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Important Notice

Manual Handling	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.
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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.

DGPS Operation Note:

Your position can be improved by DGPS correction. However, when you are communicating with other ships, you may use a DGPS corrected position but they may not. Make your position source known during communication.

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.

Fish finder Operation Note:

This is a fish finder and not suitable digital depth depth finder. During navigation, use the correct charts and positioning instrument (such as a GPS) to determine the position, depth, other ship's data, land and others. It is your responsibility to make navigation judgments.

Pictorials

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

	WARNING	Always follow this safety instruction to prevent death or injury.
	CAUTION	Follow this safety instruction to avoid possible injury or damage to your property. Symbol “△” is a CAUTION or WARNING label indicating the safety instruction.
	WARNING	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.

	Turn power off During abnormality.	If smoke or a smell 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.
	Do not open Cabinet.	High voltage exists in the instrument. Contact with voltage may cause possible injury or death.
	Do not touch back side of the equipment.	Harmful line voltage is present on back side of the equipment. Never try to touch back side while power is turned on.
	Avoid excessive shock to display unit.	The LCD display module contains a liquid. Do not apply any mechanical shock to the display. If the display is broken, liquid may leak and injure your skin and eyes.
	Do not use with poor ventilation.	If you cover this unit or use it 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.

Installation in rigid location.	Mount your AQUA on a rigid frame or base to prevent your unit from working loose.
Use correct Installation materials.	Use the installation materials provided in the standard accessory pack only. If you use hardware of insufficient strength, your system may loosen causing damage.
Keep away from direct sunlight.	Keep your system out of direct sunlight as it may become damaged by overheating.

Keep away from water.	Take care not to get water on or in your unit as it may be damaged and/or cause an electrical shock.
Keep away from heat source.	Keep your system away from other heat source as it may malfunction, be damaged, or burn.
Use correct power source.	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

Discharge capacitors.	High voltage may be retained in the capacitors if the high-tension circuit several minutes after you have turned the power switch off.
Check that power is OFF	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.
Avoid EMI.	Take care not to damage the ESDs (Electrostatic Sensitive Devices) by static electricity from carpet and cloths.
Avoid dust.	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.

Backup important data.	The waypoint and other registered data may become unreadable by unexpected failure. We recommend recording this data separately.
Use correct transducer only.	If you use incorrect transducer, the transmitter circuit may be damaged due to a matching error. Consult is for system information.

Check transducer Connection before power on	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.
Always clean the transducer	Since transducer performance can drop due to accumulated bottom growth, keep the transducer clean. Never paint transducer surface.
Transducer must be installed by authorized personnel.	Consult us for transducer installation by authorized personnel.

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 Sportfisherman 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.



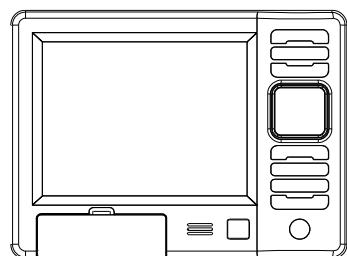
DISPLAY BREAKAGE WARNING

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.

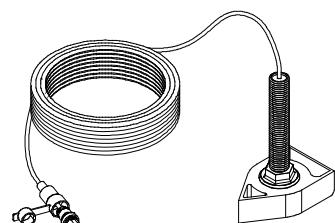
■ Accessories (MX-80 Series)

Please check all accessories before installation.

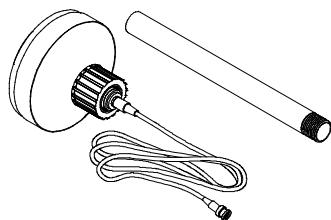
Please refer to Purchase Place, If some accessories is not existed.



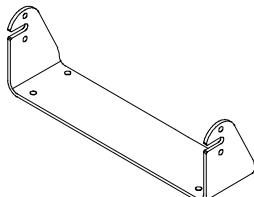
Display Unit



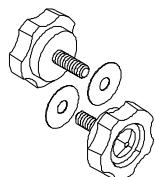
Transducer(Option
)



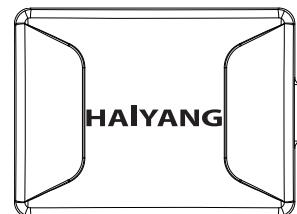
GPS ANT.
(Pipe&Band is option)



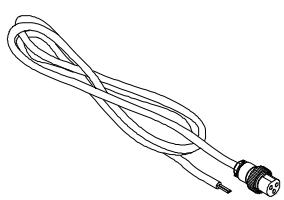
Mounting Bracket



Knobs(2 pcs)



Protector



Power cable



Fuse(5A 2pcs)

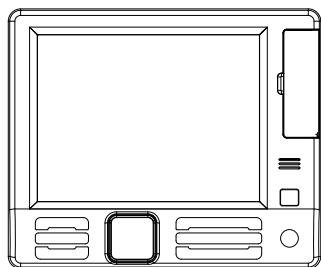


Manual

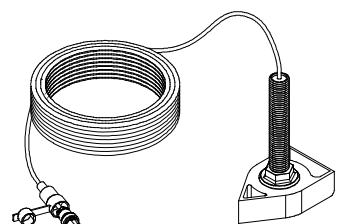
■ Accessories (MX-140 Series)

Please check all accessories before installation.

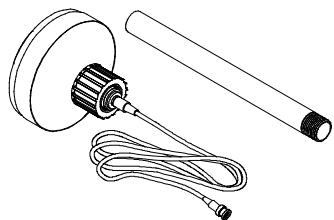
Please refer to Purchase Place, If some accessories is not existed.



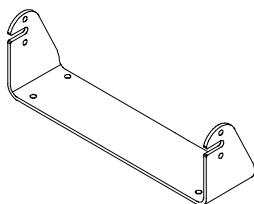
Display Unit



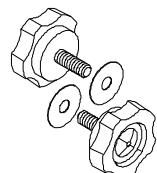
Tranducer(option)



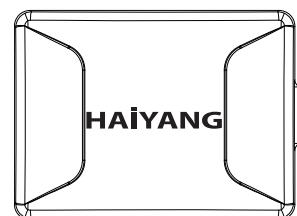
GPS ANT
(Pipe&Band is option)



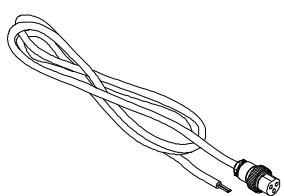
Mounting Bracket



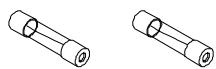
Knobs(2 pcs)



Protector



Power cable



Fuse(5A 2 pcs)

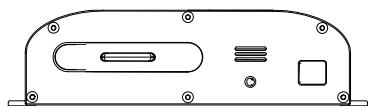


Manual

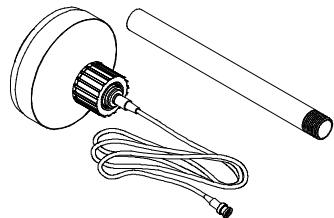
■ Accessories (MX-380 Series)

Please check all accessories before installation.

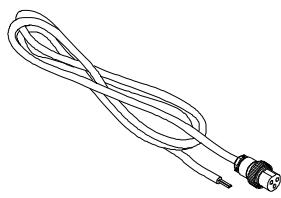
Please refer to Purchase Place, If some accessories is not existed.



Display Unit



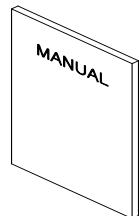
GPS ANT
(Pipe&Band is option)



Power cable



Fuse(5A 2 pcs)



Manual

1. Before to use

This is the fundamental information for using the unit. Please note information as below.

1.1 Keyboard(MX-80 & MX-140 series)

1.1.1 Plotter display

[](POWER)	Turns the power on / off
[MOB]	Is a special navigation function that immediately stores your present position as a waypoint and active navigation to the stored coordination
[CHART]	Choose the map
[MENU]	Opens main menu
[BRT]	Adjusts the brightness in day or night mode
[MODE]	Selects the map mode
[PAGE]	Selects the display mode
[+],[-]	Zoom in/out the map
[SELECT]	Selects the key, when plotter and Fish finder are displayed on the screen
[](CURSOR)	Turns the cursor on / off
[DIRECTION]	Uses to move the cursor, select / cancer menu items
[QUICK NAV]	Uses instant navigation.
[STOP NAV]	Stops the present route
[SETUP NAV]	Changes and sets up WPT and route.
[TRACK ON/OFF]	Turns the track lines on / off
[TRACK COLOR]	Changes the color of the track line
[TRACK ERASE]	Erases the track line
[W/M INPUT]	Creates the W/M
[W/M COLOR]	Changes the color of the W/M
[W/M SYMBOL]	Changes the symbol of the W/M
[OTHERS]	Runs user line, user name, correction offset and recording on the display.
[CLEAR]	Cancels the setting or exists from the menu
[ENTER]	Applies the adjustment, selects the menu, finds the information and shows it

 Note : Power and Bright button are combined one button

Press the [POWER] key over 3 seconds for turning off. Stop to press it before the power is turned off, it is available to setting up brightness.

1.1.2 Fish finder display

[]	Turns the power on / off
[MENU]	Opens main menu
[BRT]	Adjusts the brightness in day mode or night
[MODE]	Selects the fish finder mode
[PAGE]	Selects the display mode
[+],[-]	Uses +/- for the depth range in manual mode.
[SELECT]	Selects the key, when plotter and fish finder are displayed on the screen
[LEFT][RIGHT]	Uses +/- for the gain in the manual mode.
[UP][DOWN]	Uses +/- for the STC level
[CLEAR]	Cancels the setting or exists from menu
[ENTER]	Applies the adjustment, selects menu, finds Info and shows it.

1.2 Power On/Off

The power cable is properly connected to the UNIT Series.

1.2.1 Turn the power on

Press the [POWER] key. After the initial screen, the UNIT series is ready.

When attention windows is up, PLS note it. Press [ENTER], the UNIT series is going to catch the present position.

1.2.2 Turn the power off

Press the [POWER] key over 3 seconds for turning off.

1.3 Adjustment brightness

Using [LEFT]/[RIGHT] keys for brightness adjustment.

Pressing the [BRT] key for day or night mode adjustment.

Pressing the [CURSOR] key for maximum brightness instantly.

1.3.2 Adjustment brightness for the external display.

By pressing the [UP]/[DOWN] keys, the screen brightness can be adjusted.

1.4 Information

Pressing the [ENTER] key on the icon which you need to get the information. The information is shown up.

1.5 Select map

Pressing the [CHART] key and select the map, power is automatically converted.

1.6 Using the menu

Using the [UP]/[DOWN] keys for selection the menu. Press the [RIGHT] or [ENTER] key for enter.

Pressing the [LEFT]/[CREAR] keys for cancel or return to the previous menu.

And pressing number on the key pad. Exactly going to number of menu.

1.7 Input the letter.

Repeatedly pressing alphabet on the key pad for inputting the letter in the user data, user name etc., Or using [UP]/[DOWN] keys.

Pressing the [RIGHT] key to input next letter.

Number should be input by using Number key.

Pressing  key three times for erasing input letter.

ex) If you want to type 'F', press the  key three times.

1. Before to use

This is the fundamental information for using the unit. Please note information as below.

1.1 Keyboard(MX-380 series)

1.1.1 Plotter display

[PWR]	Turns the power on / off Adjusts the brightness in day or night mode
[MOB]	Is a special navigation function that immediately stores your present position as a waypoint and active navigation to the stored coordination
[CHART]	Choose the map
[MENU]	Opens main menu
[MODE]	Selects the map mode
[PAGE]	Selects the display mode
[+],[-]	Zoom in/out the map
[SELECT]	Selects the key, when plotter and Fish finder are displayed on the screen
[+](CURSOR)	Turns the cursor on / off
[DIRECTION]	Uses to move the cursor, select / cancer menu items
[QUICK NAV]	Uses instant navigation.
[STOP NAV]	Stops the present route
[SETUP NAV]	Changes and sets up WPT and route.
[TRACK ON/OFF]	Turns the track lines on / off
[TRACK COLOR]	Changes the color of the track line
[TRACK ERASE]	Erases the track line
[W/M INPUT]	Creates the W/M
[W/M COLOR]	Changes the color of the W/M
[W/M SYMBOL]	Changes the symbol of the W/M
[OTHERS]	Runs user line, user name, correction offset and recording on the display.
[CLEAR]	Cancels the setting or exists from the menu
[ENTER]	Applies the adjustment, selects the menu, finds the information and shows it

 Note : Power and Bright button are combined one button

Press the [POWER] key over 3 seconds for turning off. Stop to press it before the power is turned off, it is available to setting up brightness.

1.1.2 Fish finder display

[PWR]	Turns the power on / off Adjusts the brightness in day or night mode
[MENU]	Opens main menu
[BRT]	Adjusts the brightness in day mode or night
[MODE]	Selects the fish finder mode
[PAGE]	Selects the display mode
[+],[-]	Uses +/- for the depth range in manual mode.
[SELECT]	Selects the key, when plotter and fish finder are displayed on the screen
[LEFT][RIGHT]	Uses +/- for the gain in the manual mode.
[UP][DOWN]	Uses +/- for the STC level
[CLEAR]	Cancels the setting or exists from menu
[ENTER]	Applies the adjustment, selects menu, finds Info and shows it.

1.2 Power On/Off

The power cable is properly connected to the UNIT Series.

1.2.1 Turn the power on

Press the [POWER] key. After the initial screen, the UNIT series is ready.

When attention windows is up, PLS note it. Press [ENTER], the UNIT series is going to catch the present position.

1.2.2 Turn the power off

Press the [POWER] key over 3 seconds for turning off.

