

# HGP-660D



---

USER MANUAL

**HAIYANG OLIX**



## TABLE OF CONTENTS

### Important Notice

### AQUA Color LCD Charting System

Welcome .....	11
Introduction .....	12
Display Unite .....	14
Interconnecting diagram .....	15
Slots & SPEC of the connectors .....	17
The Keyboard .....	18

### Display Modes

<b>Display Modes</b> .....	18
1. LAT/LON mode.....	19
2. Full Information .....	20
3. Large LAT/LON .....	21
4. Steering mode .....	22
5. Highway mode .....	23
6. Full Highway .....	24
7. Full GPS Data .....	25

### Operations

<b>Edit</b> .....	26
<b>MOB</b> .....	28
<b>Mark</b> .....	29
1. Creating Mark	
2. Changing Mark symbol	
3. Changing Mark color	
4. Deleting Mark	
5. Editing Mark.	
<b>WPT(Waypoint)</b> .....	30
1. Creating destination point	
2. Creating WPT.	
3. Selecting WPT.	

#### 4. Editing WPT.

<b>Route</b> .....	31
1. Instant Route	
2. Creating Route	
3. Selecting Route	
4. Deleting Route	
5. Reversing Route	
6. Setting Point	
7. Editing Route	
<b>Track</b> .....	32
1. Track On/Off	
2. Track Color	
3. Track delete	
<b>User Data</b> .....	32
<b>Display On/off</b> .....	33
<b>Mode</b> .....	33
1. Normal mode	
2. North up	
3. Course up	
4. Head up	
<b>GPS Setup 1/2</b> .....	34
1. Datum	
2. Satellite Information	
3. Latitude Modification	
4. Longitude Modification	
5. Smoothing set	
6. Average BRG.	
7. Average Speed	
8. Lat/Lon Unit	
9. GPS Receiving Port	
0. Coordinate system	

<b>GPS Setup 2/2</b> .....	34
1. AIS Setup	
<b>Setup 1/2</b> .....	35
1. Distance/Speed unit	
2. Present Position Size	
3. Track Size	
4. Track Display Interval	
5. Time Interval	
6. Distance Interval	
7. Heading Line Length	
8. True/Magnetic	
9. Compass Modification	
0. TD Setup	
<b>Setup 2/2</b> .....	36
1. Displaying Time Setup	
2. Data out	
3. Land Color Select	
4. Chart Change	
5. Reset	
6. WPT Name Font Size	
7. SOG setup	
8. Save Track	
9. Load Track	
10. Depth unit	
<b>Maintenance</b> .....	38
1. System Information	
2. Chart Information	
3. Keyboard Test	
4. GPS Simulator	
5. Language	
<b>Alarm</b> .....	39
1. Arrival Alarm	
2. Arrival Radius	
3. XTE Alarm	

- 4. XTE Radius
- 5. Anchor Alarm
- 6. Anchor Radius
- 7. Interval Alarm
- 8. Interval Alarm
- 9. Course Alarm
- 0. Course Alarm Range

Installation .....	40
Display Unit Location	
Display Unit Installation	
Power Connection	
Reference .....	42
Care and Clearing	
NMEA	
GPS .....	43
How GPS works	
Position Fixing Accuracy: HDOP	
The Installation of The GPS ANT.	

## Important Notice

<b>Manual Handling</b>	Keep this manual in a safe place where you can access it quickly. This Manual must be passed to a new owner of the AQUA when it is transferred.
----------------------------	--






The Global Positioning System (GPS) consists of a total 24 GPS satellites that orbit the earth, enabling you to determine your position anywhere in the world, 24 hours a day, if you can receive satellite signals. During actual navigation, carefully compare the position data with all available navigation sources such as Loran C, Decca, other navigators, charts, visual navigation, depth, water temperature and others. It is your responsibility to make navigation judgments.

### **The Electronic Chart:**

Only official authorized charts and notices to mariners contain all the information needed for the safety of navigation and, as always remember, the user is responsible for their prudent use.

## Pictorials







This manual uses the following symbols for easy understanding safety instructions. Always follow these instructions carefully.

	<b>WARNING</b>	Always follow this safety instruction to prevent death or injury.
	<b>CAUTION</b>	Follow this safety instruction to avoid possible injury or damage to your property. Symbol “△” is a CAUTION or WARNING label indicating the safety instruction.
	<b>WARNING</b>	This symbol is an Electrical Shock WARNING label.
		Symbol “ ” is an instruction that you must not violate. (This symbol instructs NOT to disassemble the system components)
		Symbol “ ” is an operation instruction that you must follow. (This symbol shows the main power OFF instruction.)



### **WARNING <For System Operators>**

Always follow this instruction to prevent death or personal injury.

	<b>Turn power off During abnormality.</b>	If smoke or a small of burning occurs, a fire or an electrical short circuit may result. Turn the power switch OFF and shut down the power supply immediately. Never try to repair the system yourself. Call for service.
 	<b>Do not open Cabinet.</b>	High voltage exists in the instrument. Contact with voltage may cause possible injury or death.
	<b>Do not touch back side of the equipment.</b>	Harmful line voltage is present on back side of the equipment. Never try to touch back side while power is turned on.
	<b>Avoid excessive shock to display unit.</b>	The LCD display module contains a liquid. Do not apply any mechanical shock to the display. If the display broken, liquid may leak and injure your skin and eyes.
	<b>Do not use with poor ventilation.</b>	If you cover this unit or use in an enclosed place, it may malfunction or become damaged as a result of overheating. Use only where there is sufficient ventilation.





## Installation Cautions <For service Personnel>

Follow installation instructions to avoid personal injury and system malfunction.

<b>Installation in rigid location.</b>	Mount your AQUA on a rigid frame or base to prevent your unit from working loose.
<b>Use correct Installation materials.</b>	Use the installation materials provided in the standard accessory pack only. If you use hardware of insufficient strength, your system may loosen causing damaged.
<b>Keep away from direct sunlight.</b>	Keep your system out of direct sunlight as it may become damaged by overheating.
<b>Keep away from water.</b>	Take care not to get water on or in your unit as it may be damaged and/or cause an electrical shock.
<b>Keep away from heat source.</b>	Keep your system away from other heat source as it may malfunction, be damaged, or burn.
<b>Use correct power source.</b>	Operate your system within the specified power voltage. An incorrect power supply may cause



## Maintenance Cautions<For Maintenance Personnel>


Use the following safety precaution internal inspection.

<b>Discharge capacitors.</b>	High voltage may be retained in the capacitors if the high-tension circuit several minutes after you have turned the power switch off.
<b>Check that power is OFF</b>	To prevent an electrical injury due to erroneous power switching, make sure that the main power supply and the system power switch are both in the off position. Additionally, attach a safety label showing that service is in progress.
<b>Avoid EMI.</b>	Take care not to damage the ESDs (Electrostatic Sensitive Devices) by static electricity from carpet and cloths.
<b>Avoid dust.</b>	Wear a safety mask so as not to breath in dust during inspection or cleaning inside your system instruments.

## Operation Notes <For operators>

Observe the following operation notes, otherwise the system failure or deterioration can result. And periodical inspection and maintenance are required for keeping the system in an optimum condition.

<b>Backup important data.</b>	The waypoint and other registered data may become unreadable by unexpected failure. We recommend recording this data separately.
<b>Use correct transducer only.</b>	If you use incorrect transducer, the transmitter circuit may be damaged due to a matching error. Consult us for system information.
<b>Check transducer Connection before power on</b>	Do not turn the power switch ON if the transducer is disconnected or if it is not inserted into the water. If done, the transducer or transmitter circuit may be damaged.
<b>Always clean the transducer</b>	Since transducer performance can drop due to accumulated bottom growth, keep the transducer clean. Never paint transducer surface.
<b>Transducer must be installed by authorized personnel.</b>	Consult us for transducer installation by authorized personnel.

 <b>WARNING</b>	This product is designed to assist a navigation. When you are sailing, use the certified chart from the Government or IMO.
--	---

# AQUA Color LCD Charting System

---

## Welcome

The AQUA Color LCD Charting System opens a new chapter of performance and integration in vessel navigation system display and management. Whether you are a Cruiser or Sport fisherman or both, AQUA gives you the information you need.

### CAUTION

The AQUA is Color LCD Charting Systems employs the latest in proven technology to provide accurate navigation information. The Plotter functions of the AQUA are totally dependent upon the capability of the navigation source to provide accurate position information. This device is only an aid to navigation. It should be used in conjunction with all other navigation accuracy. For safety, always resolve any uncertainty before continuing navigation.

### CAUTION

Electronic charts in AQUA are derived from geographical data – including official government charts – which we believe to be accurate. They are neither verified nor approved by Hydrographic Authorities. Electronic charts in AQUA are designed only to ease and speed navigation calculations and so must not be relied upon as a primary source of navigation information, but rather a backup to the use of official government charts and prudent navigation habits.

