magnetic deviation.

Operation process: press [MENU] → **System Set** → **BRG. REF.** → **True/MAG** → [ENT]

7.2.6 MAG.VAR.

To set MAG.VAR by auto/ by manual

7.3 Data Transfer

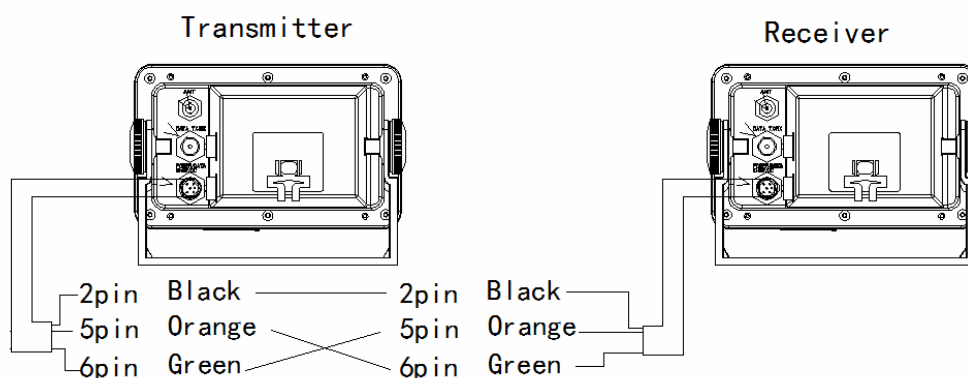
Functions: the waypoints, Routes, Tracks, Marks inside the unit can be transmitted between two same models.

Receiver: “2# GND” PIN connect to transmitter “2# GND” PIN

Receiver: “5# TX” PIN connect to transmitter “6# RX” PIN

Receiver: “6# RX” PIN connect to transmitter “5# TX” PIN

Operation: Open the receiver unit, press [MENU] → 10 Other → 2 Data Transmit → Receive From PC/Navigator? → [ENT] then open the transmitter unit, press [MENU] → 10 Other → 2 Data Transmit → Send To PC/Navigator? → [ENT]



Cover way: means the data in the receiver device will be deleted and copy the transmitter's new data

Add way: means the data in the receiver device will be kept and add the transmitter's new data.

Connect the wires between the two devices. First press **【receive from pc/navigator?】** on the receiver device; then press **【send to pc/navigator?】** On transmitter device.

7.4 Other

7.4.1 Cursor Setting

To edit the cursor color/shape/size

7.4.2 Simulator

Use simulator navigation to check the device. It can set some parameters for ship sailing (**Simulator on/off**; **Speed**; **COG AUTO/MANU**; **Latitude and Longitude**).

Press **[MENU]** → **Other** → **Simulator** → select the items (**Simulator on/off**; **Speed**; **COG AUTO/MANU**; **Latitude and Longitude**) to edit

7.4.3 Distance Measure

Measure the distance in the chart plotter screen

Press **[MENU]** → **Other** → **Distance Measure** → **[ENT]** to chart plotter screen → use arrow key to drag your desired distance. It will show the distance on the screen. Press **[ENT]**, it will display "+" the new beginning point (0.00NM) → use arrow key to drag your new desired distance.

7.4.4 Save Data

Save user data information.

7.4.4 System Version

To check the system version: the program version and the map version

7.4.5 Map Setting

To check the memory capacity balance

8. Performance and Technical Specifications

8.1 GPS Characteristics

Receive channel: gps: 12 parallel channels, 12 satellite tracking

Positioning Systems: all-in-view

Accuracy GPS: position: <15m (95%); speed: 0.1m/s; time: 100ns Synchronized with satellite time

Start Time: average 15 seconds (hot start); average 45seconds (warm start); average 60seconds (cold start)

Restart Time: 0.1second

Dynamics:

Altitude: 50,000m Max

Velocity: 500 m/s Acceleration: 4g Max

8.2 Receiver Assembly

Display System: Screen size:5inch HD LCD,101.671.2mm ,Resolution 800*400

Display modes: Chart Plotter Screen1, Chart Plotter Screen 2, Highway Screen, Steering Screen, Compass Screen, Nava Data Screen, Satellite Screen, User Digital Screen, Speedometer Screen

Memory capacity: 5000 waypoints; 100routes, max100waypoints/route; 12 tracks, 16384 track points/track

GPS Alarm: AVR/ANC alarm, XTE alarm, clock alarm, odometer alarm, no GPS fix alarm

Voltage: 2-wire power cord 10-36vdc

Power Supply: <4w

Battery: 12v 5000mAh rechargeable Lithium continue working hours: about 18hours

8.3 Operating Environment

Temperature:

Antenna unit:-25 to +70;

Display unit:-15 to +55

Humidity: 40<93%

Waterproof:

Antenna unit:IPX6

Display unit:IPX5

Product size: 198mm(L)*121mm(W)*67mm(D)

Net weight: 0.45kg

Packing size: 272mm(L)*170mm(W)*235mm(D)

Gross weight: 6kg

8.4 Packing List

1. DP-38A display unit*1pc
2. Cover*1pc
3. Knob*1pc
4. Bracket*1pc
5. Power cable*1pc
6. User manual*1pc
7. Screw PM3*12*4pcs
8. Screw (PA4*20)*4pcs
9. VHF Antenna*1pc -----Optional
10. Feeder Cable*1pc-----Optional

9. Warranty

12 Months

10. Precautions

For the Operation of the Machine:

The machine should be connected to the DC power between DC10V~ DC36V

The red line of the power should be connected to the positive electrode (+) and the black line to the negative electrode (-)

The user should avoid the operation under high temperature, and keep it from heat source and direct sunshine.