1.3 Adjustment brightness

(*Pressing [BRT] key)

Using [LEFT]/[RIGHT] keys for brightness adjustment.

Pressing the [BRT] key for day or night mode adjustment on the Adjustment bright window.

Pressing the [CURSOR] key for maximum brightness instantly.

1.4 Information

After moving cursor to [i] the icon which you need to get information on the chart and then pressing the [ENTER] key on the icon . The information is shown up.

1.5 Select map

Pressing the [CHART] key and select the map, power is automatically converted.

1.6 Using the menu

Using the [UP]/[DOWN] keys for selection the menu. Press the [RIGHT]/[ENTER] key for enter.

Pressing the [LEFT]/[CLEAR] keys for cancel or return to the previous menu.

And pressing number on the key pad. Exactly going to number of menu.

1.7 Inputting the letter.

Repeatedly pressing alphabet on the key pad for inputting the letter in the user data, user name etc., Or using [UP]/[DOWN] keys.

Pressing the [RIGHT] key to input next letter.

Number should be input by using Number key.

Pressing  key three times for erasing input letter.

ex) If you want to type 'F', press the  key three times.

How to use [Power/Brightness]

Use PWR:

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

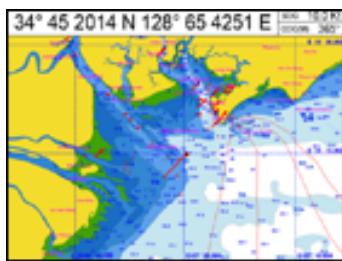
Use BRT:

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

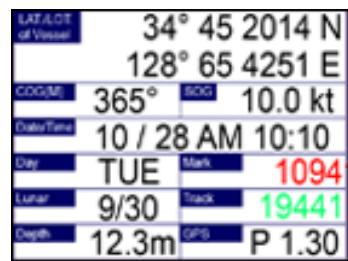
2. Display

The UNIT series has nine display modes. Pressing the [PAGE] key, and then select mode as you want.

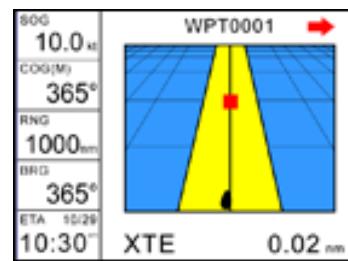
☞ By pressing the key number, the unit automatically selects the mode.



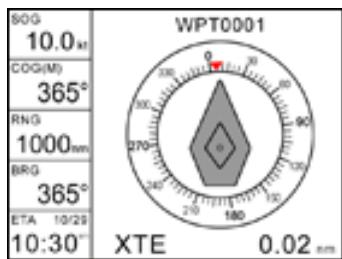
[1.Chartplotter Mode]



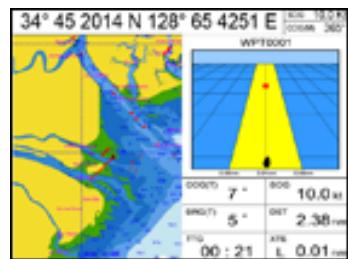
[2.GPS Mode]



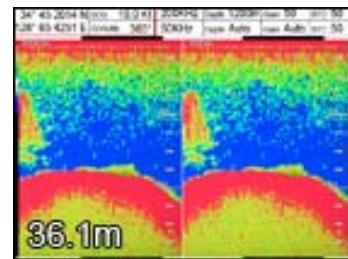
[3.Highway Mode]



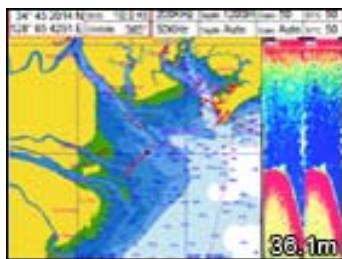
[4. Steering Mode]



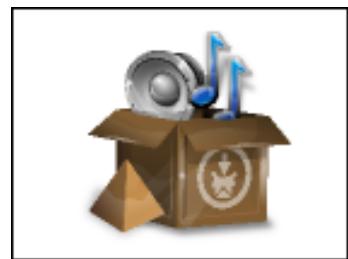
[5.Chartplotter+Highway Mode]



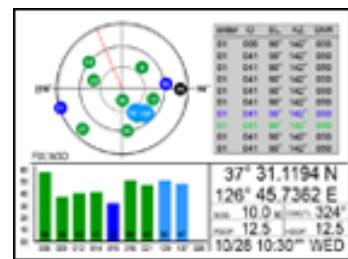
[6. Fishfinder Mode]



[7.Chartplotter+FF]



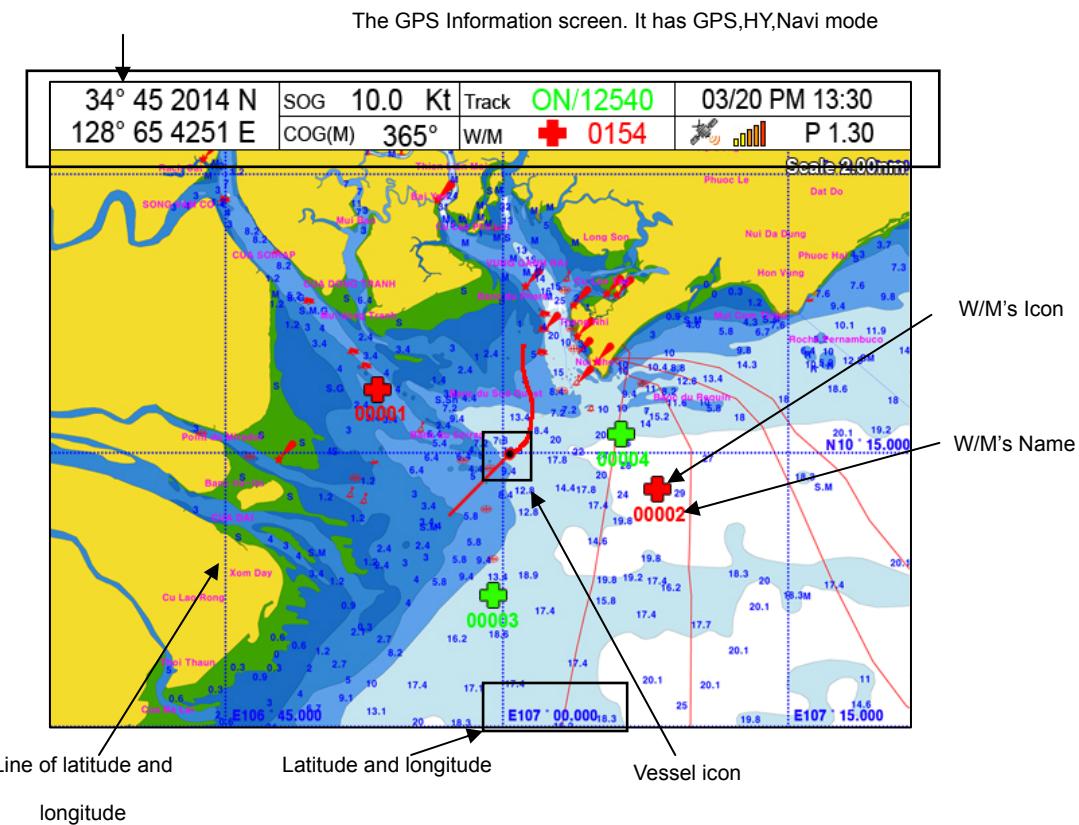
[8.Entertainment]



[9.GPS INFO Mode]

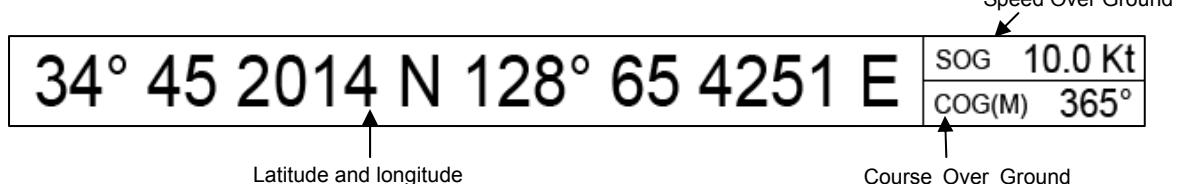
2.1 Chartplotter Mode

2.1.1 Plotter display

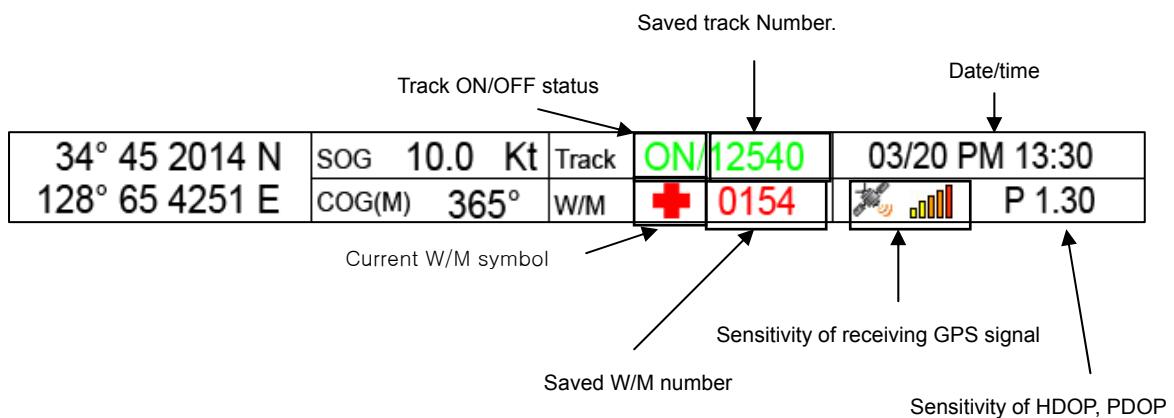


2.1.2 GPS Information Mode

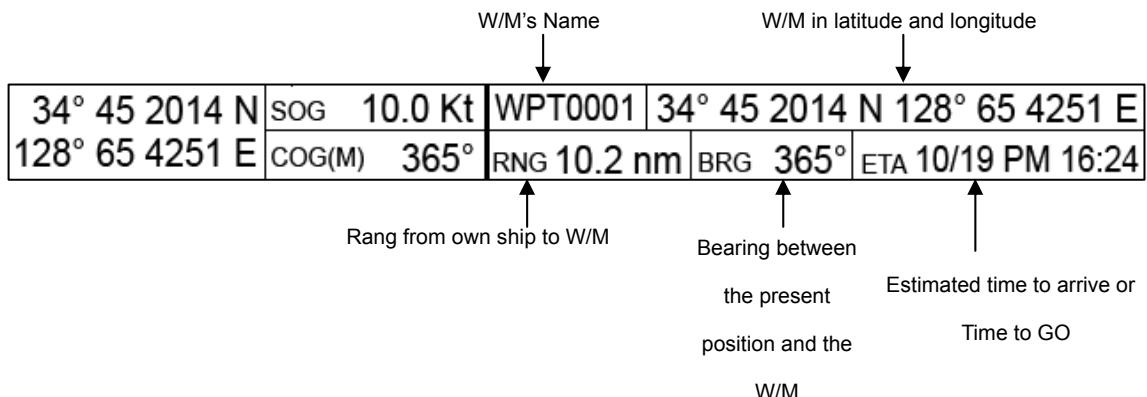
2.1.2.1 GPS Mode



2.1.2.2 HY Mode



2.1.2.3 WPT Mode



3.1.3 W/M information window

W/M	POINT01	M/W name in Navigating
37°27.1810N		Latitude/longitude of M/W in navigating
126°34.4670E		
RNG	0.6 nm	Distance from the vessel to M/W
BRG	234°	M/W bearing
TTG	00:03	ETA or TTG

3.1.4 The cursor information window

CURSOR		
37°27.4620N		Latitude/longitude of the cursor
126°34.8220E		
RNG	0.2 nm	Distance from the vessel to the cursor
BRG	233°	The cursor bearing

2.2 GPS Mode

2.2.1 General (Window without W/M)

			W/M's Name
LAT./LOT. of Vessel		34° 45 2014 N	
Course Over Ground	COG(M)	365°	SOG 10.0 kt
Date/Time	Date/Time	10 / 28 AM 10:10	
Day	Day	TUE	W/M 1094
Luna	Lunar	9/30	Track ON 19441
Depth	Depth	12.3m	GPS P 1.30

Annotations:

- Course Over Ground: COG(M) → Speed Over Ground
- Date/Time: Date/Time → Saved W/M number
- Day: Day → Saved track
- Luna: Lunar → Number.
- Depth: Depth → Sensitivity of HDOP, PDOP