There is no direct relationship between the color of water areas and their depth. The navigator shall always query the area for depth information and use the official paper chart.

### CAUTION

The performance of LCD displays are degraded by continuous direct exposure to ultraviolet rays. Locate your AQUA Display away from direct sunlight. When not in use. Keep the display covered.

### DISPLAY BREAKAGE WARNING

The LCD display module contains a liquid. If the display is broken and the liquid contacts your skin, wash it off immediately in running water for 15 minutes. If the liquid contacts your eyes, immediately flush your eyes with running water for 15 minutes. Contact a physician if any abnormal symptom is experienced.

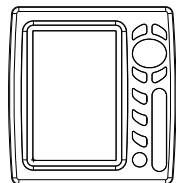
# AQUA Color LCD Charting System

---

## Introduction

The AQUA Color LCD Charting System is a premium multifunction command and control center. It combines in one unit, display of worldwide cartography, GPS navigation and Echo Sounder. AQUA front panel keyboard and its large screen with wide viewing area make placement easy. Although AQUA offers many advanced features, operation is simplified through the use of popup menus similar to those found on personal computers. Also, the front panel keyboard has specific keys for direct access to the most used functions and settings.

## Equipment Supplied



AQUA Display unit



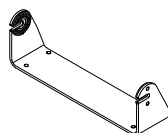
Active Antenna.  
(Option)



Fixable Band(option)



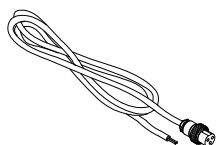
Protector



Mounting Bracket



Knobs



Power cable



Manual

# AQUA Color LCD Charting System

---

## GETTING STARTED

This getting Started section will help you become acquainted with the displays and the front panel keyboard functions of your AQUA Color LCD Charting System. This section is intended to demonstrate the main functions and basic operation of your AQUA System. More detailed procedures may be found in the Operation section.

AQUA has built-in simulators which present realistic displays of cartography, GPS and Sounder.

Note: Sounder option is required is required to use the sounder simulator. Simulators are interactive so the front panel keyboard can be used to browse through menus and change setting in the same manner as actual operation. The internal simulators allow AQUA to operate without having transducers or remote sensors connected. However, it is necessary to connect the power cable to 12 to 24 Vdc power source. Please refer to *Power Connection* in the installation section.

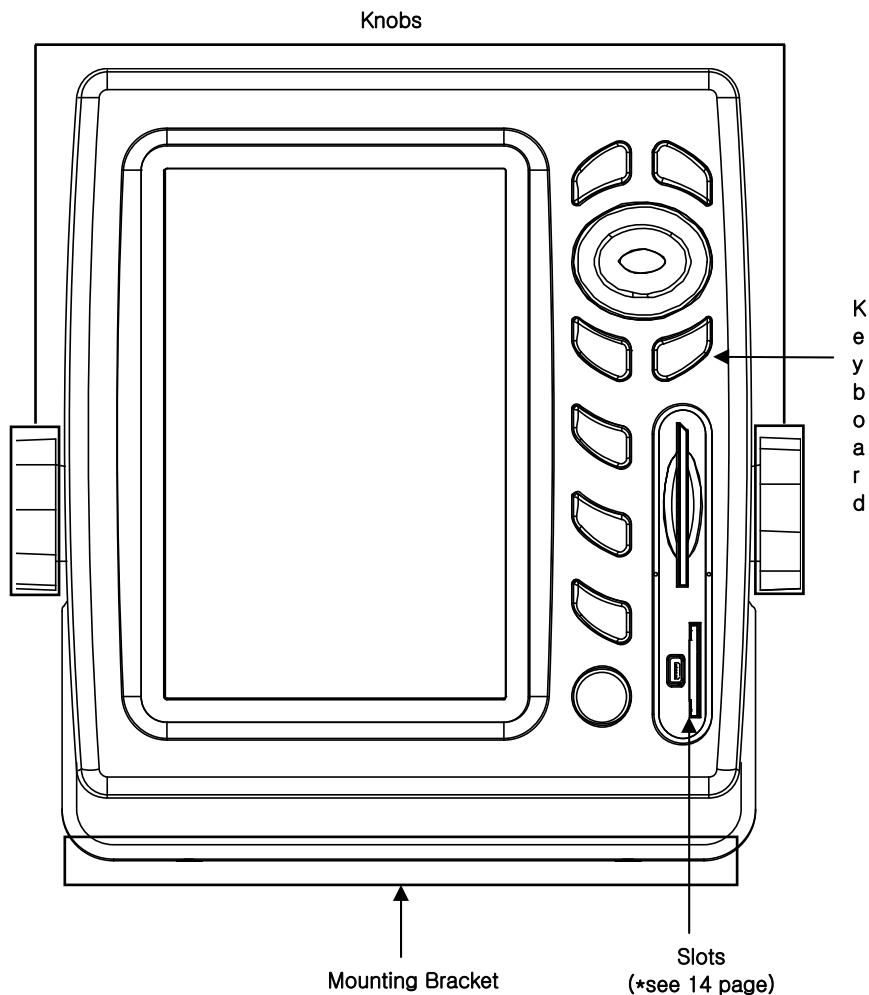
If AQUA is already installed on your vessel, simulators are still useful doe familiarity with displays and practice with operating procedures.

# AQUA Color LCD Charting System

---

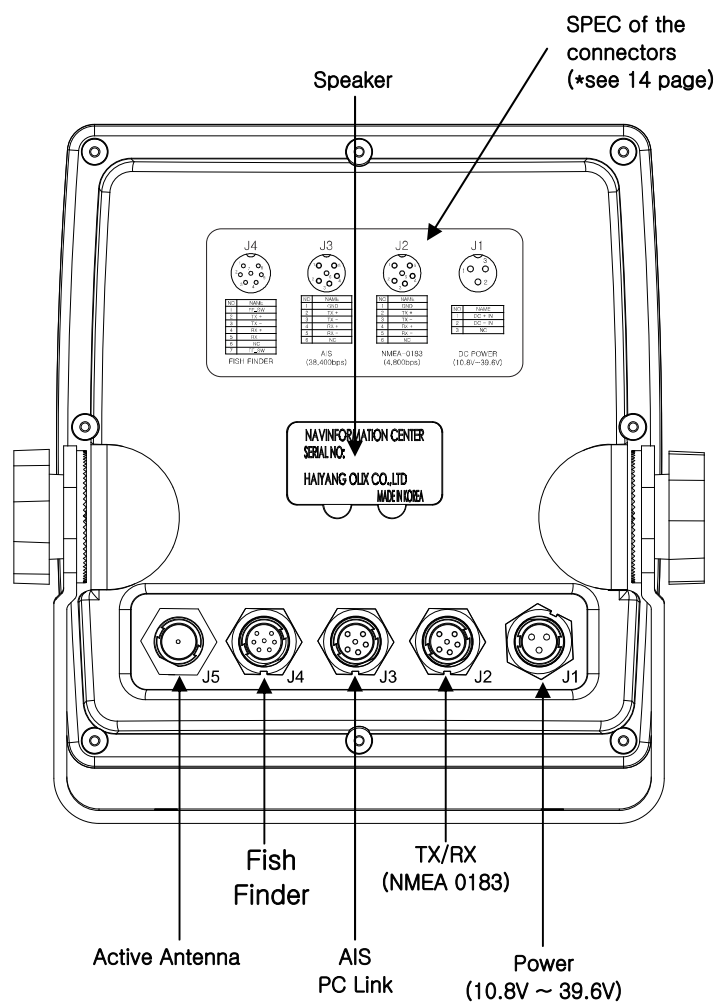
## Display Unit

The heart of the AQUA Color LCD Charting System is the display unit. Within the display unit are the powerful central processor and integrated display system, built-in cartography. The bright 6.5 inch active matrix color LCD, is easily viewed over a wide area on the bridge or nav center.