The user should avoid vibration during the use of the machine

Do not place it too close to the magnetic compass during the installation and use of the machine

Do not pull the power and the GPS antenna when it still connects to the electricity.

Do not dispatch the Navigator by yourself. If you find any problems, please immediately contact your seller.

Installation of the Antenna:

Do not distribute the cables of the antenna with that of the other devices, because they may cause electric shortcut when mixing together;

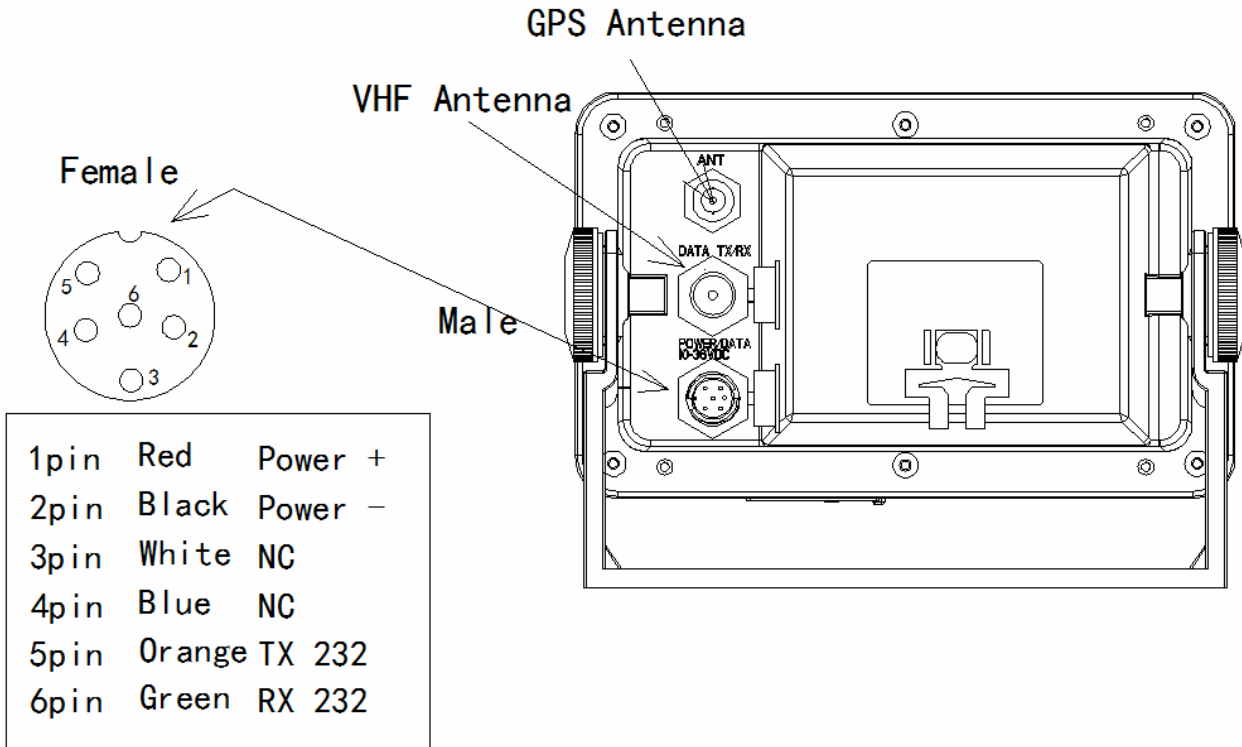
The **GPS** antenna should be installed at the highest location of the ship, so that it will not shield the signal. If the object is higher than the antenna or it is too close to the antenna, it may influence the receivable of the signal, and cause the precision decrease of the Navigator. Therefore, the following cases should be confirmed:

- To keep the machine as far as possible from metal objects
Beyond the radar beam.
- At least 5 meters away from the antenna of maritime satellite.
- At least 4 meters away from VHF/HF/MF transmission antenna
- At least 3 meters away from the circulative antennas.
- At least 4 meters away from any object its diameter is over 10 centimeters.
- To keep the antenna as far as possible from the interphone antennas.

11. Mark Icon

MARK			
	Anchorage Area		Fishing Ground
	Can Buoy		RESTRICTED FISHING
	Mooring Buoy		TOWER
	PILLAR BUOY		Magnetic Variation
	Cardinal Buoy		Signal Station
	Beacon		Pilot Boarding
	Prohibited Area		Rock
	Underwater Hazard		Underwater Rock
	Non-dangerous Wreck		Foul Area
	Dangerous Wreck		Wreck showing portion
	Rescue Station		Light Vessel

12. Connection Wires for the Navigator



13. Minimum Installation Dimension Chart