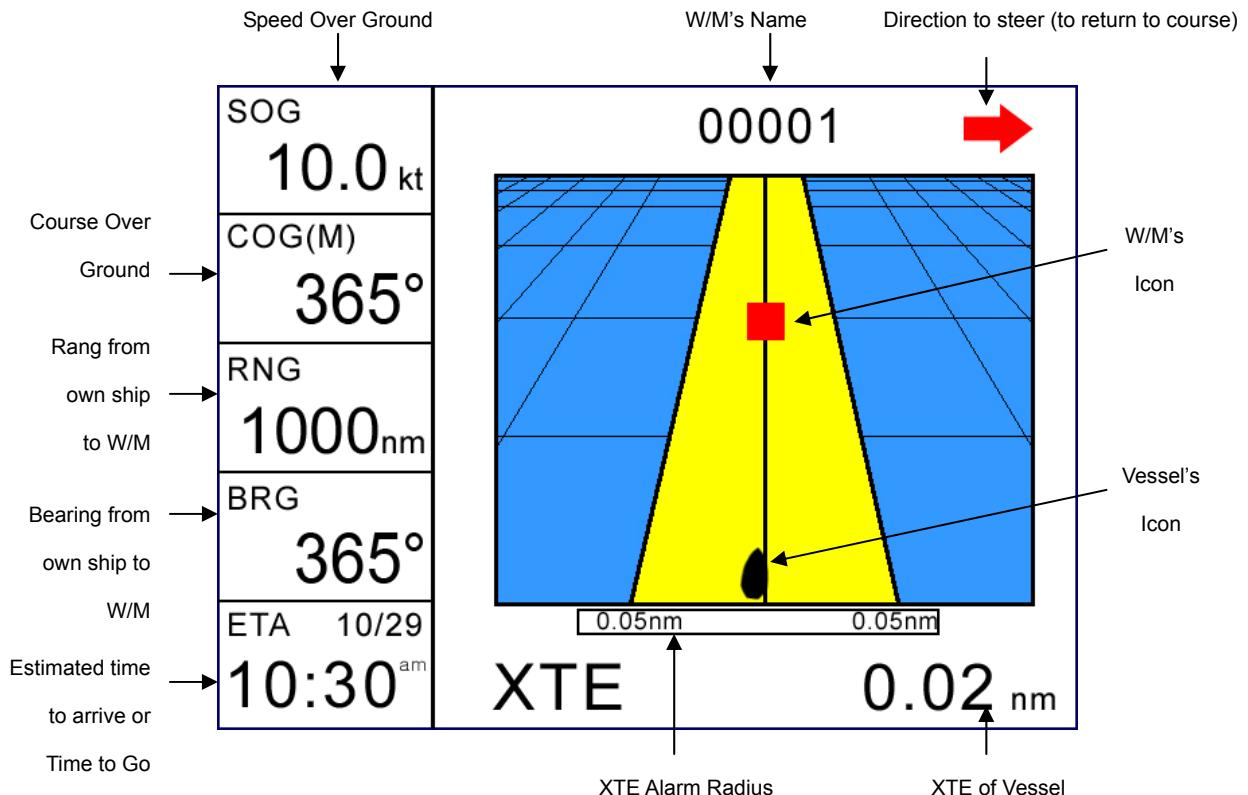
2.2.2 Using navigating (Window with W/M)

		LAT./LOT. of Vessel	34° 45 2014 N	
			128° 65 4251 E	
W/M in latitude and longitude	COG(M)	128°	SOG 10.0 kt	
	→ LAT./LOT. of WPT	34° 45 2014 N		
W/M's Name	→ 00001	128° 65 4251 E		
Bearing between the present position	→ BRG	128°	RNG 10.2 nm	← Rang from own ship to W/M
	ETA	10/29 AM 10:30		

Annotations:

- Estimated time to arrive or Time to Go: ETA → Estimated time to arrive or Time to Go

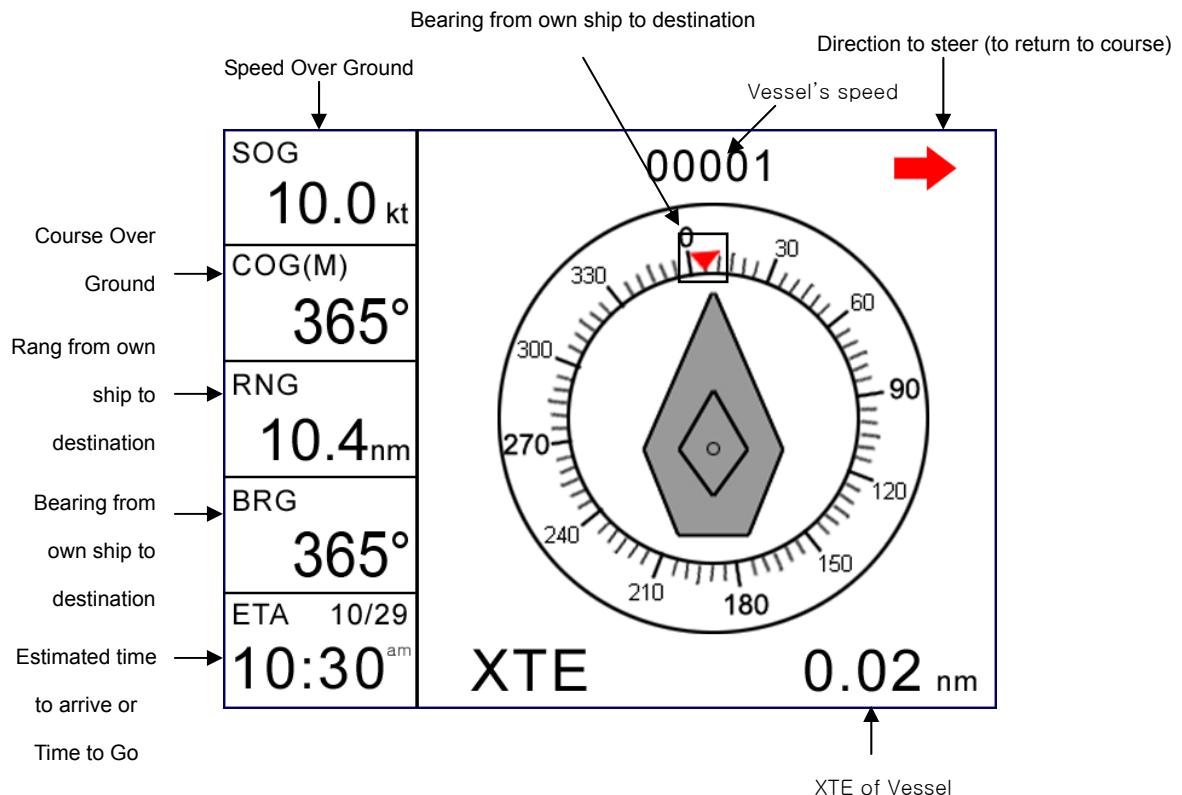
2.3 Highway Mode



☞ Reference

- XTE is a scope that the boat is off course When XTE is ON, vessel is extended navigating time and distance.
- Vessel's icon is shown XTE of the vessel and BRG from own ship of the vessel.
- W/M icon is shown remaining distance less than 5nm. The W/M icon is closed to the vessel by remaining distance.
- Direction to steer is shown correct heading line for navigating of the shortest direction to the W/M.

2.4 Steering Display

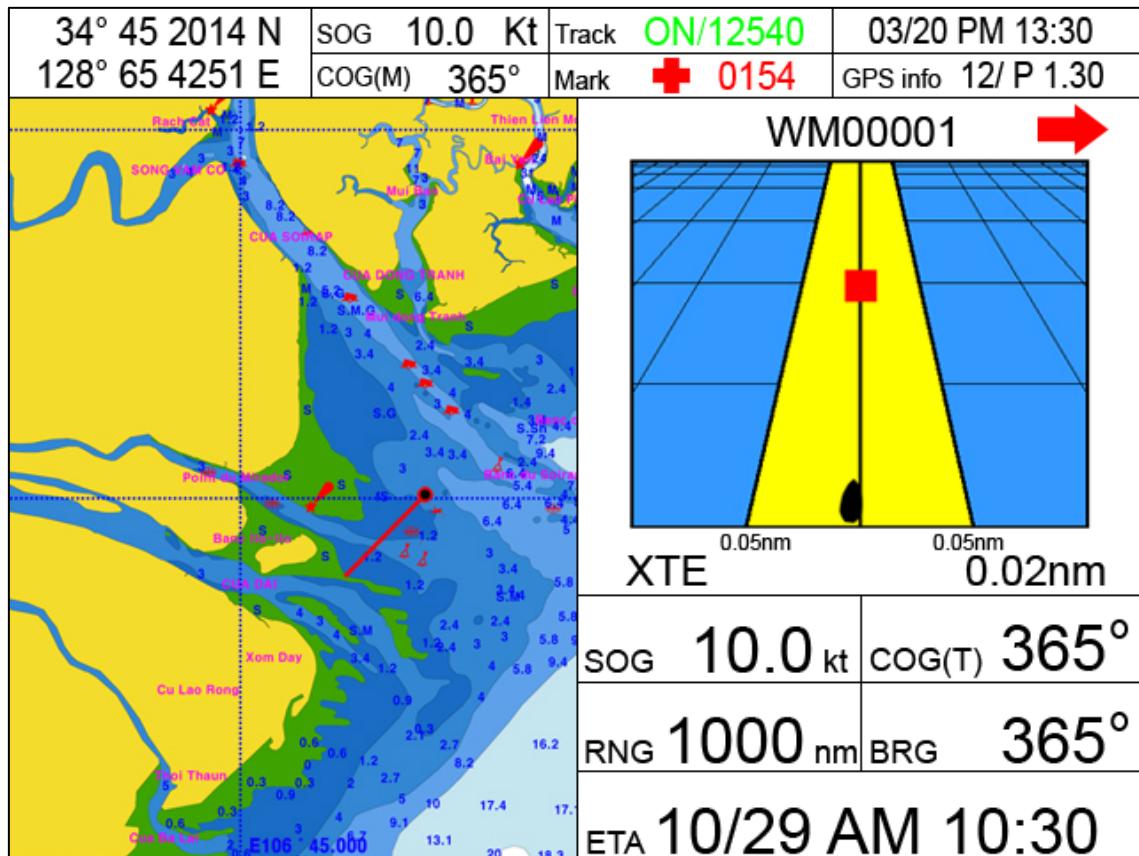


☞ Reference

- XTE is a scope that the boat is off course When XTE is ON, vessel is extended navigating time and distance.
- Direction to steer is shown correct heading line for navigating of the shortest direction to the W/M.

2.5 Plotter + Highway Mode

For detail information, refer 2.1 Chartplotter Mode and 2.3 Highway Mode

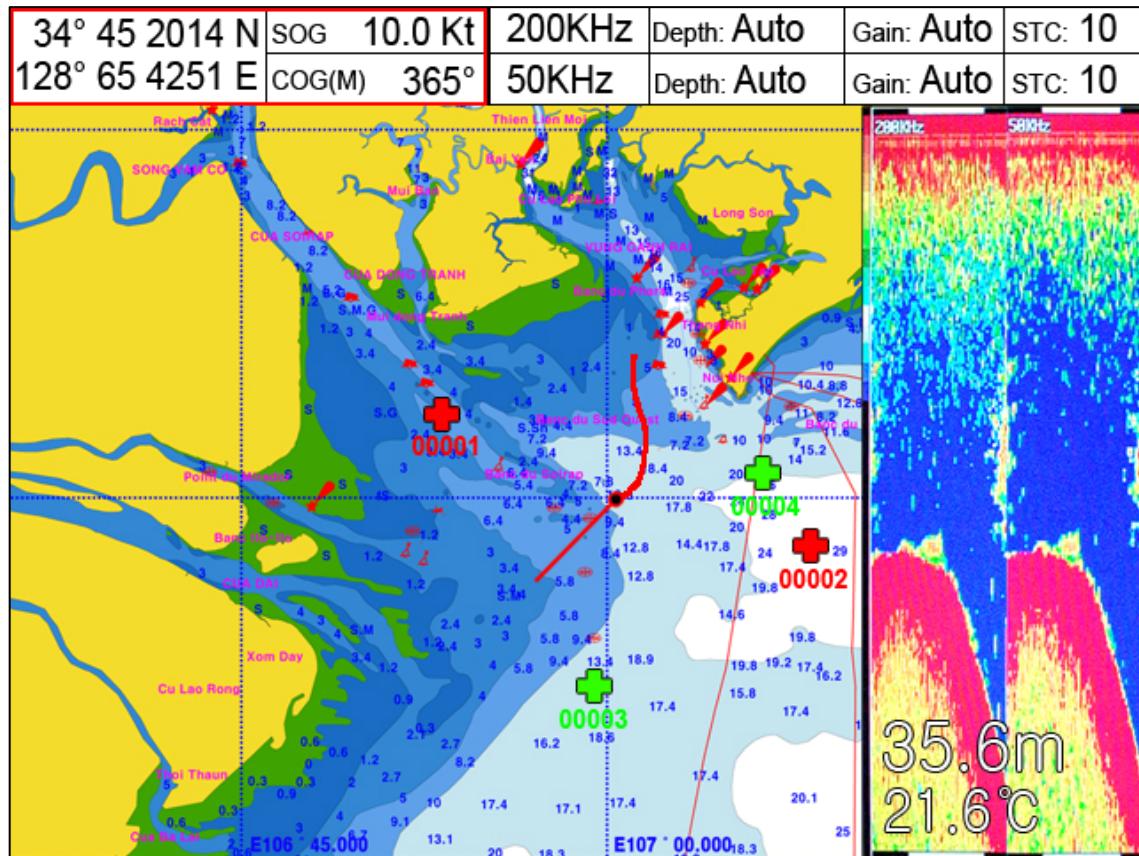


☞ Reference

- XTE is a scope that the boat is off course When XTE is ON, vessel is extended navigating time and distance.
- Vessel's icon is shown XTE of the vessel and BRG from own ship of the vessel.
- W/M icon is shown remaining distance less than 5nm. The W/M icon is closed to the vessel by remaining distance.
- Direction to steer is shown correct heading line for navigating of the shortest direction to the W/M.

2.6 Plotter + Fish finder Mode

For more detail information, refer 2.1 Chartplotter Mode and 2.7 Fish finder Mode



Adjustment size of the Fish finder screen

Available to adjust Fish finder information in the Active Box(Red box).