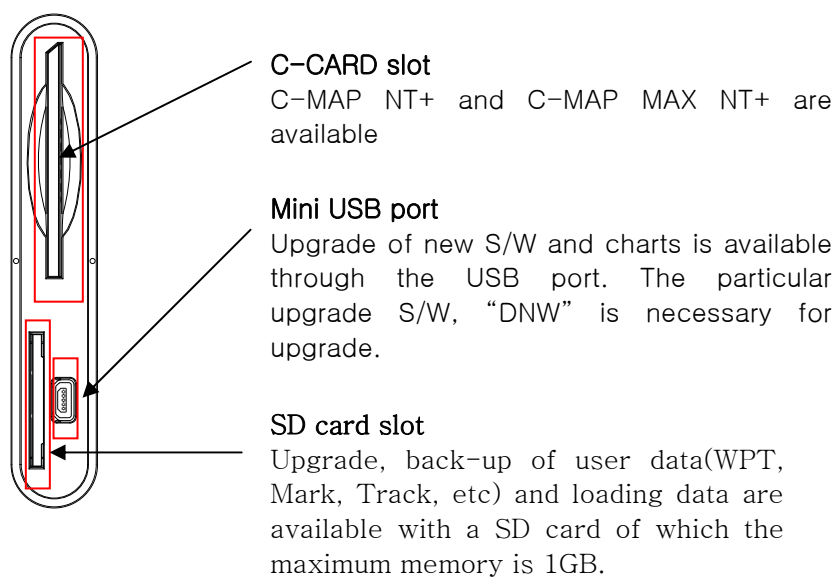
# AQUA Color LCD Charting System

## Interconnecting diagram

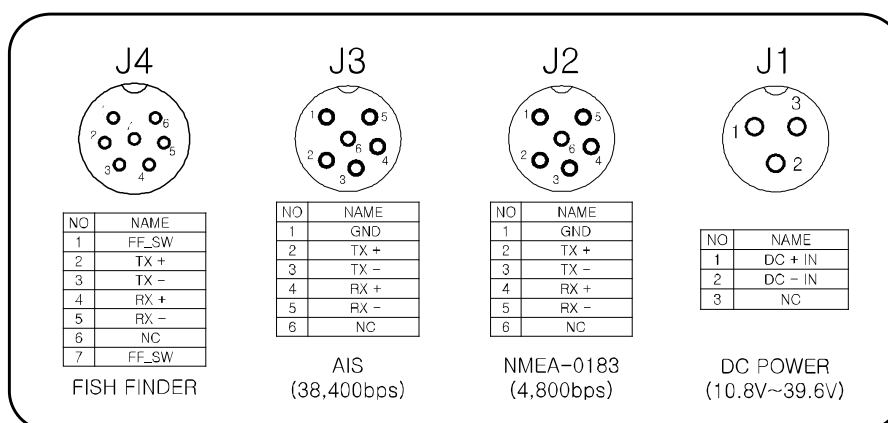


# AQUA Color LCD Charting System

## Slots

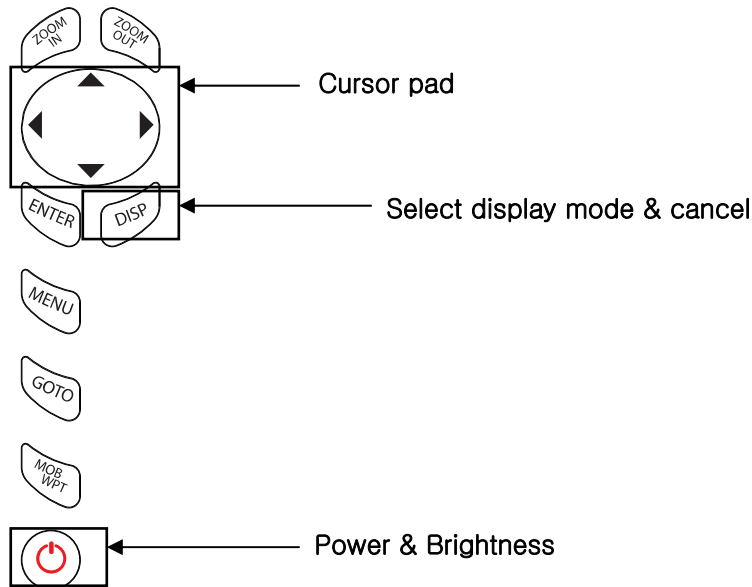


## SPEC of the connectors





## The Keyboard



[ZOOM-IN]	CHANGE THE CHART OF SCALE BIGGER IN PLOTTER
[ZOOM-OUT]	Change the chart of scale smaller in plotter
[MENU]	Menu opens menu to select options
[GOTO]	
[MAIN SCREEN]	Selects function to display on HY Display, Plotter Display, LAT/LOT Display, Highway Display, Steering Display, Nav data Display. (* When the menu or the cursor appears, it's used fro ESC.
[ENTER]	Completes pending selection or operation
[MOB/WPT]	WPT: Places a WPT on the plotter main screen. MOB: Is a special navigation function that immediately stores your present position as a waypoint and activates navigation to the stored coordinates.
[Power/Brightness]	BRT: Brightness adjust the brightness in day mode or night. PWR: Turns On/Off
[CURSOR PAD]	Cursor On and use to move the cursor, select menu items, scroll lists, select options, change settings in plotter (*To make the cursor deleted, press [MAIN SCREEN]).

### How to use [Power/Brightness]

Use PWR:

To turn off the power, keep pressing the [BRT/PWR] until the end of counting.

Use BRT:

Press [BRT/PWR] shortly and the brightness can be controlled. Use the arrow keys of the cursor to control the brightness and the contrast.

# Display Modes

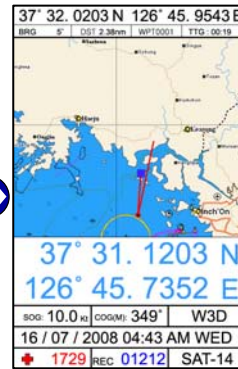
Your unit has six display mode. Press the [DIPS] key to choose a display mode. Each time the key is pressed, the display mode changes in the sequence shown below.



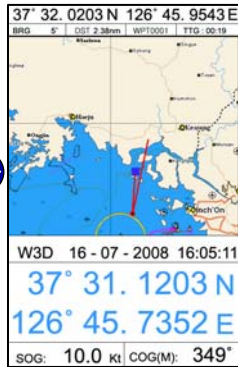
[Full chart]



[Simple LAT/LON]



[Full Information]



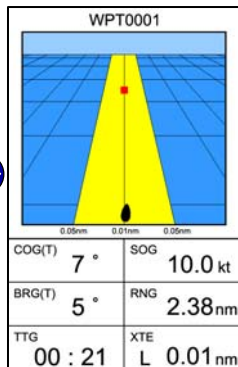
[Large LAT/LON]



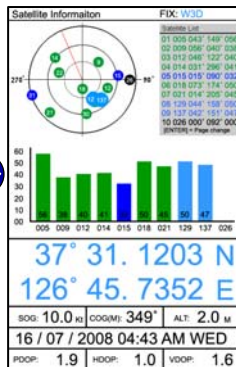
[Steering]



[Simple Highway]



[Full Highway]

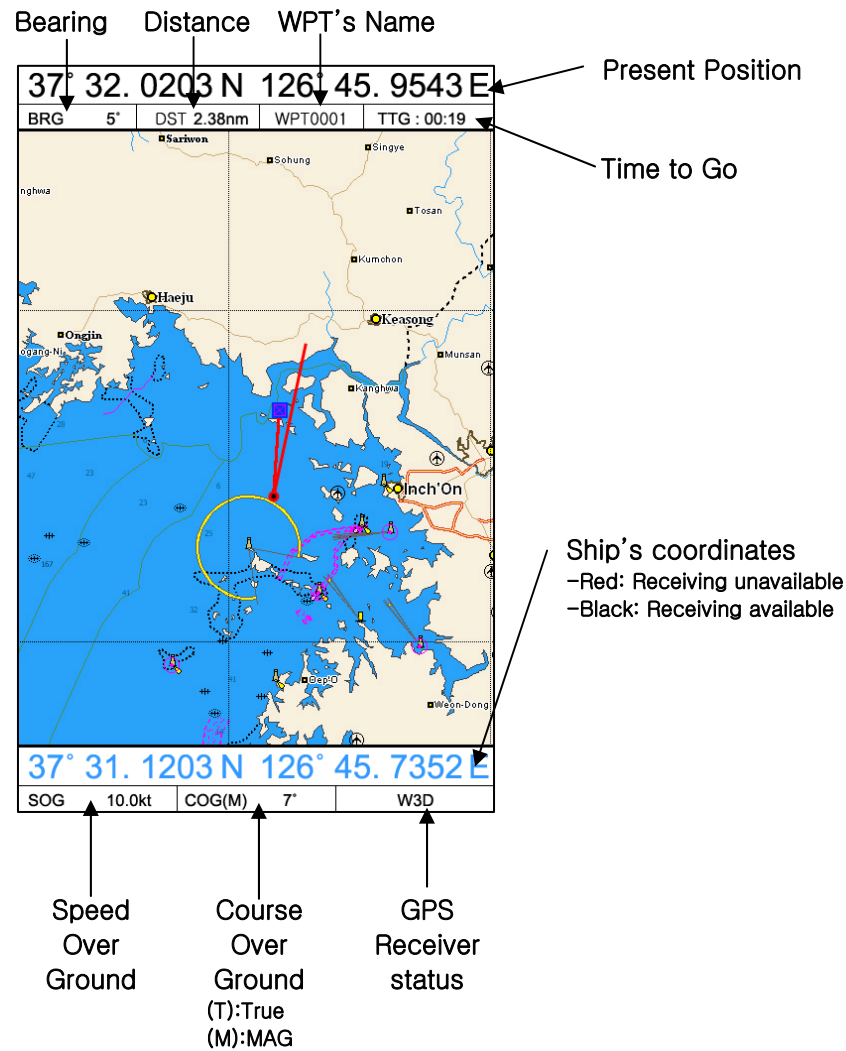


[Full GPS Data]

# Display Modes

## 1. Simply LAT/LOT mode

Simple LAT/LON mode supplies LAT/LON, speed, bearing only. The large chart supports on display.

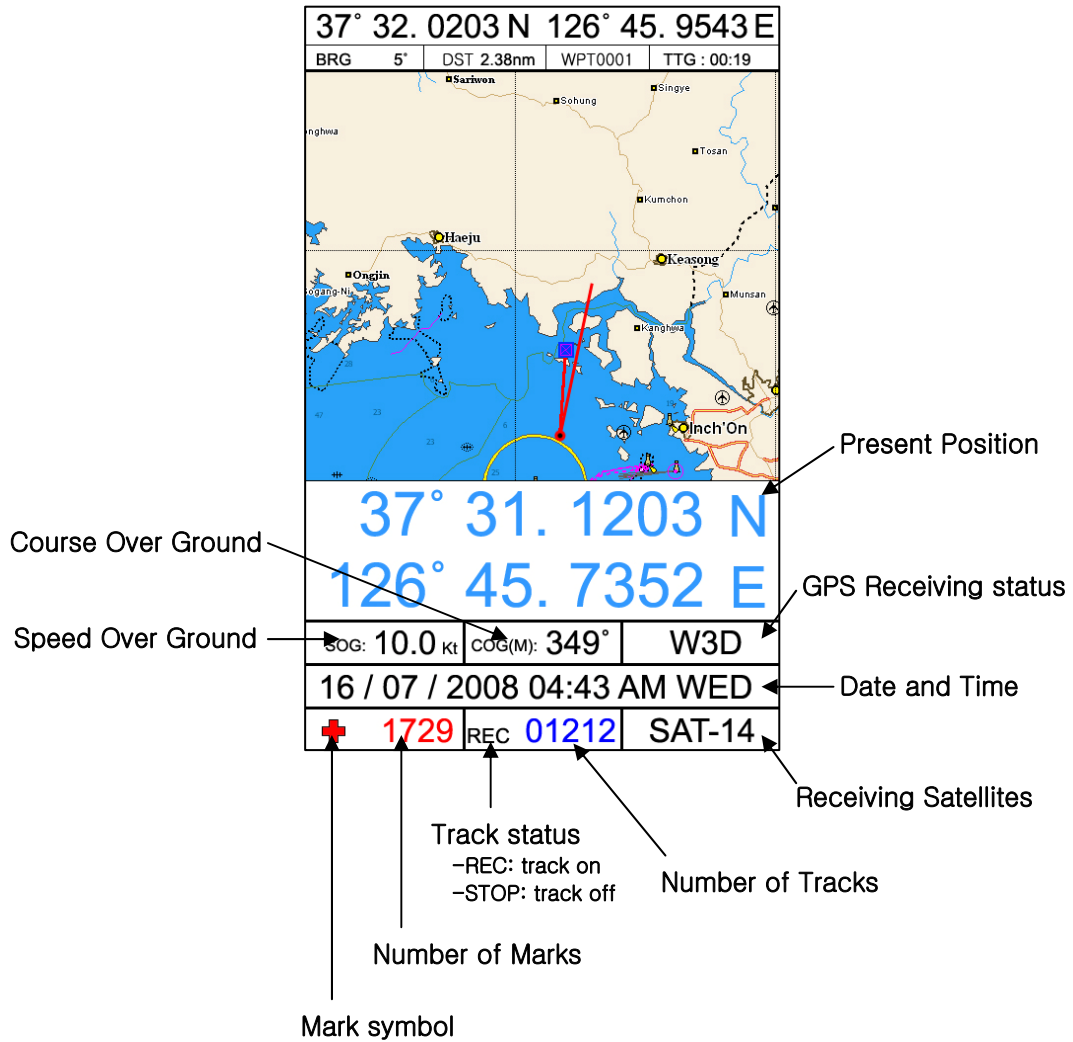


# Display Modes

## 2. Full Information mode

Full information mode supplied all details for navigation.

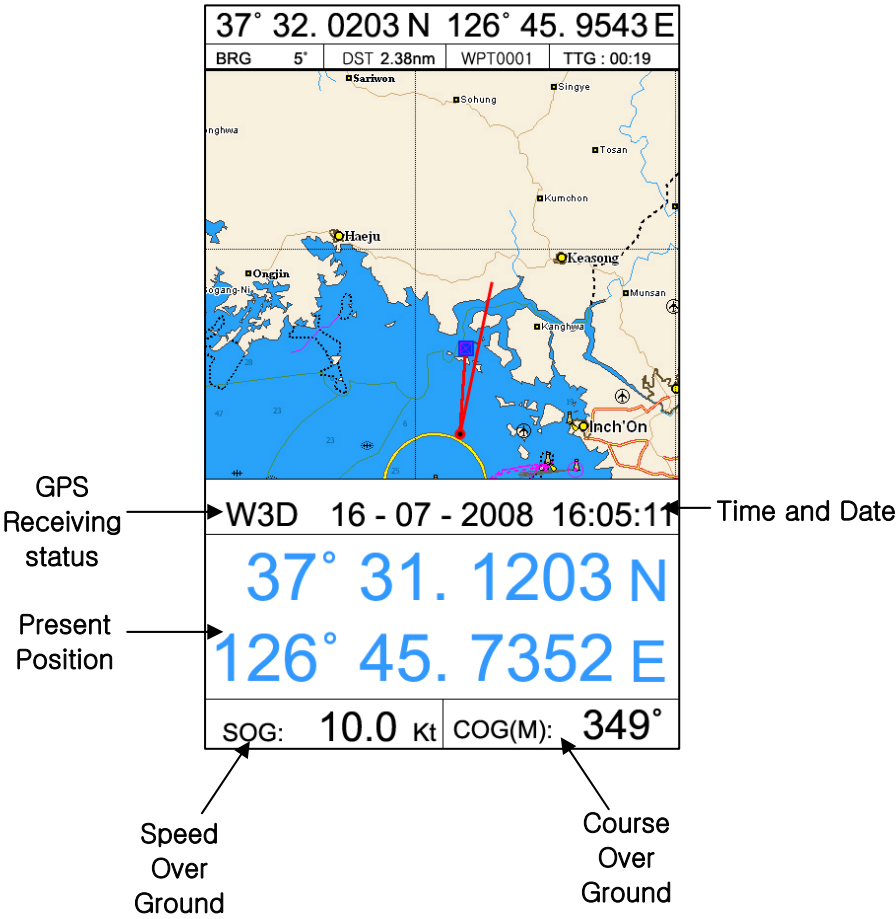
(LAT/LON, Speed, Bearing, GPS status, Date&Time, Simbol of marks and numbers, Number of tracks, Number of receiving Satellites)