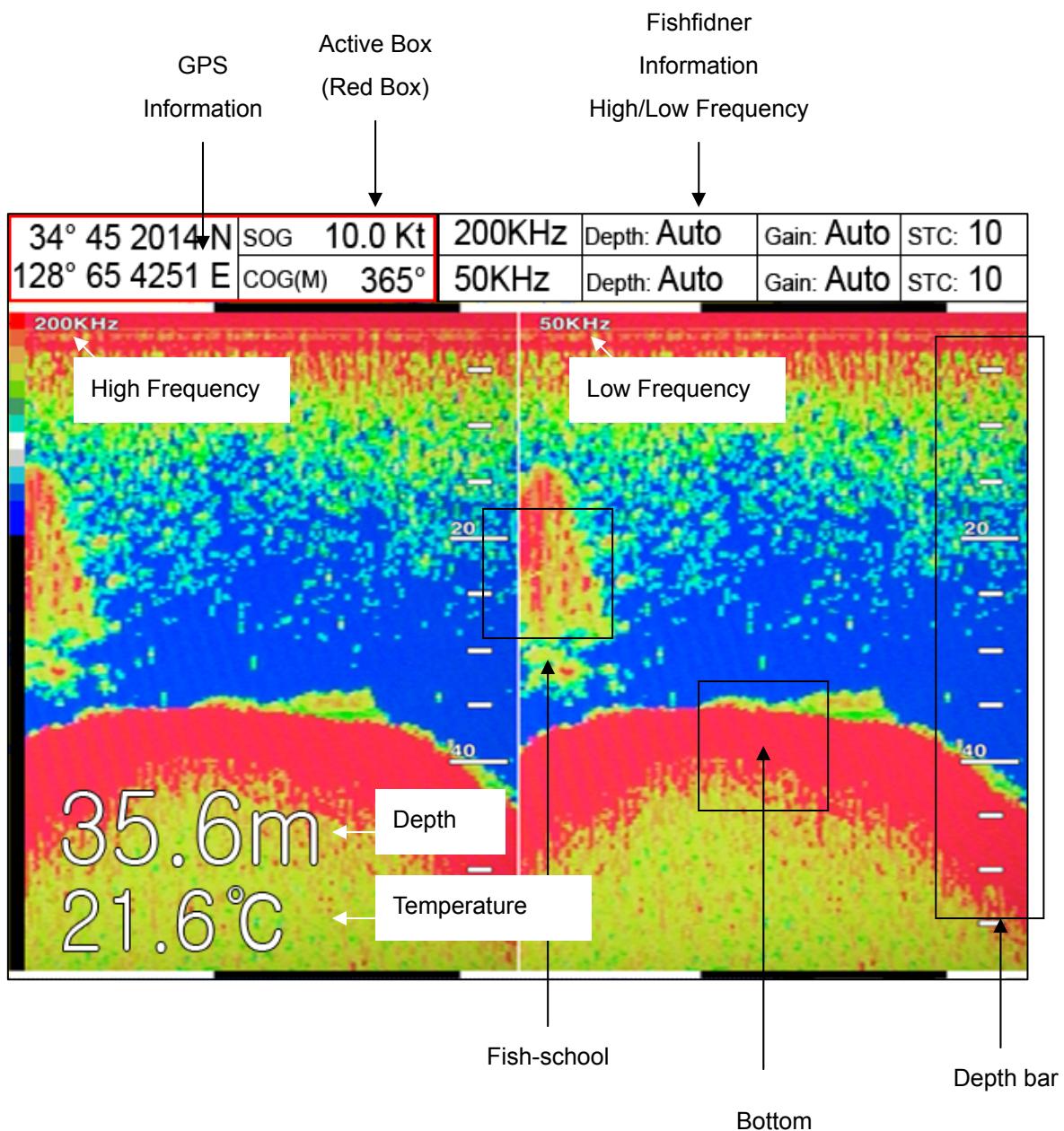
[↖]: Extension the Fish finder screen

[↗]: Reduction the Fish finder screen

[↙]: Maximum extension the Fish finder screen

[↘]: Minimum Reduction the Fish finder screen

2.7 Fish finder Mode



Operation of the keypad

Depth set: [+][-]

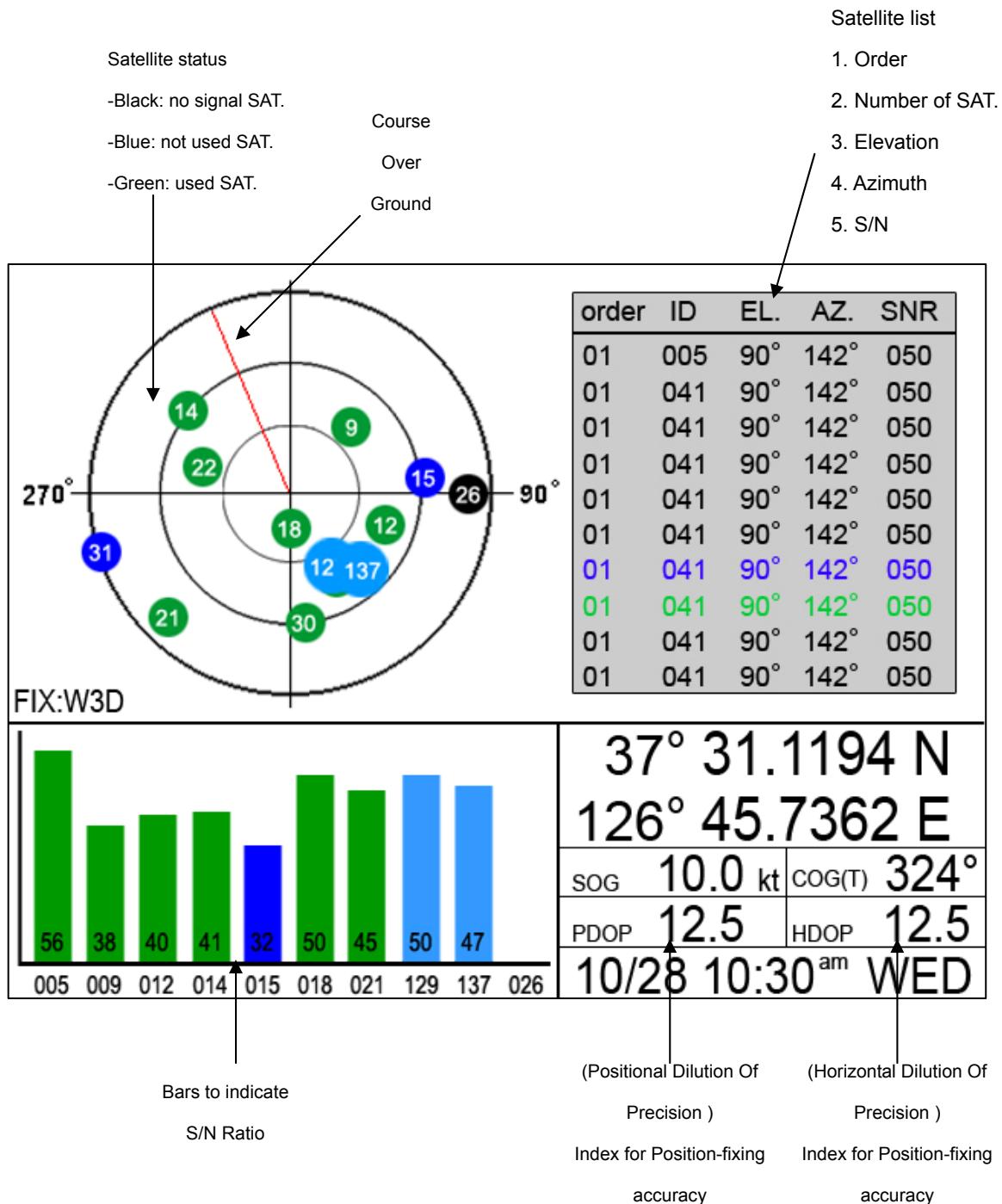
Gain set: [↑][↓]

STC set: [←][→]

Frequency set: [MODE]

(*Available to adjust menu in the Active box (Red box). Use [SELECT] key for moving Active box.)

2.8 GPS INFO Mode



Map Orientation

There are four display modes for Main Screen that involves the Plotter.

Plotter Screen change together regardless of which one is active when a mode change is made.

The display modes are:

- 1. True Motion**
- 2. North/South Up**
- 3. Course Up**
- 4. Head Up**

Each display mode presents the Plotter Screen with different azimuth orientation.

Use the [MODE] key to change Plotter Screen display modes. The display mode cannot be changed when the cursor is present on the screen. Use the [CURSOR] key if necessary to change the Main Screen to vessel priority. After the mode is changed, either vessel or cursor priority can be used.

Main Screen priority affects the way the screen is updated. If vessel priority is active, the vessel position  is always present on screen. If cursor position priority is active, the cursor symbol appears on screen. If Main Screen priority is changed to cursor priority with the display mode in North Up, Course Up or Heading Up mode, the chart freezes and the vessel symbol continues to track vessel present position.

1. True Motion

- ▶ [MODE]->[1.QUICK NAV]

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

- ▶ [MODE]->[2.TRACK ON/OFF]

The North Up display is oriented North up or South up depending upon the North 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

- ▶ [MODE]->[3.W/M INPUT]

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.

Head Up

- ▶ [MODE]->[4.STOP NAV]

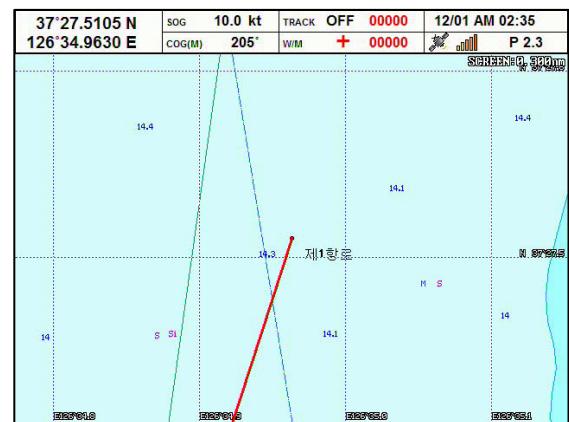
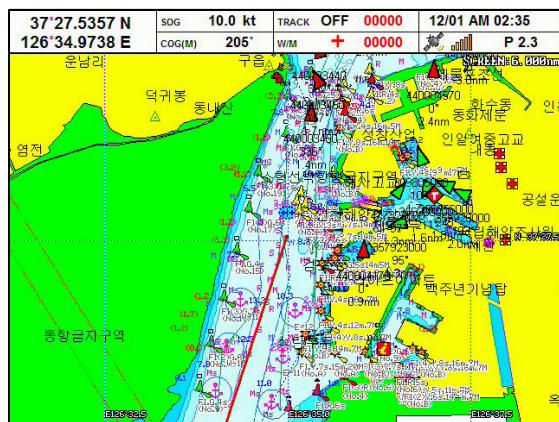
For Head Up mode, vessel present position is fixed in the center of the Main Screen and vessel heading is upward. As your present position changes, the map moves under the vessel  symbol.

Zoom-in & Zoom-out

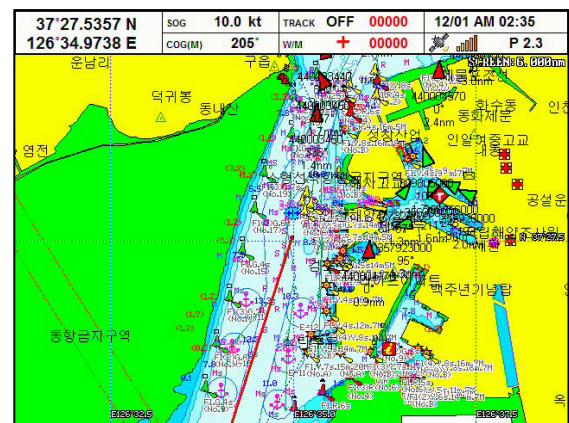
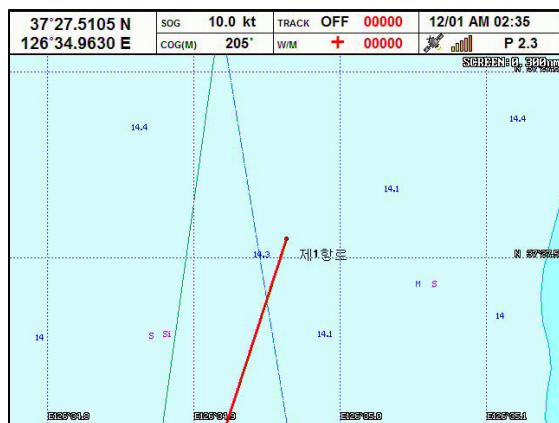
Use the [+] and [-] keys to change the scale of the map (zoom-in& zoom-out).

A ruler showing map scale appears in the upper right hand corner of the Main Screen area.

Zoom-in



Zoom-out



(※ For turbo zoom-in/out, keep pressing the key.)

MOB(Man Over Board)

[MOB]

If a person or missing an object overboard and you need to get present position, use the MOB function.