# Display Modes

## 3. Large LAT/LON mode

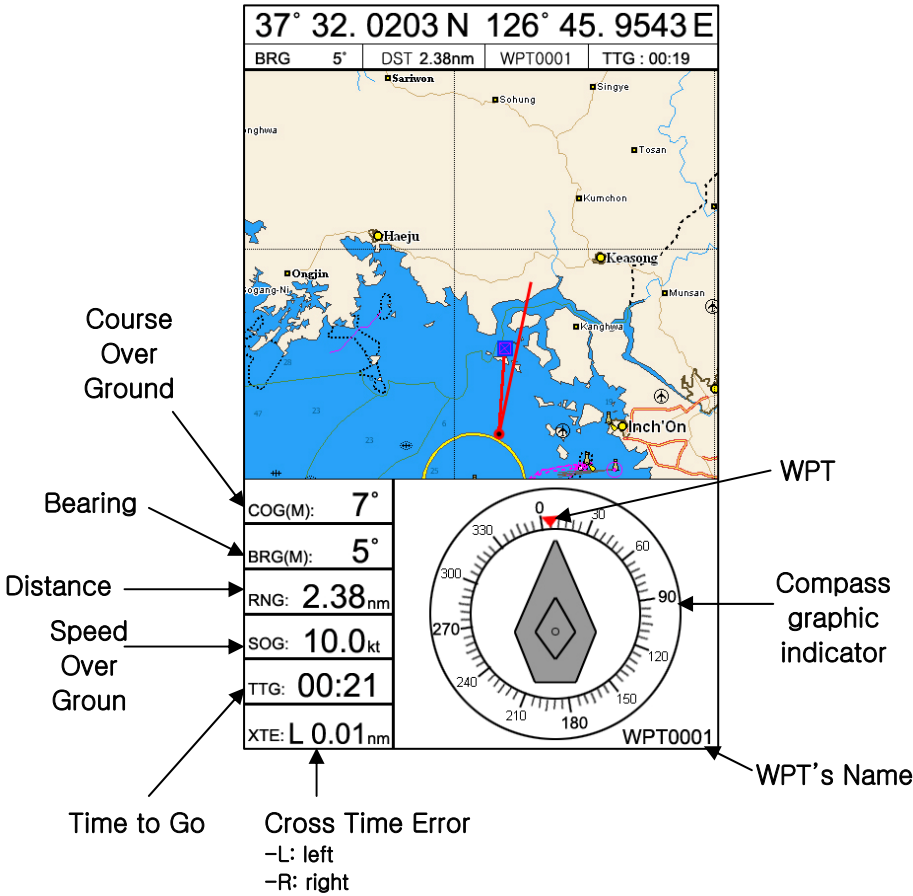
Large LAT/LON shows receiver status, position in latitude and longitude, course over ground, speed over ground, date and time.



# Display Modes

## 4. Steering mode

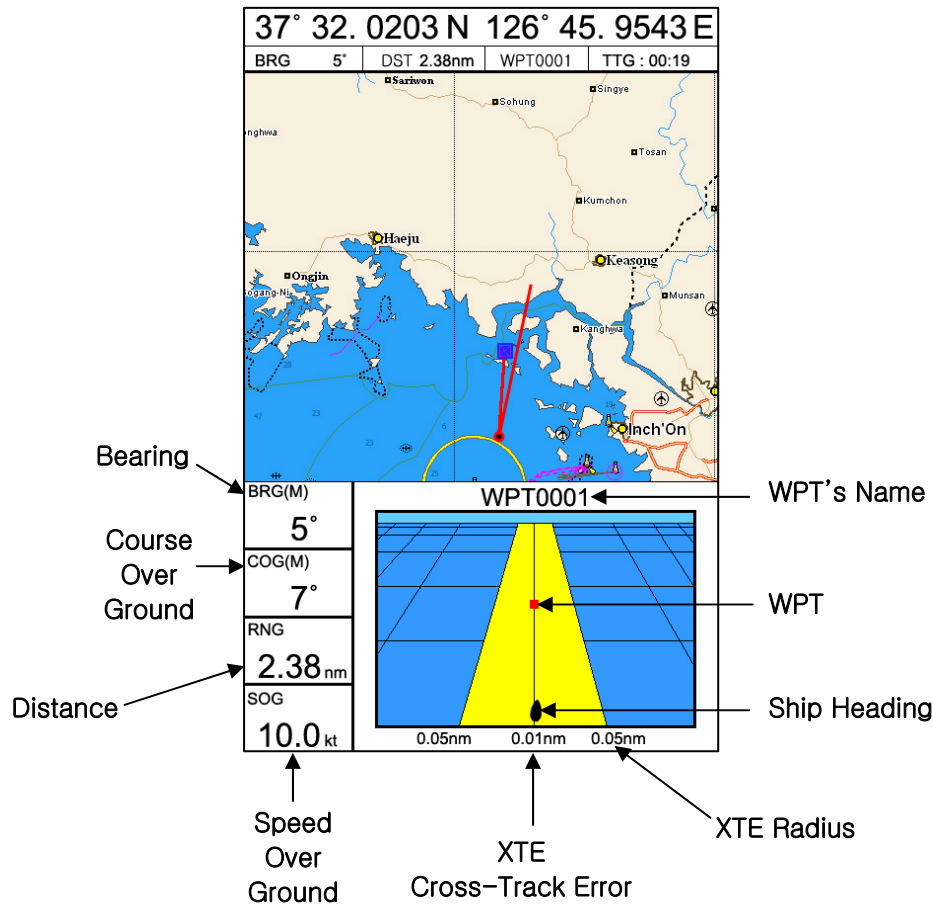
The steering display provides steering information such as ship's speed, course, range, bearing, TTG.



# Display Modes

## 5. Highway Mode

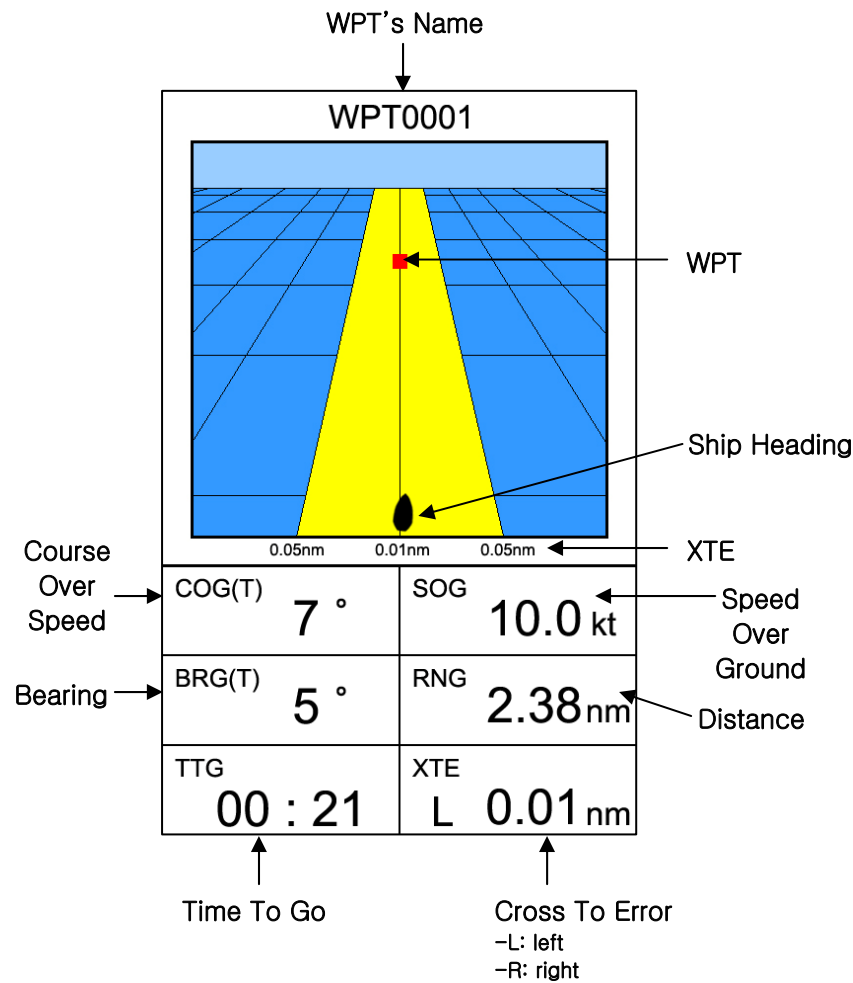
The highway Mode provides a 3D view of own ship's progress toward destination (waypoint).



# Display Modes

## 6. Full Highway mode

The highway mode provides a 3D view of own ship's progress toward destination (waypoint).

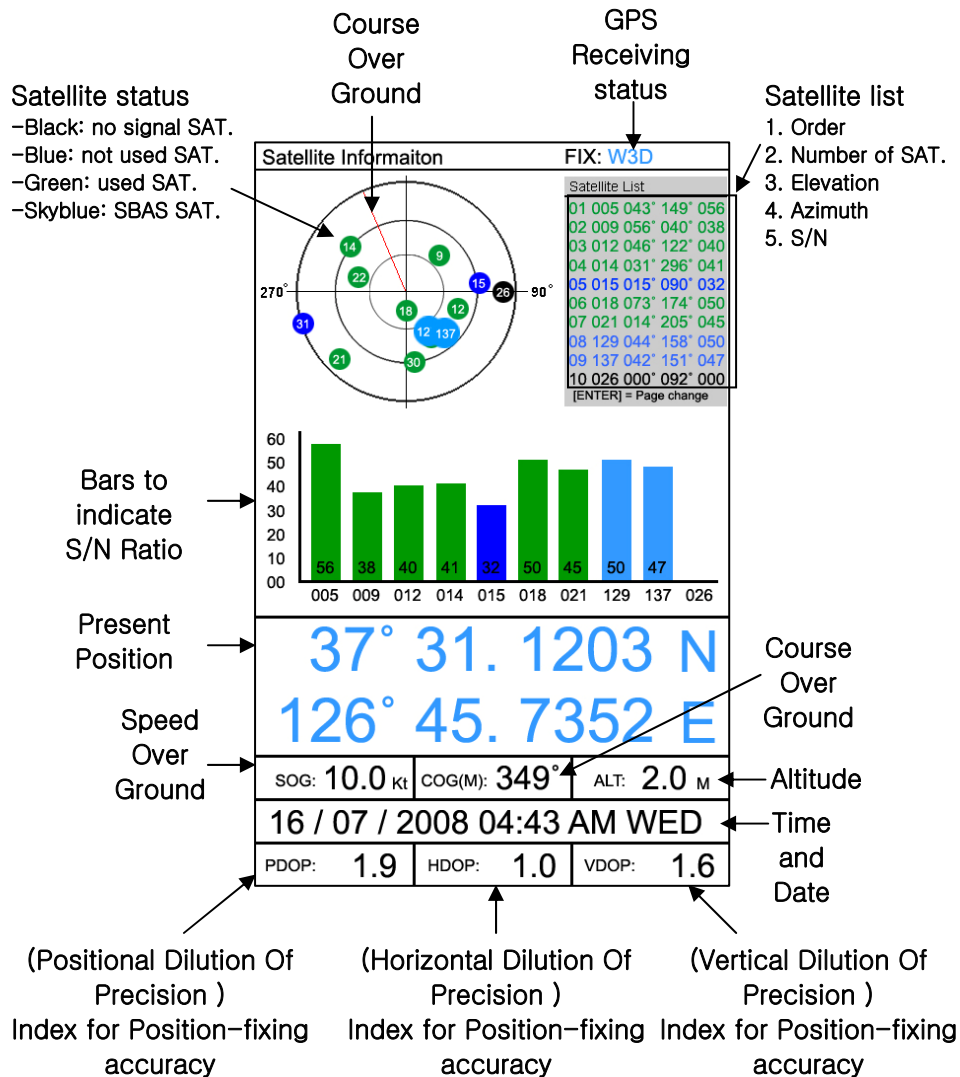




# Display Modes

## 6. Full GPS Data

Full GPS data mode supplies all information of GPS data.

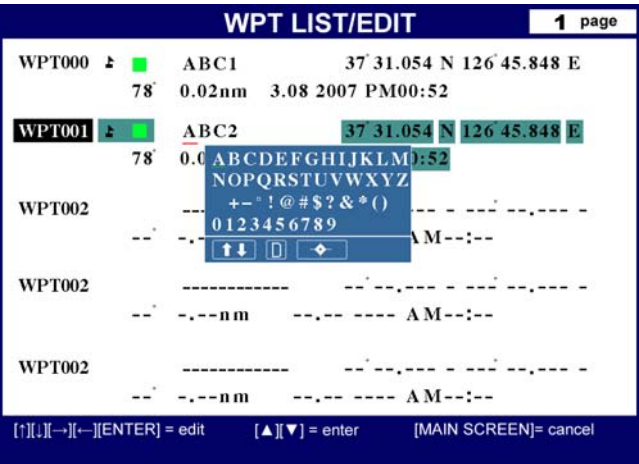


# Operations

## Edit

Edit numbers, symbols, colors of Mark, WPT, Route.

### 1. Editing Character



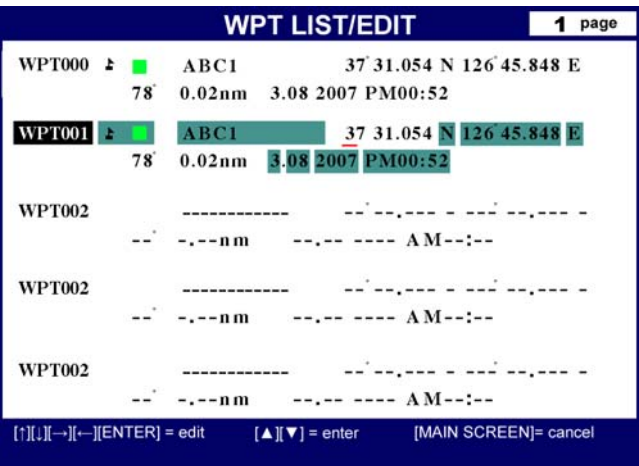
[←],[→]:  
move the position

[↑],[↓]:  
move the bar

[ZOOM IN][ZOOM OUT]:  
input letters

[ENTER]:  
choice and input

### 2. Editing Number



[←],[→]:  
move the position

[↑],[↓]:  
change the number

[ENTER]:  
choice and input

# Operations

## Edit

### 3. Editing Symbol

**WPT LIST/EDIT** 1 page

WPT000	▲	■	ABC1	37° 31.054 N 126° 45.848 E
	78°	0.02nm	3.08 2007 PM00:52	
WPT001	▲	■	ABC1	37° 31.054 N 126° 45.848 E
	78°	0.02nm	3.08 2007 PM00:52	
WPT002			-----	-----
			---nm	AM--:--
WPT002			-----	-----
			---nm	AM--:--
WPT002			-----	-----
			---nm	AM--:--

[↑][↓][←][→][ENTER] = edit    [▲][▼] = enter    [MAIN SCREEN] = cancel

[↑],[↓]:  
move the bar

[ENTER]:  
choice and input

### 4. Editing Color

**WPT LIST/EDIT** 1 page

WPT000	▲	■	ABC1	37° 31.054 N 126° 45.848 E
	78°	0.02nm	3.08 2007 PM00:52	
WPT001	▲	■	ABC1	37° 31.054 N 126° 45.848 E
	78°	0.02nm	3.08 2007 PM00:52	
WPT002			-----	-----
			---nm	AM--:--
WPT002			-----	-----
			---nm	AM--:--
WPT002			-----	-----
			---nm	AM--:--

[↑][↓][←][→][ENTER] = edit    [▲][▼] = enter    [MAIN SCREEN] = cancel

[↑],[↓]:  
move the bar

[ENTER]:  
choice and input

## ※MOB/Mark key

- without the cursor : MOB or inputting a mark at the present position  
MOB :
  - ▶ [MOB/WPT] -> [ENTER]Mark :
  - ▶ [MOB/WPT] -> all keys except [ENTER]
- with cursor : only mark is available at the cursor
  - ▶ [MOB/WPT]

## MOB(Man Over Board)

MOB is a special navigation function that immediately stores your present position as a waypoint and activates navigation to the stored coordinates. MOB waypoints are stored in the waypoint library at the next available position in the WPT mark list. MOB waypoints appear in the list and on the Plotter Min Screen in the same manner as normal waypoints.

(※ MOB available only without the cursor)

- ▶ [MARK/MOB]->[ENTER]

# Operations

---

## MARK

Mark means that a user indicates an important position or a point such as a fish heaven or a danger area for sailing. This is one of the most important functions in the plotter.

### 1. Creating Mark

- ▶ move the position to where you want and press [MARK/MOB].
- addition in the edit of mark:  
(※PLS, refer the edit list)

### 2. Changing Mark symbol

Ten symbols are for Mark.

- i) Cursor isn't displayed :
  - ▶ [MENU] → [8.User data Edit] → [4. Mark Symbol] → [←] [→]
- ii) Cursor is displayed :
  - ▶ [ENTER] → [2.Mark] → [2. Mark Symbol] → [←], [→]

### 3. Changing Mark color

Ten colors are for Mark.

- i) Cursor isn't displayed :
  - ▶ [MENU] → [8.User data Edit] → [5. Mark Color] → [←] [→]
- ii) Cursor is displayed :
  - ▶ [ENTER] → [1.Mark] → [3. Mark Color] → [←], [→]

### 4. Deleting Mark

- i) Delete the mark with the cursor.  
Press the key, [Cursor pad] and move it to the mark position. Get to the mark position on the center of the cursor and press the key, [MARK/MOB]. It will be deleted on the screen.
- ii) Delete the mark in the list  
(※PLS, refer the edit list)

### 5. Editing Mark

- ▶ [MENU] → [1.Edit] → [3.Mark Edit]
- i) Creating Mark
  - ▶ [↑] [↓] → [ENTER]
- ii) Editing Mark
  - ▶ [↑] [↓] → [ENTER]
- iii) Deleting Mark
  - ▶ [↑] [↓] → [MENU] → [ENTER]
- iv) All deleting Mark
  - ▶ [MENU] → [MENU]

# Operations

---

## Waypoint(WPT)

Waypoints may be entered and stored in the waypoint library by any of two different methods. You may use the cursor to select locations from a chart, or store vessel present position as a waypoint

### 1. Creating destination point

You can place the destination point and immediately start navigating to it.