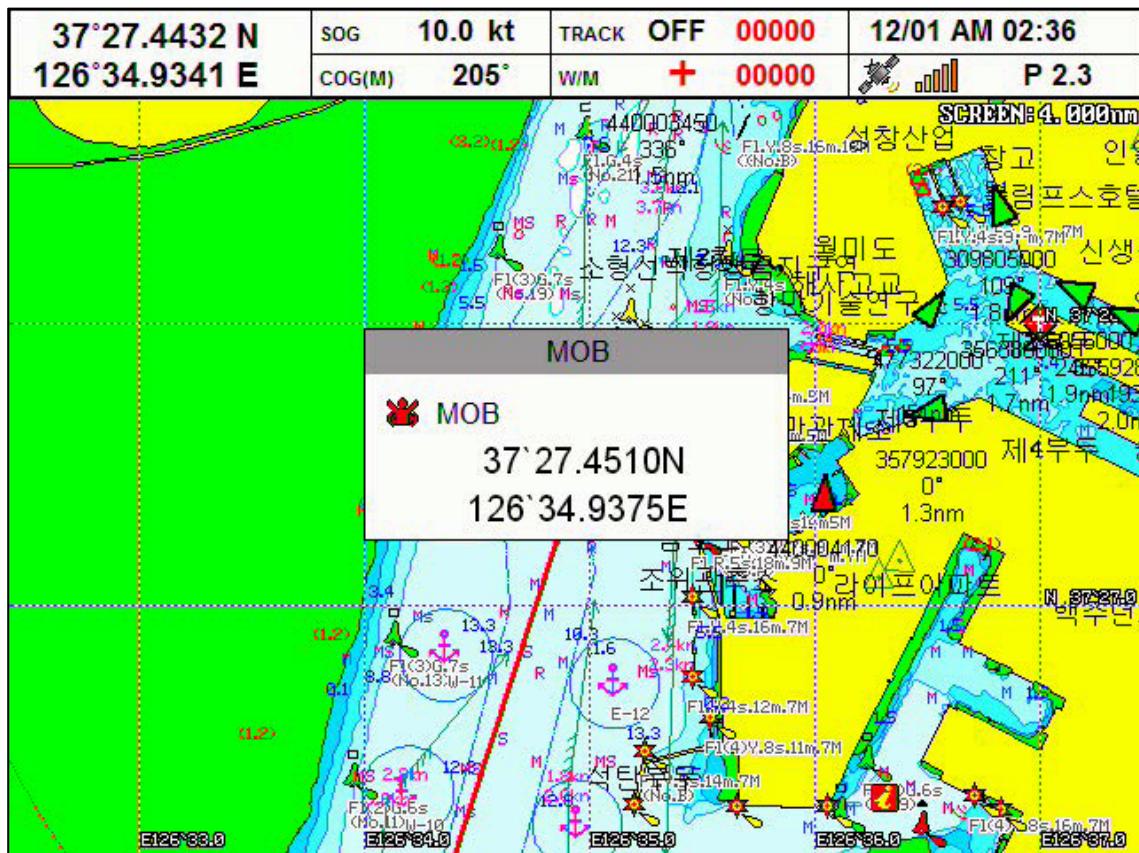
How to use the MOB

Pressing [MOB] key an then MOB window is shown up with alarm.

Pressing [Clear] key for call off alarm and MOB window.

Pressing [MOB] key once again, marked MOB will be disappeared on the screen

(*MOB is not stored in the flash memory)



WPT/Mark

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.

► [1.QUICK NAV]->[ENTER]

- Saving destination: when saving the present instant route

► [4.STOP NAV]->[ENTER]

- Deleting Destination: when deleting the present instant route

► [4.STOP NAV]->[4. STOP NAV]

2. Creating WPT

► [7.SETUP NAV]->[1.QUICK NAV]

☞ Addition in the edit of WPT: (* PLS, refer the Editing WPT)

3. Selecting WPT

► [MENU]->[1.QUICK NAV] ->[1.QUICK NAV]-> [↑][↓]->[5.TRACK COLOR] or

► [0.USER DATA]->[1.QUICK NAV] -> [↑][↓]->[ENTER]

4. Editing WPT

► [MENU] → [1.QUICK NAV] → [1.QUICK NAV]

i) Creating WPT

► [↑][↓]->[2.TRACK ON/OFF]

ii) Editing WPT

► [↑][↓]->[1.QUICK NAV]

iii) Deleting WPT

► [↑][↓]->[3.W/M INPUT]->[ENTER]

iv) All deleting WPT

► [4.STOP NAV]->[ENTER]

v)Selecting WPT

► [↑][↓]->[5.TRACK COLOR]->[CLEAR]->[CLEAR]

Route

1.QUICK NAV

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]->[1.QUICK NAV]->.....->[ENTER]
- Saving Instant Route: when saving the present instant route
 - ▶ [4.STOP NAV]->[ENTER]
- Deleting Destination: when deleting the present instant route
 - ▶ [4.STOP NAV]->[4.STOP NAV]

2. Creating Route

- ▶ [MENU] -> [1.QUICK NAV] -> [2. TRACK ON/OFF] -> [3.W/M INPUT]

3. Selecting Route

- ▶ [MENU]->[1INSTANT ROUTE]->[2.TRACK ON/OFF]->[↑][↓]->[5.TRACK COLOR]
- ▶ [0.USER DATA]-> [2.TRACK ON/OFF]->[↑][↓]->[ENTER]->[CLEAR]->[CLEAR]

4. Deleting Route

- ▶ [MENU]->[1INSTANT ROUTE]->[2.TRACK ON/OFF]->[↑][↓]->[4.STOP NAV]->[ENTER]

5. Reversing Route

- ▶ [0.USER DATA]->[4.STOP NAV]->[←][→]

6. Setting Point

Move the point step by step.

- ▶ [0.USER DATA]->[3.W/M INPUT]->[ENTER]

7. Edit the existing route

Choose the route you want to edit and press [1.QUICK NAV]

- Adding saved WPT
 - ▶ Move the cursor where you want -> Press the [5.TRACK COLOR] -> Choose the WPT on the [Insert WPT] -> press the [ENTER]
- Adding new WPT
 - ▶ Move the cursor where you want -> Press the [2.TRACK ON/OFF] -> Add your WPT -> press the [ENTER] -> Edit the WPT

8. Editing Route

- ▶ [MENU]->[1.QUICK NAV]->[2.TRACK ON/OFF]

- i) Creating Route

- ▶ Press [3.W/M INPUT]

- ii) Route seeing & edit

- ▶ [↑][↓]->[1.QUICK NAV]

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

- iii) Route deleting

- ▶ [↑][↓]->[4.STOP NAV]->[ENTER]

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 (10,000) 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

- ▶ Press [2.TRACK ON/OFF]

2. Changing Track Color

- ▶ Press [5.TRACK COLOR]

3. Deleting Track

- ▶ Press [8.TRACK DELETE]->Choose the color or track you want to delete ->[ENTER]
(* If you want to delete to be being used the track, choose “All Color”)
(* If you want to delete to be being used the track and saved tracks, choose “All track”)

4. Saving Track

Saving 10,000 points are available in each .

- ▶ [MENU]->[4.STOP NAV]->[7.SETUP NAV]->[ENTER]->[↑][↓]->[ENTER]

5. Loading Track

Saving 10,000 points are available in each .

- ▶ [MENU]->[4.STOP NAV]->[8.TRACK DELETE]->[ENTER]->[↑][↓]->[ENTER]

User Line

This function is used to create new line or plane at specific area on chart manually, for example new bridge..

Minimum 2 points are necessary for use.

1. Drawing Line

- ▶ [7.SETUP NAV]->[2.TRACK ON/OFF]->[ENTER]->[7.SETUP NAV]->[CUSOR]->.....->[ENTER]

2. Editing Line

- ▶ [MENU]->[1.QUICK NAV]->[4.STOP NAV]

i) Editing Lines

- ▶ [↑][↓]->[1.QUICK NAV]

ii) Deleting Line

- ▶ [↑][↓]->[3.W/M INPUT]->[ENTER]

User Name

This function is used to put a name on the specific area by user.

1. Creating Name

- ▶ [7.SETUP NAV]->[3.W/M INPUT]->[ENTER]->Requested specific name ->[ENTER]

2. Editing Name

- ▶ [MENU]->[1.QUICK NAV]->[5. TRACK COLOR]

i) Creating Name

- ▶ [↑][↓]->[2.TRACK ON/OFF]

ii) Editing Name

- ▶ [↑][↓]->[1.QUICK NAV]

iii) Deleting Name

- ▶ [↑][↓]->[3.W/M INPUT]->[ENTER]

iii) All deleting Name

- ▶ [↑][↓]->[4.STOP NAV]->[ENTER]

Save User Data

- ▶ Insert the SD card/USB -> [MENU] -> [1.QUICK NAV] -> [5.TRACK COLOR] -> [ENTER]

Load User Data

- ▶ Insert the SD card/USB -> [MENU] -> [1.QUICK NAV] -> [6.W/M COLOR] -> [ENTER]

Display

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

► [MENU]->[2.TRACK ON/OFF]

1. User data

Setting up shown/hide the user data on the display.

2. Map INFO

Setting up shown/hide common item between the HY-MAP and the C-MAP on the display.

3. Map Scale

Setting up the map scale on the display.

4. Data-bar

It is to select the information of the data-bar.

GPS: Shows large font for LAT/LON,SOG,COG.

HY: Shows the GPS INFO and the W/M, TRACK, DATE.

NAV: Shows information of the W/M during navigating.

(☞ The default setting is HY.)

5. LAT/LON Unit

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

(☞ The default setting is 4 places.)

6. Navigation Time

Setting up navigation time for TTG or ETA during navigating.

7. HY-MAP/C-MAP

Setting up each MAP.

2.7.1. HY-MAP

2.7.1.1. 2M

Setting up 2m of the depth line on the HY-MAP.

(☞ The default setting is shown.)

2.7.1.2. 5M

Setting up 5m of the depth line on the HY-MAP.

(☞ The default setting is shown.)

2.7.1.3. 10M

Setting up 10m of the depth line on the HY-MAP.

(☞ The default setting is shown.)

2.7.1.4. 20M

Setting up 10m of the depth line on the HY-MAP.

(☞ The default setting is shown.)

2.7.1.5. Fishing Banks

Setting up the Fishing Banks on the HY-MAP.

(☞ The default setting is shown.)

2.7.1.6. Land Color

Select the land color as you want.

(☞ The default setting is yellow.)

2.7.1.7. Lighthouse Info

Setting up the Lighthouse on the HY-MAP.

(☞ The default setting is shown.)

2.7.1.8. EEZ

Setting up the EEZ line on the HY-MAP.

(☞ The default setting is shown.)

2.7.1.9. Screen Magnification

Setting up the Screen Magnification on the HY-MAP.

(*MAX 최대 Magnification [ON = 0.05nm, OFF = 0.2nm])

(☞ The default setting is Hidden.)

2.7.2. C-MAP

2.7.2.1. Satellite Image

Setting up the overlay Satellite Image on the C-MAP.

(☞ The default setting is shown.)

2.7.2.2. Fonts & Symbols

On charts it is possible to set the size of all names and symbols drawn on the charts, selecting between Normal size and Large size.

(☞ The default setting is normal.)

2.7.2.3. Mixing Levels

When the map coverage at the current zoom level does not fill the entire screen, the chartplotter draws the rest of the map expanding the cartographic information read

from, at most, two zoom levels above the current zoom level. For this reason the map is drawn three times; firstly it draws the two levels before the current level and then the current level. The area covered by the cartographic data read from the previous levels is identified by a dotted pattern. When the cursor is moved area not covered by data of the current level the chartplotter zooms out to the first level covered by cartographic data. The default setting is ON.

(☞ The default setting is on.)

2.7.2.4. Perspective View

Chart data may be projected in perspective mode during navigation. This function allows setting the panoramic View of the chart.

As the upper side of the map is more compressed than the lower side, a wider map area is visible. The perspective view allows showing more chart information immediately ahead and around the cursor.

(☞ The default setting is off.)

2.7.2.5. Chart Boundaries

Sets ON/OFF the displaying of the chart boundaries, which represents the boundaries of the charts available on the chartplotter. Selecting Auto instead, if we are in background charts only the first chart levels contained in the C-CARD are displayed, if we are in a charts level contained in the C-CARD the next four charts level are displayed.

(☞ The default setting is auto.)

2.7.2.6. Palette

It is possible to set the palette used to enhance the visibility of the screen depending on the surrounding light condition.

(☞ The default setting is normal.)

2.7.2.7. Multilanguage

Select language for name of the place, lighthouse or buoy.

(☞ The default setting is English.)

2.7.2.8. Quick info

It is available to set up. Place the cursor on buoys or icons on the C-MAP, the information window is shown up automatically.

(☞ The default setting is hidden.)

GPS

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

► [MENU]->[3.W/M Input]

1. Datum:

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

(☞ The default setting is WGS-84.)

2. Latitude Modification:

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

3. Longitude Modification:

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

4. Smoothing set:

How to set the calculation of Smoothing.

OFF : No use.

Mode 1: Calculation in short time.

Mode 2: Calculation in long time.

(☞ The default setting is Mode 1.)

5. Average COG:

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

(※ Although you set a time to the menu, it is unavailable if the menu, No. 5(Smoothing ser is off.)

(☞ The default setting is incorrect every the country.)

6. Average SOG:

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

(※ Although you set a time to the menu, it is unavailable if the menu, No. 5(Smoothing ser is off.)

(☞ The default setting is incorrect every the country.)

7. Receiving Port:

It is to select Inter receiver Internal or External.

(☞ The default setting is Internal.)

Setup

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

- ▶ [MENU]->[4.STOP NAV]

1.Map Setup

1. Vessel Offset

Available to be set up positions of 0, 1/3 and 2/3 by the standard of the center of chart screen.

1. Latitude Modification

Though GPS information is accurate, there could be an error in the chart at latitude.

The error can be modified in the chart latitude modification.

2. Longitude Modification

Though GPS information is accurate, there could be an error in the chart at longitude.

The error can be modified in the chart longitude modification.

2.Track Setup

1. Thickness

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

(☞ The default setting is Thin.)

2. Record Setup:

Track display interval is adjustable by distance or time.

(☞ The default setting is Time.)

3. 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.

(☞ The default setting is 10 seconds.)

4. Distance Interval:

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

(☞ The default setting is 0.03nm.)

3. Unit

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

(☞ The default setting is Nm/Kt.)

2. Depth unit

Select desired unit of measure for depth of water. Choose from: meter(M), foot(ft), fathom(fm), Italian Fathom(lfm), Japanese fathom(jfm).

cf) 1m = 3.281ft = 0.549fm = 0.609lfm = 0.660jfm

(☞ The default setting is Meter.)

3. Temperature unit

Select desired unit of measure for temperature of water. Choose from: Celsius(°C), or Fahrenheit(°F).

cf) 1°C = +32°F

4. Vessel

1. Present Position Size:

The size of the present position is adjustable from 0 to 9. The biggest size is '0'.

(☞ The default setting is 9.)

2. 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 up.

(☞ The default setting is 240.)

3. Orientation Resolution

Sets you preferred Rolling Road Scale.

(☞ The default setting is 0.)

5. Compass

1. Compass BRG:

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

(☞ The default setting is Auto.)

2. Compass Variation:

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.

(☞ The default setting is Auto.)

6. Time & Date

1. Reference

Available to adjust the collect local time by the UTC time from the GPS.

(☞ The default setting is incorrect every the country.)

2. Time Format

Sets you preferred time between 12 hour or 24 hour.

(☞ The default setting is 12 hour.)

3. Date Format

Sets you preferred date among YY-MM-DD, MM-DD-YY or DD-MM-YY.

(☞ The default setting is YY-MM-DD.)

7. Input/Output

1. Output Sentences

The chartplotter allows customizing the NMEA-0183 sentence.

DESCRIPTIONS	CONTENTS OF DATA FIELD	DEFAULT
\$GPGGA	Global Positioning System Fix Data	ON
\$GPVTG	Course and Ground Speed	ON
\$GPZDA	Time and Date	OFF
\$GPRMB	Recommended minimum navigation information	OFF
\$GPRMC	Recommended Minimum Specific GPS/TRANSIT DATA	OFF
\$GPAPB	Heading/track controller (Autopilot) sentence B	ON
\$GPXTE	Cross-track error, measured	OFF
\$GPBOD	Bearing, origin to destination	OFF
\$GPBWC	Bearing and distance to waypoint	ON
\$SYPLT	Samyoung autopilot	OFF

2. Video Input

Sets you preferred video input between NTSC and PAL.

(☞ The default setting is incorrect every the country.)

3. Printing

After connecting the printer, print the present screen.

(Only USB printer which supports the PCL is only capable of using)

4. Transmit

Available to adjust transmit speed of input/output in each ports.

Maintenance

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

- ▶ [MENU]->[5.TRACK COLOR]

1. Program Version.

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

2. Map Version:

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

3. Simulator:

It is necessary for an indoor demonstration. The simulations of GPS, Fish finder or AIS.in the memory..

4. Language:

Select the language.

Fish finder

The Fish finder menu shows on the list. There are two pages for the menu.

► [MENU]->[6.MARK COLOR]

1. Depth

1. Manual/Auto Range:

AQUA selects the best condition for measuring the depth automatically in the environment of the sea.

(☞ The default setting is Auto.)

2. Shift:

A user selects this function to see more detailed bottom of the sea. When you turn up the shift, the range of Fish finder shall go up from the shift range. For example, if you raise 5m of shift at 20m range, the surface shall start 5m and the bottom range shall be 25m.

(☞ The default setting is 0m.)

2. Display

1. A-Scope:

A-scope shows the research under the water by a scope to see the environment under the water.

(☞ The default setting is ON.)

2. Image Speed:

Select the speed of Fish finder image from 4X until 1/32X.

(☞ The default setting is 1X.)

3. White Line

It is necessary to research a detailed fish on the bottom or a seaweed under the sea.

The color of the bottom changes into white or black to see the bottom easier than red.

(☞ The default setting is OFF.)

4. Bottom Zoom Range

Select the range of the bottom zoom or lock. (refer Fish finder main modes) It is necessary to modify the bottom.

(☞ The default setting is 10m.)

5.Depth

On/Off the depth range on the screen.

(☞ The default setting is ON.)

6.Depth Font

Select the depth range font size on the screen.

(☞ The default setting is Large.)

7.TEMP

On/Off the temperature on the screen.

(☞ The default setting is OFF.)

8.TEMP Font

Select the temperature font size on the screen.

(☞ The default setting is Large.)

3. Auto Gain

1. Auto Gain:

AQUA selects the best condition of gain for measuring automatically in the environment of the sea.

(☞ The default setting is ON.)

2. Auto Gain Adjustment(200KHz):

When the auto gain sets, you adjust the auto gain up and down.

(☞ The default setting is 0.)

3. Auto Gain Adjustment(50KHz)

When the auto gain sets, you adjust the auto gain up and down.

(☞ The default setting is 0.)

4. Rejection

1. Interference Rejection (from engine)

When there are another boats around you on sailing, your Fish finder could be disturbed to work. The step of the function is from off to level 2. The bigger number, the more rejection.

(☞ The default setting is OFF.)

2. Noise Rejection

Your Fish finder could be disturbed by the engine noise. This function can reject the noise from the engine or other machinery instruments.

(☞ The default setting is OFF.)

5. Color

1. Color Level

This function adjusts the colors. Make it upper level, the color becomes darker.

(☞ The default setting is OFF.)

2. Color Rejection

There are 16 color levels for Fish finder. The color bar is on the left of the Fish finder. If the level is higher, the color of the bar is deleted one by one.

3. Screen Color

Select the background color of the Fish finder for your convenience.

6. Pulse

Select the pulse of the output from the transducer. Levels are from 0.5X until 1.5X, which depends upon the depth. 0.5X is proper to research precise a fish school but it is not suitable to measure a deep depth. 1.5X is opposite from 0.5X.

(☞ The default setting is 1X.)

7. Output Power

Select the output from the installed transducer. Levels are from off to 3. It should be careful about the depth. If you set high level in a shallow depth, the Fish finder screen turns to red. You see nothing except red on the screen.

(☞ The default setting is 3.)

Alarm

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

► [MENU]->[7.SETUP NAV]]

1. Navigation

1. Arrival Alarm:

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

(☞ The default setting is OFF.)

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.

(☞ The default setting is 0.05nm.)

3. XTE Alarm:

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

(☞ The default setting is OFF.)

4. XTE Radius:

It is to adjust the range of the off course.

(☞ The default setting is 0.25nm.)

2. Anchor

1. Anchor Alarm:

It is necessary when your vessel anchors.

(☞ The default setting is OFF.)

2. Anchor Radius:

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

(☞ The default setting is 0.05nm.)

3. Interval

1. Interval Alarm:

It alarms every time you set.

(☞ The default setting is OFF.)

2. Interval Time

The time is available from one minute until sixty minutes.

(☞ The default setting is 3 min.)

4. User line

1. User line Alarm:

It alarms if it breaks into the setting area.

(☞ The default setting is OFF.)

2. User line Range:

It sets the range of the course alarm.

(☞ The default setting is 0.01nm.)

5. Depth

1. Depth Alarm:

It alarms when the set depth is out of the range.

(☞ The default setting is OFF.)

2. Depth Alarm Range:

Setup the range of Depth alarm

If it is deeper than the setting, it will alram with the warning message.

If it is lower than the setting, it will alram with the warning message.

(☞ The default setting is 10m.)

6. Temp

1. Temperature Alarm:

Position of the temperature is 4. It will alarm when it is out of the set range.

(☞ The default setting is OFF.)

2.Temperature Alarm Range:

Set up the range of Temperature alarm Range

If it is higher than the setting, it will alram with the warning message.

If it is colder than the setting, it will alram with the warning message.

(☞ The default setting is 0 degree.)

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

7. Fish finder

5. Fish-school Alarm:

It alrams when it detects school of fish.

It will detect school of fish depend on set depth, range and level of the Fish finder.

(☞ The default setting is OFF.)

6. Fish-school Depth:

If the alram is on, It is available to setup the depth of the Fish-school

(☞ The default setting is 10m.)

7. Fish-school Depth Range:

If the the alram is on, It is available to setup the Range(hight) of the Fish-school.(The bar, next of display is shown)

(☞ The default setting is 50m.)

8. Alarm Interval:

If the the alram is on, It is available to setup the alarm interavl.

(☞ The default setting is middle)

9. Color Level:

If the the alram is on, It is available to setup the color level.

It is available to setup the color level

8. AIS

1. CPA Alarm

Turns ON/OFF the alarm.

(☞ The default setting is OFF.)

2. CPA Radius

The values allowed are from 0.1nm to 10nm.

(☞ The default setting is OFF.)

3. TCPA Alarm

Turns ON/OFF the alarm.

(☞ The default setting is OFF.)

4. TCPA Limit

The values allowed are from 1 to 50 min.

(☞ The default setting is 1 min.)

AIS

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

► [MENU]->[8.TRACK ERASE]

1. AIS on/off

Turns the display of AIS targets overlay on the cartography ON or OFF.

(☞ The default setting is OFF.)

2. Display Scale

It is possible to setup AIS Targets with Scale

(☞ The default setting is 5nm.)

3. List

Available line up AIS list for your convenience.

4. Radius

It is easy to check the distant of the AIS target from the standard of vessel by radius.

5. AIS INFO

It is available to select among the Low, Medium and Full, when seeing the information of the AIS target on the map.

6. Color Setup

It is available to set up the basic color of AIS target and color of country code.

Subscreen

It is available to show the subscreen.

(* the Display Modes->1.GPS Plotter for the reference of the subscreen.)

► [MENU]->[7.TRACK DELETE]

1. Undisplayed:

Sub screen is not displayed on the right bottom of the screen.

2. Compass:

Compass is displayed on the right bottom of the screen.

3. Temp/Depth:

Depth/Temperature is displayed on the right bottom of the screen

4. Temp/Depth/Graph:

Depth/Temperature/Graph is displayed on the right bottom of the screen.

5. Camera 1:

Camera 1 is displayed on the right bottom of the screen.

6. Camera 2:

Camera 2 is displayed on the right bottom of the screen.

7. Camera Scan:

Camera 1 and 2 is displayed on the right bottom of the screen.

8. A/V:

SAT. TV or DVD is displayed on the right bottom of the screen.

Calendar

It is available to check the solar/moon calendar and tide.

► [MENU]->[0.OTHERS]

2009 11 November						
SUN	MON	TUE	WED	THU	FRI	SAT
1 9/15 Full Moon	2 9/16 Full Moon	3 9/17 Full Moon	4 9/18 Full Moon	5 9/19 Full Moon	6 9/20 11Tide	7 9/21 12Tide
8 9/22 1Tide	9 9/23 Neap Tide	10 9/24	11 9/25	12 9/26	13 9/27	14 9/28
15 9/29 5Tide	16 9/30 6Tide	17 10/1 7Tide	18 10/2 8Tide	19 10/3 9Tide	20 10/4 10Tide	21 10/5 11Tide
22 10/6 12Tide	23 10/7 1Tide	24 10/8 Neap Tide	25 10/9	26 10/10	27 10/11	28 10/12 3Tide
29 10/13 4Tide	30 10/14 Full Moon					

[↑][↓]=year changing [←][→]=month changing [CLEAR]=return to main menu

Others

► [0. OTHERS]

1. User Line

- ▶ Pressing [0.OTHERS]->[1.QUICK NAV]->[0.OTHERS] for starting/making the line->.....->[ENTER] for finish.

A user uses making a line or surface on the screen when user needs to mark.

Note: The minimum 3 points for creating the user line.

2. User Name

- ▶ [0.OTHERS]->[2.TRACK ON/OFF]

The method of creating the user name two is varieties.

- Moving cursor to place where you want to create and then press [0.OTHERS]->[2.TRACK ON/OFF]
- Pressing [0.OTHERS]->[2.TRACK ON/OFF] on the present vessel position.

3. Correction Offset

- ▶ [0.OTHERS]->[3.W/M INPUT]

Warning: Arbitrary correction offset will not be matched the vessel point and the chart.

Moving the cursor to the place where you want to correct offset and then press

[0.OTHERS]->[3.W/M INPUT].

(*It is not able to bet up 커서로 correction offset over 5nm.)

4. Recording

- ▶ For start recording [0.OTHERS]->[4.STOP NAV]->Select memory->[ENTER]
- ▶ For stop recording [0.OTHERS]->[4.STOP NAV]

This is the function of recording current screen.

Marked [● REC] in red color on the upper right on the data bar during recording.

Note: The recording file is stored in external memory cards, SD/USB memory. Check SD/USB memory in the chartplotter.

(* Recording time is different by the size of the memory card)

(* Unable to record the Entertainment, A/V and CCTV screen)

5. Save User Setting

It is available to save user menu setting.

Saved user setting press[Menu]->4.Setup->0.Initialization->1.User Initialization

(*After upgrading program, the saved user setting will be initialed.)

Entertainment

1. Camera 1

It is possible to see the camera screen which is connected camera port1.

2. Camera 2

It is possible to see the camera screen which is connected camera port2.

3. Camera Scan

It is possible to see switching the camera1 and camera2 for each 3 seconds.

4. A/V

It is possible to see the video and audio which are connected to the A/V port.

5. Picture

It is possible to see the jpg and bmp images which are saved in the SD card and USB memory.

[How to use]

6. Music

It is possible to listen to the mp3 which is saved in the SD card and USB memory.

[How to use]

7. Movie

It is possible to watch the avi, mp4 and wmv files which are saved in the SD card and USB memory.

((*MX는 모든 동영상 코덱과 자막 파일을 지원하지 않습니다. 만약 플레이가 안되시면 코덱을 MP4로 변환하십시오. 자막 파일이 정상적으로 안 나오실 때는 동영상 파일에 자막을 합쳐서 보셔야 합니다. 또 코덱이 지원되도 HD급 이상의 해상도의 동영상을 플레이하시면 정상적으로 플레이가 안되실 수도 있습니다.)