- ▶ [GOTO]→[ENTER]
- Saving destination: when saving the present instant route
  - ▶ [GOTO]→[ENTER]
- Deleting Destination: when deleting the present instant route
  - ▶ [GOTO]→[MENU]

### 2. Creating WPT

- Cursor is displayed :
  - ▶ [MOB/WPT]→press any keys except [ENTER].
- (※ inputting a WPT at the present position)
- ii) Cursor is displayed :
  - ▶ [ENTER]→[1.Waypoint]→[ENTER]

### 2. Selecting WPT

- ▶ [GOTO]→[1.WPT List/Edit]→[↑][↓]→[GOTO]

### 3. Editing WPT

- ▶ [MENU] → [1.Edit] → [1.WPT.Edit]
- i) Creating WPT
  - ▶ [↑][↓]→[ENTER]
- ii) Editing WPT
  - ▶ [↑][↓]→[ENTER]
- iii) Deleting WPT
  - ▶ [↑][↓]→[MENU]→[ENTER]
- iv) All deleting WPT
  - ▶ [MENU]→[MENU]

# Operations

---

## Route

### 1. Instant Route

Use waypoints to create a instant route for your sailing. The capacity of waypoints are 20 point. Every time you put waypoints on the screen, the temporary route is drawn on the screen.

▶ [CURSOR PAD]->[GOTO]->[CURSOR PAD]->[GOTO]->.....->[ENTER]

- Saving Instant Route: when saving the present instant route

▶ [GOTO]->[ENTER]

- Deleting Destination: when deleting the present instant route

▶ [GOTO]->[MENU]

### 2. Creating Route

▶ [MENU] -> [1. Edit] -> [2. Route Edit] -> [BRT/PWR]

### 3. Selecting Route

▶ [MENU]->[1.Edit]->[2.Route List & Edit]->[↑][↓]->[GOTO]

### 4. Deleting Route

▶ [MENU]->[1.EDIT]->[2.Route List/Edit]->[↑][↓]->[MENU]->[ENTER]

### 5. Reversing Route

[MENU]->[8.User Data Edit]->[0.Route Forward/Reverse]->[←][→]

### 6. Setting Point

Move the point step by step.

▶ [MENU]->[8.User Data Edit]->[9.Skip Routes]->[ENTER]

### 7. Edit the existing route

Choose the route you want to edit and press [MARK/MOB]

- Adding saved WPT

Move the cursor where you want -> Press the [MARK/MOB] -> Choose the WPT on the [Insert WPT] -> press the [ENTER]

- Adding new WPT

Move the cursor where you want -> Press the [BRT/PWR] -> Add your WPT -> press the [ENTER] -> Edit the WPT

### 8. Editing Route

▶ [MENU]->[1.Edit]->[2.Route List & Edit]

i) Creating Route

▶ Press [BRT/PWR]

ii) Route seeing & edit

▶ [↑][↓]->[MARK/MOB]

(※ PLS, refer Editing for the WPTs in the route)

iii) Route deleting

▶ [↑][↓]->[MENU]->[ENTER]

# Operations

---

## Track

The Track function provides a record of the path over which your vessel has traveled. A track is a series of lines connecting points of vessel present position which are plotted at wither time or distance intervals. Tracks are recorded and stored one at a time. AQUA supports five different tracks, each has up to ten thousand (20,000) points of track history. Tracks are displayed on the Main Plotter Screen in any user selectable combination from none to five. Current track status is displayed on the lower line of the GPS area of the information display. Track number, on/off condition, and number of track points used are presented.

### 1. Track ON/OFF

► [ENTER]→[1.Track]→[←][→]. For displaying on/off, use the arrow keys, right and left.

### 2. Changing Track Color

► [MENU]→[8.User Data Edit]→[2. Track Color]. For choosing the color you want, use the arrow keys, right and left.

### 3. Deleting Track

► [MENU]→[8.User Data Edit]→[3. Track Deletion]→Choose the color you want to delete  
→[ENTER]

(\* If you want to delete all tracks, choose "All Delete")

### 4. Saving Track

Saving 10,000 points are available in each .

► [MENU]→[4.Setup 1/2]→[enter]→[8.Save track]→[ENTER]

### 5. Loading Track

Saving 10,000 points are available in each .

► [MENU]→[4.Setup 1/2]→[enter]→[9.Load track]→[ENTER]

## User Data

### Save User Data(Back-up)

► Insert the XD card → [MENU] → [1. Edit] → [6. Save User Data] → [ENTER]

\*SD card must be a normal type.(mini SD and Mirco SD are not available) Please, kindly note that the maximum is 1GB.

### Load User Data

► Insert the XD card → [Menu] → [1. Edit] → [7. Load User Data] → [ENTER]

\*SD card must be a normal type.(mini SD and Mirco SD are not available) Please, kindly note that the maximum is 1GB.



# Operations

---

## Display ON/OFF

The menu selects icons or symbols and lines displayed ON/OFF.

► [MENU]→[2.Display ON/OFF]→[←][→]

(\* If you want to go to next page of the menu, press [MENU])

(\* In C-MAP, it could be different from HY-chart.)

## Mode

There are four display modes for Main Screen that involve the Plotter or Radar screen. Both Plotter and Radar mode change together regardless of which one is active when a mode change is made.

The display modes are: Normal mode, North up, Course up, Head up

► [MENU]→[9.Mode]

### 1. Normal mode:

The True Motion display is oriented North up or South up depending upon the North/South setting found on the PLOTTER MENU. The difference between True Motion and North/South Up display is in the way the vessel position is presented. In True Motion mode, the vessel position

🚢 symbol moves over the map while the map remains stationary.

### 2. North up:

The North Up/South Up display is oriented North up or South up depending upon the North/South setting found on the PLOTTER MENU. For this mode setting the vessel present position remains fixed in the center of the Main Screen while the map moves under it.

### 3. Course up:

The Course Up mode screen orientation is determined by whether or not navigation is in progress. During navigation vessel present position is in the center of the Main Screen and the course line to the destination waypoint is straight up. As your present position changes, the map moves under the stationary vessel 🚢 symbol. If navigation is stopped, the Main Screen appears as North/South Up.

### 4. Head up

For Head Up mode, vessel present position is fixed in the center of the Main Screen and vessel heading is upward. As your present position changes, the map moves under the vessel 🚢 symbol.

# Operations

---

## GPS Setup

It is available to control and confirm information in GPS receiver.

► [MENU]→[3.GPS Setup]

### GPS Setup 1/2

#### 1. Datum:

It shows GPS Datum. WGS-84, which is the worldwide standard is only available.

#### 2. Satellite Information:

It shows the receiving condition of the signal from satellites.

#### 3. Latitude Modification:

There could be a receiving signal error from satellites. If it is on the latitude, modify in the latitude modification.

#### 4. Longitude Modification:

There could be a receiving signal error from satellites. If it is on the longitude, modify in the longitude modification.

#### 5. Smoothing set:

How to set the calculation of Smoothing.

OFF : No use.

Mode 1: Calculation in short time.

Mode 2: Calculation in long time.

#### 6. Average BRG:

It sets time by second for average bearing. It is a special function for a fishing boat.

#### 7. Average Speed:

It sets time by second for average speed. It is a special function for a fishing boat.

#### 8. Lat/Lon Unit:

It is to select the number of the unit for Lat/Lon.

#### 9. GPS Receiving Port:

It is to select Inter receiver Interior or Exterior.

#### 0. Coordinate System:

It sets coordinate system of GPS or Loran.

### GPS Setup 2/2

#### 1. AIS Setup

It sets AIS on/off, AIS Scale, CPA Alarm, CPA Limit, TCPA Alarm, TCPA Limit.

# Operations

---

## Setup

It is available to set the menu or units for user's visual confidence.  
(\* For next page, press [MENU])

▶ [MENU]→[4.Setup]

### Setup 1/2

#### 1. Distance/Speed Unit:

Select desired unit of measure for distance and speed. Choose from: nautical mile/knots (nm/kt), kilometer/kilometers per hour(km/kmh), yard/knot(yd/kt).

cf) 1nm = 1.852km, 1kt /h= 1.852km/h, less than 1nm display in yard and over 1nm display in mile

#### 2. Track Size:

The size of a track is selectable between thin and pan.

#### 3. Track Display Interval:

Track display interval is adjustable by distance or time.

#### 4. Time Interval:

If track interval is set in time, a track displays by track time interval. The track time interval and the maximum capacity is 10,000 points.

#### 5. Distance Interval:

If track interval is set in distance, a track displays by track distance interval.

#### 6. Heading Line Length:

The length of the heading line is adjustable from 50 until 300. The bigger number, the longer line. The heading line is used in modes of the true motion and the north/south up.

#### 7. True/Magnetic:

There is a difference degree where you are in the earth. This function is to modify the error from true and Magnetic.

#### 8. Compass Modification:

There could be a difference between the magnetic compass and the GPS compass. An error depends upon your area. It is necessary to use AUTO PILOT together with GPS Plotter.

#### 9. TD setup

It sets Chain, Pair, ASF

# Operations

## Setup

It is available to set the menu or units for user's visual confidence.

(\* For previous page, press [MENU])

► [MENU]→[4.Setup]

### Setup 2/2

#### 1. Displaying Time Setup:

Provides for local time offset (−12:00 to +13 hours in 1/2 hour steps) from UTC.

#### 2. Data Output:

AQUA can be connected with a radar and an autopilot, which needs to get a signal from the radar and the autopilot. These data are necessary to communicate with NMEA 0183.

DESCRIPTIONS	CONTENTS OF DATA FIELD
\$GPGGA	Global Positioning System Fix Data
\$GPGLL	Geographic Position, Latitude/Longitude
\$GPGSA	GPS DOP and active satellites
\$GPGSV	GPS Satellites in View
\$GPVTG	Course and Ground Speed
\$GPZDA	Time & Date
\$GPRMC	Recommended Minimum Specific GPS/TRANSIT DATA
\$GPAPB	Heading/track controller (Autopilot) sentence B
\$GPXTE	Cross-track error, measured
\$GPBOD	Bearing, origin to destination
\$GPRMB	Recommended minimum navigation information

#### 3. Land Color Select:

Choose the color of the land.

(\*This function is only available in HY-chart)

#### 4. Chart Change:

Choose the chart system. (HY-MAP/External MAP/C-MAP)

#### 5. Reset

All systems returns to the initial system.

► [ENTER] : reset without deleting user data.

► [GOTO]→[ENTER]: returning to the initial system from the releasing of factory.  
(All user data will be deleted)

#### 6. WPT Name Font Size

Choose the font size of the WPT.

#### 7. SOG Setup

Control the abnormal speed an anchoring.

# Operations

---

## 8. Save Track

Current Track save to Track data.

## 9. Load Track

Saved Track load to display

## 0. Depth unit

Select the depth unit.

- M: Meter unit
- Ft: Feet unit
- FM: Femten unit

# Operations

---

## Maintenance

It is necessary to check the system or the version for maintenance and demonstrate AQUA with the simulators

► [MENU]→[5.Maintance]

### 1. System Information

It contains ID and the program version, and it has important information for maintenance and upgrade.

### 2. Chart Information:

It contains the version of the chart, the datum and the number, which is necessary for maintenance and upgrade

### 3. Keyboard Test:

It tests the keyboard if it's working properly.

### 4. GPS Simulator:

It is necessary for an indoor demonstration. The simulations of GPS plotter are two in the memory.

### 5. Language:

AQUA supports three different kinds of languages, English, Chinese, Arabic, Thai etc. Pressing the [ENTER], AUQA turns off and reboot the system for the new language.

# Operations

---

## Alarm

Special notices are necessary on sailing. AQUA has four kinds of alarm, arrival, out of the course, anchor and time.

► [MENU]→[7.Alarm]

### 1. Arrival Alarm:

When you approach into the waypoint range, it gives you a notice with alarm.

### 2. Arrival Radius:

It is to adjust the range of arrival from your waypoint. If you have a route, it changes to the next waypoint automatically.

### 3. XTE Alarm:

If you are out of the course, it gives you a notice with alarm.

### 4. XTE Radius:

It is to adjust the range of the off course.

### 5. Anchor Alarm:

It is necessary when your vessel anchors.

### 6. Anchor Radius:

If your vessel is out of the range of the anchor, it gives you notice with alarm.

### 7. Interval Alarm:

It alarms every time you set.

### 8. Interval Time

The time is available from one minute until sixty minutes.

### 9. Course Alarm:

It alarms if it breaks into the setting area.

### 0. Course Alarm Range:

It sets the range of the course alarm.

# Installation

---

AQUA brings expandable display technology to your bridge or navigation station. A careful installation will assure maximum benefit from AQUA integrated features.

## Display Unit Location

Select a location for your AQUA display unit that provides easy viewing from all likely operator's positions. The display unit is designed to be mounted on either a console or from an overhead surface. The AQUA display is also designed for flush mounting using six threaded holes on the rear panel. Locate the display in an area with protection from the elements and avoid direct sunlight on the viewing window. Also, consider access to the rear panel of the unit for connecting power and cables to the various remote sensors. The mounting surface must be flat and solid to support the unit and prevent vibration. There should be access to the inside of the surface to permit through bolt fastening for the mounting bracket.

## Display Unit Installation

Temporarily install the mounting bracket on the Genesis display unit and place the unit at the selected location.

### CAUTION

The AQUA display unit is unstable when the mounting bracket is not secured. Hold the unit in place at all times.

Check the suitability of the location and make any adjustments. When all is satisfactory, use the holes in the mounting bracket as a guide and mark the holes locations on the mounting surface.



# Installation

---

Drill a 1/4 in. diameter hole at each marked location. Mount the AQUA display bracket using bolts through the mounting surface. Place large flat washers on the opposite side of the mounting surface from the bracket and then install lock washers and nuts. Tighten securely.

Install the display unit into the mounting bracket. Check alignment and operation of the pivots and security of the mounting. Make any adjustments necessary to prevent binding and assure even meshing of the pivot locking washers. It is advised to remove the display unit and store it in a safe place to prevent damage during the rest of the installation process.

## **- Power Connection**

Power is supplied to the AQUA Charting System through a connector on the rear panel of the display unit.

Route the power cable from the AQUA location to the ship's power distribution panel.

Connect the black wire to a battery negative (–) terminal of the power panel.

Connect the white wire to a fused battery positive (+) terminal of the power panel ( 12 to 24 Vdc nominal). If a fused terminal is not available, install an in-line fuse holder.

## Reference

---

### - Care and Cleaning

Your AQUA is made to withstand marine elements but a little care ensures a trouble free life. Accumulations of salt and sand, if not removed, will eventually mar the finish. No solvents or harsh cleaners should be used. The display unit may be wiped down with a damp cloth while avoiding the display window. Be careful not to scratch the display window surface. Gently remove any sand or other grit particles before cleaning the display window. The display window should be cleaned only with water and a clean soft cloth using very light pressure.

### - NMEA

A standard developed by the National Marine Electronics Association and used by most marine equipment manufacturers for data communication is known as NMEA 0183 version 1.5 and version 2.0. NMEA0183 specifications offer many recognized sentences for exchanging data between many types of marine equipment.

The following technical information is provided for reference and is accurate to the best of our knowledge at the time of printing. Please refer to the appropriate NMEA specifications for details and the latest information.

The data sentences used by the HGP-660D are as follows.

#### Output sentences:

DESCRIPTIONS	CONTENTS OF DATA FIELD
\$GPGGA	Global Positioning System Fix Data
\$GPGLL	Geographic Position, Latitude/Longitude
\$GPGSA	GPS DOP and active satellites
\$GPGSV	GPS Satellites in View
\$GPVTG	Course and Ground Speed
\$GPZDA	Time & Date
\$GPRMC	Recommended Minimum Specific GPS/TRANSIT DATA
\$GPAPB	Heading/track controller (Autopilot) sentence B
\$GPXTE	Cross-track error, measured
\$GPBOD	Bearing, origin to destination
\$GPRMB	Recommended minimum navigation information



# Declaration of Warranty

Declares of under his sole responsibility that the produced Plotter with Fish Finder manufactured by

## **HAIYANG OLIX Co., LTD.**

103-903 BucheonTechnopark 364 Samcheongdong

Ojeonggu Bucheon Gyeonggi, Korea

TEL +82 2 3240381 FAX +82 32 327 4713

Web-site: <http://www.haiyang.co.kr>

## **Guarantee for One Year**

Haiyang Olix Co., LTD warrants the produced Chartplotter and Fish Finder, AQUA for One (1) year for guarantee as bellows.

1. Main Unit: One (1) year guarantee after a user purchases the product within one (1) year
2. LCD and Accessories: One (1) year for consumed accessories (including LCD) after a user purchases them.

## **Service in Charge**

1. Over the term from the guarantee
2. Damage from user's carelessness (inundation, impact)
3. Intentional dismantle, modification or remodeling of the unit.
4. Unauthorized parts, components or accessories are used in the unit.
5. Installed or maintained by unauthorized person
6. Consumed parts and components (batteries, LCD, etc) run out.
7. Faults or damages from other reasons.

Model	HGP- 660D	Serial No.	
Date of Purchase		Customer Name	
Name of Dealer		Price	

**\*Caution - Keep this warranty card with the receipt for fast and good service**

---

# **HAIYANG OLIX**

103-903 BucheonTechnopark samcheongdong Ojeonggu  
Bucheon Gyeonggi, Korea  
Telephone: +82-2-324-0381  
TeleFax : +82-32-327-4713  
Web-site: [www.haiyang.co.kr](http://www.haiyang.co.kr)