8. Game

Choose the game for starting.

9. Recording Play

It is possible to watch recorded screen, [0.OTHERS]->[4.Recording]

Fish finder Modes

Fish finder modes are selectable for single frequency or dual and some functions, for example bottom zoom or lock.

- ▶ Press [MODE]

1. Normal (200KHz)

Normal mode (with Auto Range active) displays the Fish finder image with the surface at the top of the screen and the sea bottom in the lower part of the screen. The depth scale indicates the depth range appearing in the display. Bottom contours and fish echoes are displayed at the depths where they are detected. If the depth Range is set manually to a value less than actual water depth, sea bottom echoes are not displayed, but all other echoes within the Range setting are displayed.

2. Bottom Zoom (200KHz)

Bottom Zoom magnifies the Fish finder display from the sea bottom toward the surface for a short distance. The sea bottom contour is displayed and additional contour lines are added at intervals above the sea bottom to aid in determining distances of echoes near the bottom. Use the Fish finder Menu to set the magnified Bottom Range from 2.5 to 20m (10 to 60ft.). Default setting is 10m (40ft.). If the depth Range is set manually, the setting must place the sea bottom echo in the lower portion of the screen for Bottom Zoom to be effective.

3. Bottom Lock (200KHz or 50KHz)

Bottom Lock divides the Fish finder main screen image for the selected Fish finder into two sections. The left hand section displays a Normal Mode image. The right hand section of the screen displays the Fish finder image relative to the sea bottom. The sea bottom appears as a straight line with the Fish finder image magnified for a short distance toward the surface. A scale appears on the right for estimating distances of echoes near the bottom. Use the Fish finder Manu to set the magnified Bottom range from 2.5 to 20m (10 to 60ft.). Default setting is 10m (40ft.). If the depth Range is set manually, the setting must place the sea bottom echo in the lower portion of the screen for Bottom Lock to be effective.

Fish finder modes are selectable for single frequency or dual and some functions, for example bottom zoom or lock.

4. Normal (200KHz/50KHz)

The high frequency (200KHz) displays on the left and the low frequency (50KHz) Normal displays on the right, which increase the accuracy of a fish school and your decision to catch fishes.

5. Bottom Zoom (200KHz/50KHz)

The high frequency (200KHz) displays on the left and the low frequency (50KHz) Bottom Zoom displays on the right, which increase the accuracy of a fish school and your decision to catch fishes.

AIS System

AIS is an Automatic Identification System. It has been introduced to improve the safety of navigation by assisting in the efficient operation of ship to ship, ship reporting and VTS applications. The system should enable operators to obtain information from the ship automatically, requiring a minimum of involvement of ship's personnel, and should have a high level of availability.

Connecting to the chart plotter an AIS receiver, vessels with AIS transponder within VHF range are displayed on screen giving the skipper or navigator a visual interpretation of the data of nearby vessels. This improves safety, and specifically for collision avoidance reasons.

1.AIS system definitions

CPA	Closest Point of Approach is the closest distance that will be achieved between your vessel and the tracked target, based on your vessel's speed and direction and the target's speed and direction.
CPA Alarm	Occurs if CPA is less or equal to CPA Radius. This test is done for active targets only.
CPA Limit	This is the distance from your vessel that a target may reach before a target is deemed a threat.
TCPA	Time to Closest Point of Approach is the time remaining until the CPA will occur.
TCPA Alarm	Occurs if TCPA is less or equal to TCPA Radius. This test is done for active targets only and if CPA value is less or equal to CPA Radius.
TCPA Limit	This is the time remaining before the CPA is reached.
Name	Name of ship, 20 characters.
MMSI	Maritime Mobile Service Identity.
MMSI number	A unique 9 digit number that is assigned to DSC radio station. It primarily registers the boat information in the U.S. Coast Guard's national distress database for use in emergency situations.
Target	It is a vessel equipped with AIS. Information about the targets is being received by AIS Receiver and displayed on the screen.

Active Target	Target located within the Activation Range. Active target is represented by oriented triangle with COG and Heading vectors. Rate of turn may also be displayed.
Dangerous Target	Target detected by CPA or TCPA Alarm. Dangerous target is Active Target by definition. For better visibility Dangerous Target symbol is charged from basic color to red color.
Sleeping Target	Target located outside the Activation Range. Sleeping target is represented by a small oriented triangle.
Lost Target	When the AIS info is not received from that vessel for 3.5minutes. The presentation will be marked X on the target.

2. Quick info on AIS target

Press [ENTER] key on Target which wants to see. It shows Information of “AIS INFO” window.

AIS INFO window

1. Name
2. MMSI number
3. National
4. Navigation Status
5. Heading
6. COG
7. SOG
8. CPA
9. TCPA
10. Latitude
11. Longitude

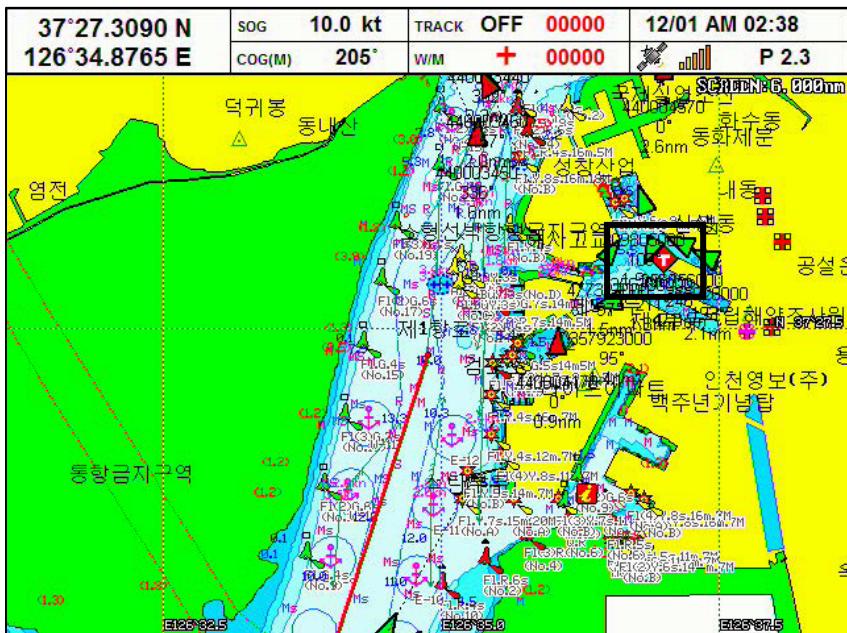
※ Press [ENTER] key on Target which wants to see. It shows Information of “AIS INFO” window.

The tide Info.

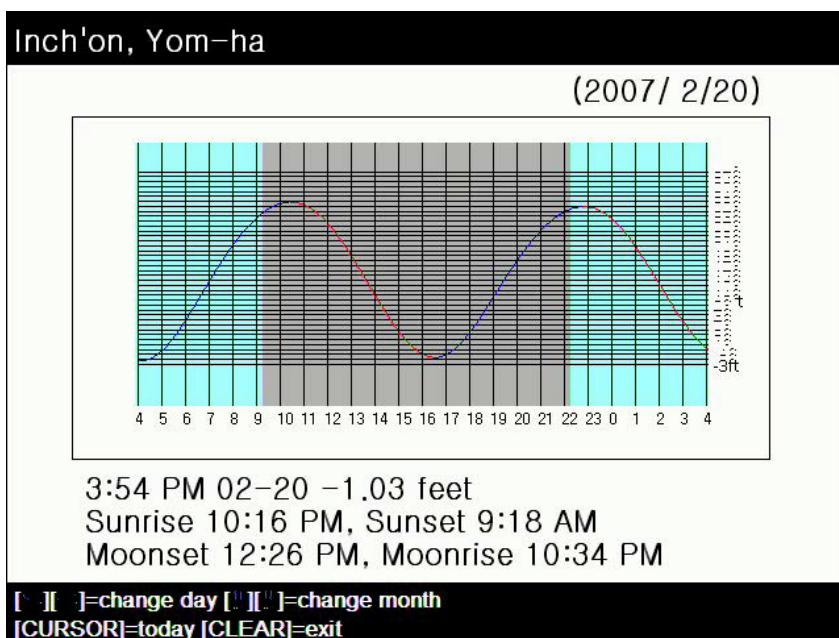
The MX contains the tide information of principal place in the world

- Moving to the icon of the tide list by the cursor, and then press [ENTER]->[1.QUICK NAV]->[ENTER]

[The icon of the tide list]



[The window of the tide list]



C-MAP

It is to be used for Object information or Find function of C-MAP.

- ▶ Press [ENTER]

1. Information

It is possible to see map information at the Vessel Position.

☞ Information is Port Services, Tides, Lights, Wrecks, Rocks, Buoys, Beacon, Obstructions, Land markers, etc.

2. Find

The charplotter allows finding Nearest Services, Port By name, Port by distance, Tide Stations, Wrecks, Obstructions.

2.1. Port Services

To locate and display the nearest available facilities of a particular type.

- ▶ [ENTER]->[2.TRACK ON/OFF]->[ENTER]-> PORT SERVICES ->[ENTER]

The icons of the available services are shown. Use the cursor key to select any facility and press [ENTER]. The list of the ports containing the facility will be shown on the screen. Then choose the port you want and press [ENTER]

2.2. Port by names

To select the Ports by name function following the procedure.

- ▶ [ENTER]->[2.TRACK ON/OFF]->[ENTER]-> PORT BY NAME ->[ENTER]

Shows the list of all ports stored on the C-CARD in alphabetical order and allows to search ports by name to locate the ports on the map.

2.3. Port by distance

To select the ports by distance function following the procedure.

- ▶ [ENTER]->[2.TRACK ON/OFF]->[ENTER]-> PORT BY DISTANCE ->[ENTER]

Shows the list of all ports stored on the C-CARD in closest distance order and allows to locate the ports on the map

2.4. Tide stations

Finds the nearest Tide stations on the map, from the boat position –if a valid fix is received- or from the cursor position-if the received fix position is not good.

► [ENTER]->[2.TRACK ON/OFF]->[ENTER]-> TIDE STATIONS ->[ENTER]

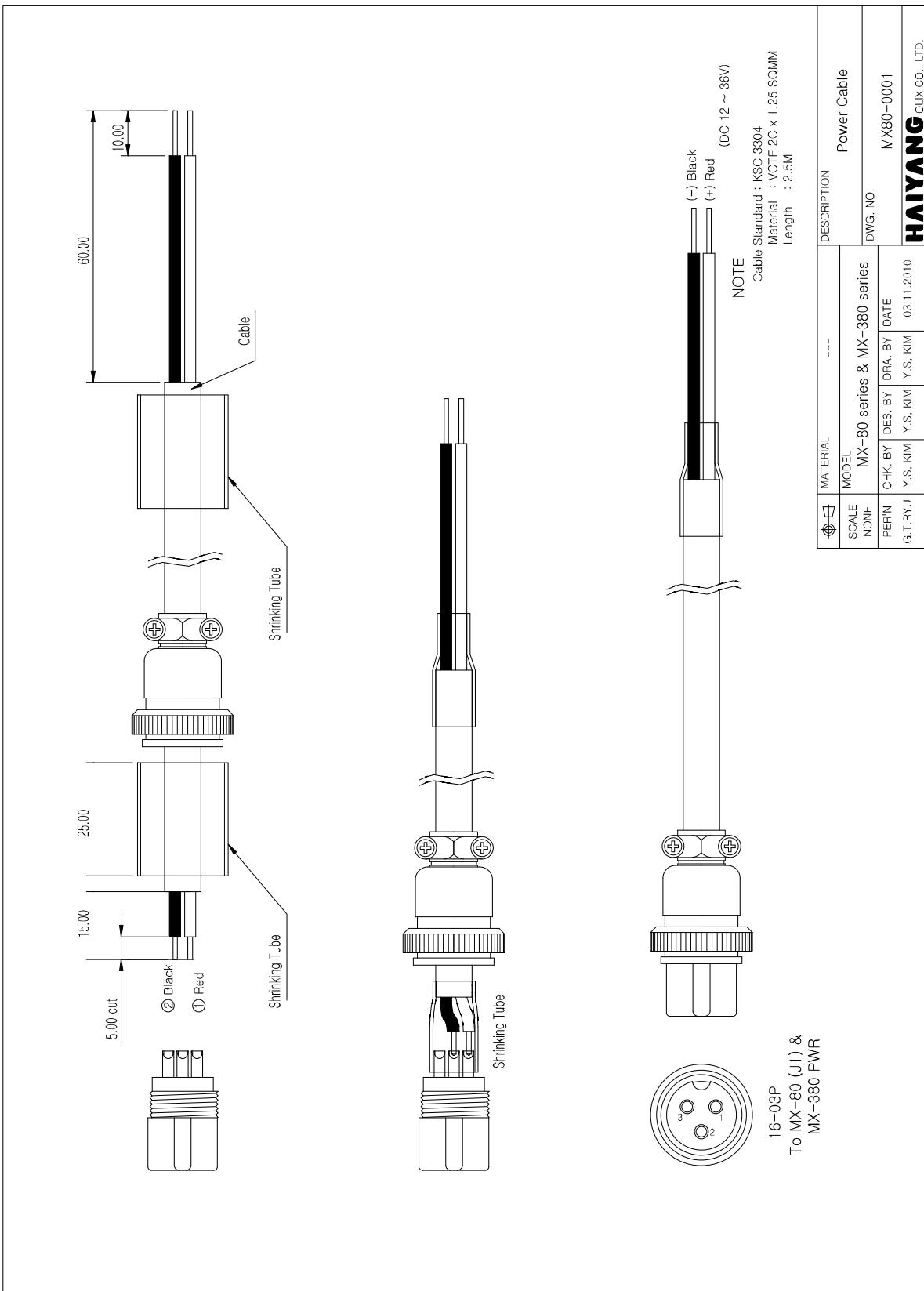
A new window will appear in few seconds. Choose the tide stations you want and press [ENTER] to display the tide graph page.

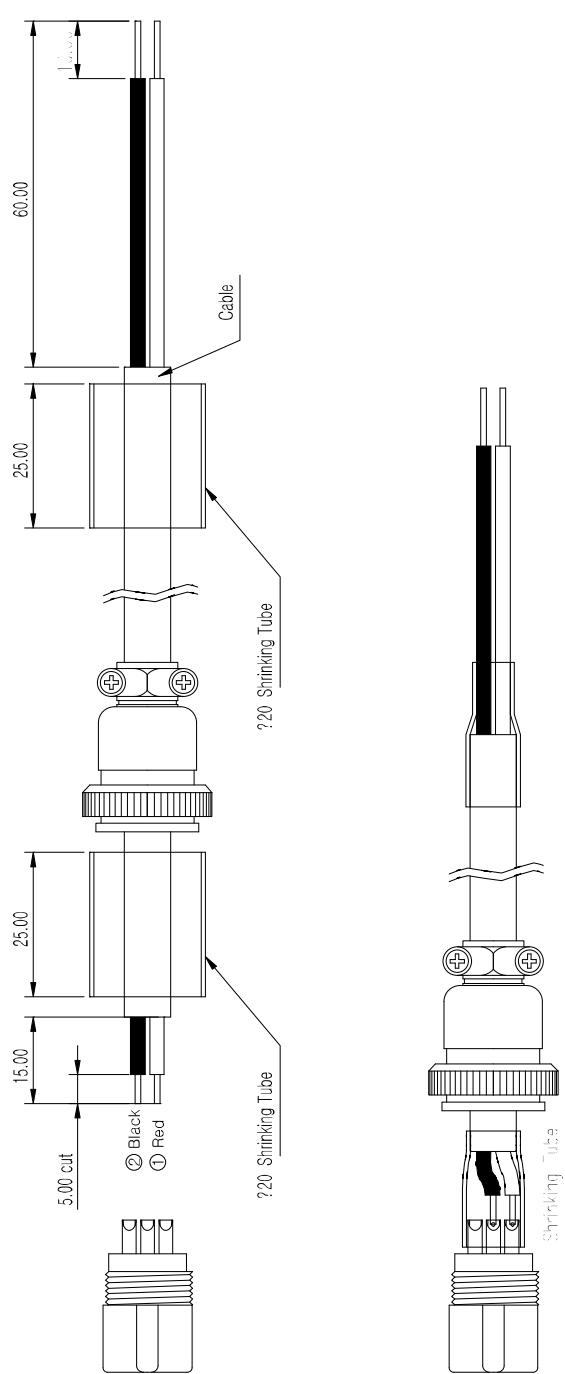
2.5. Wrecks

Searches for nearest Wrecks.

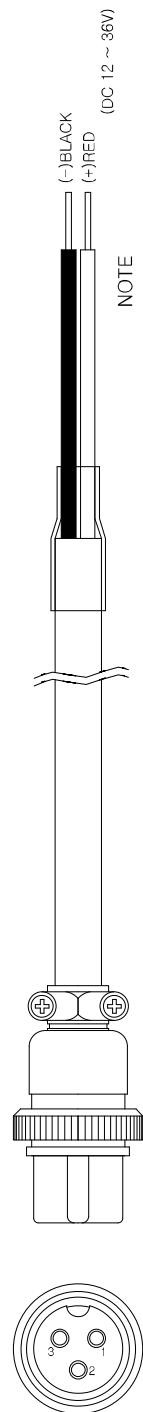
► [ENTER]->[2.TRACK ON/OFF]->[ENTER]-> WRECKS ->[ENTER]

Use the cursor key to select the port. Press [ENTER] to locate the selected Wreck on the map.



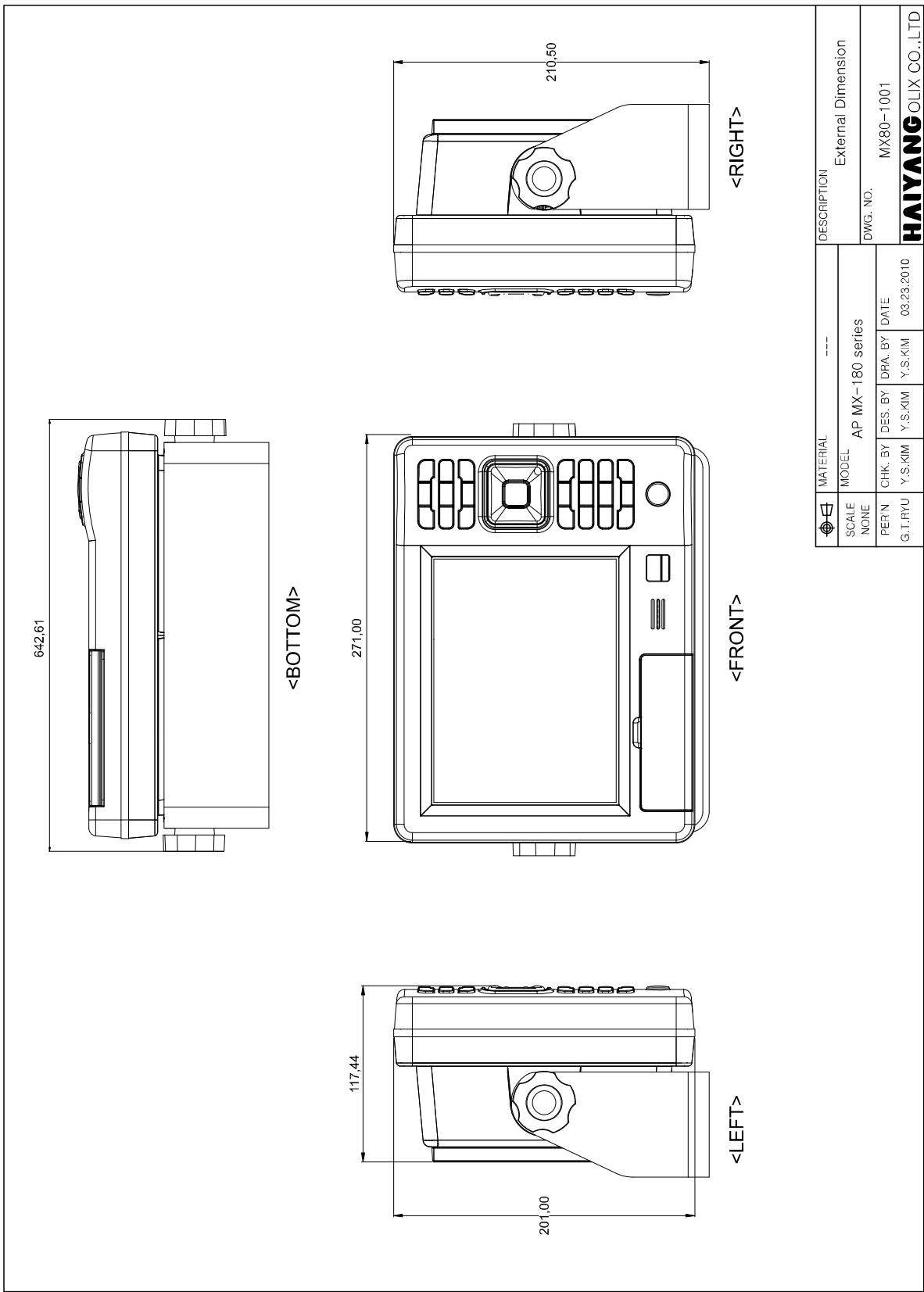


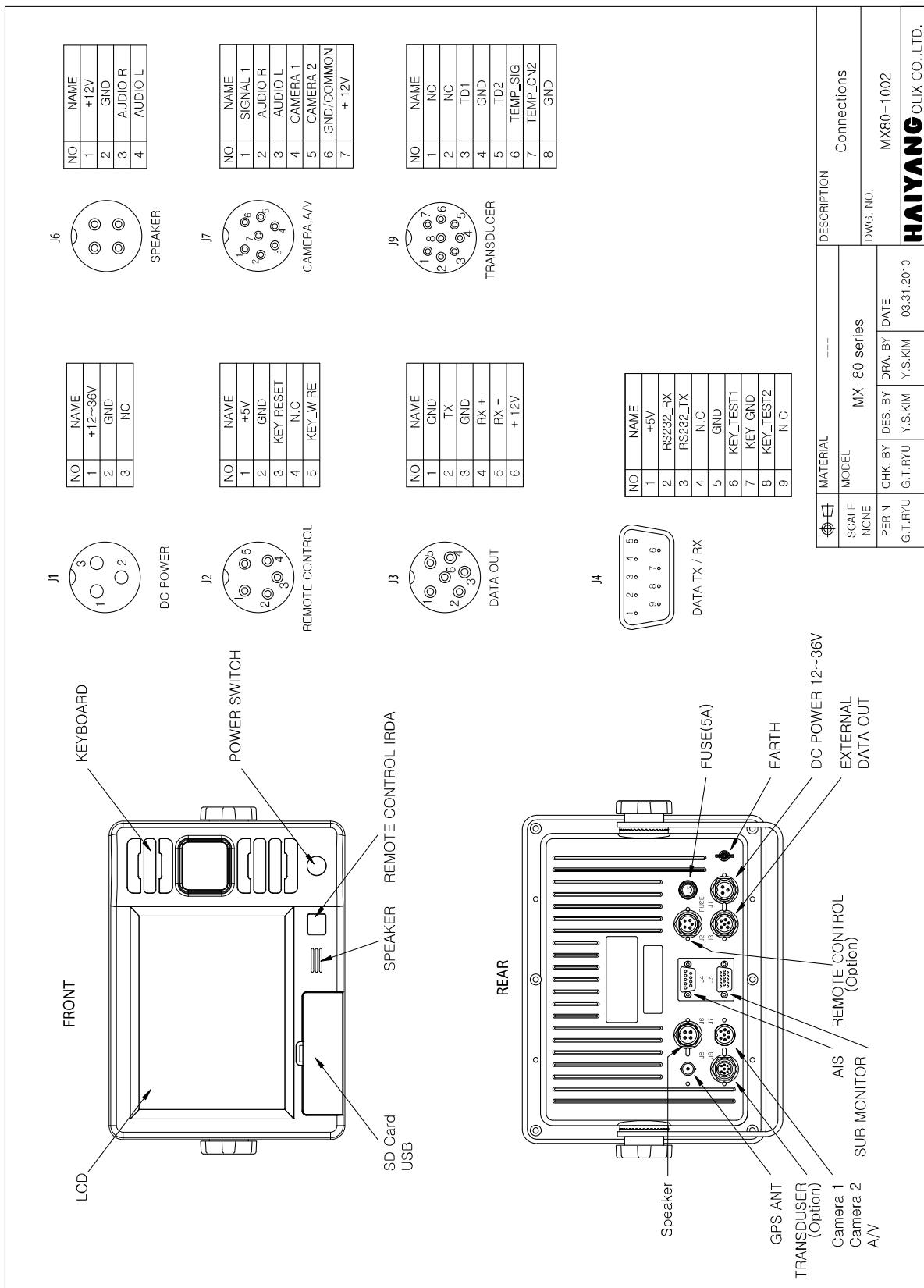
70

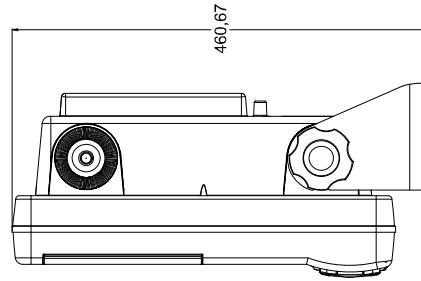
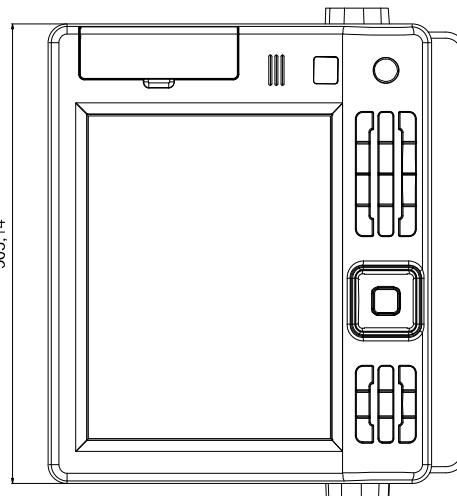
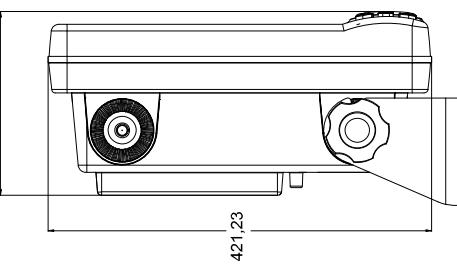
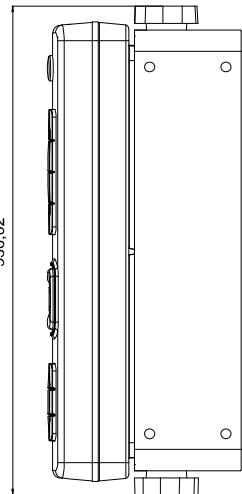


20-03P
To MX-140 (J1)

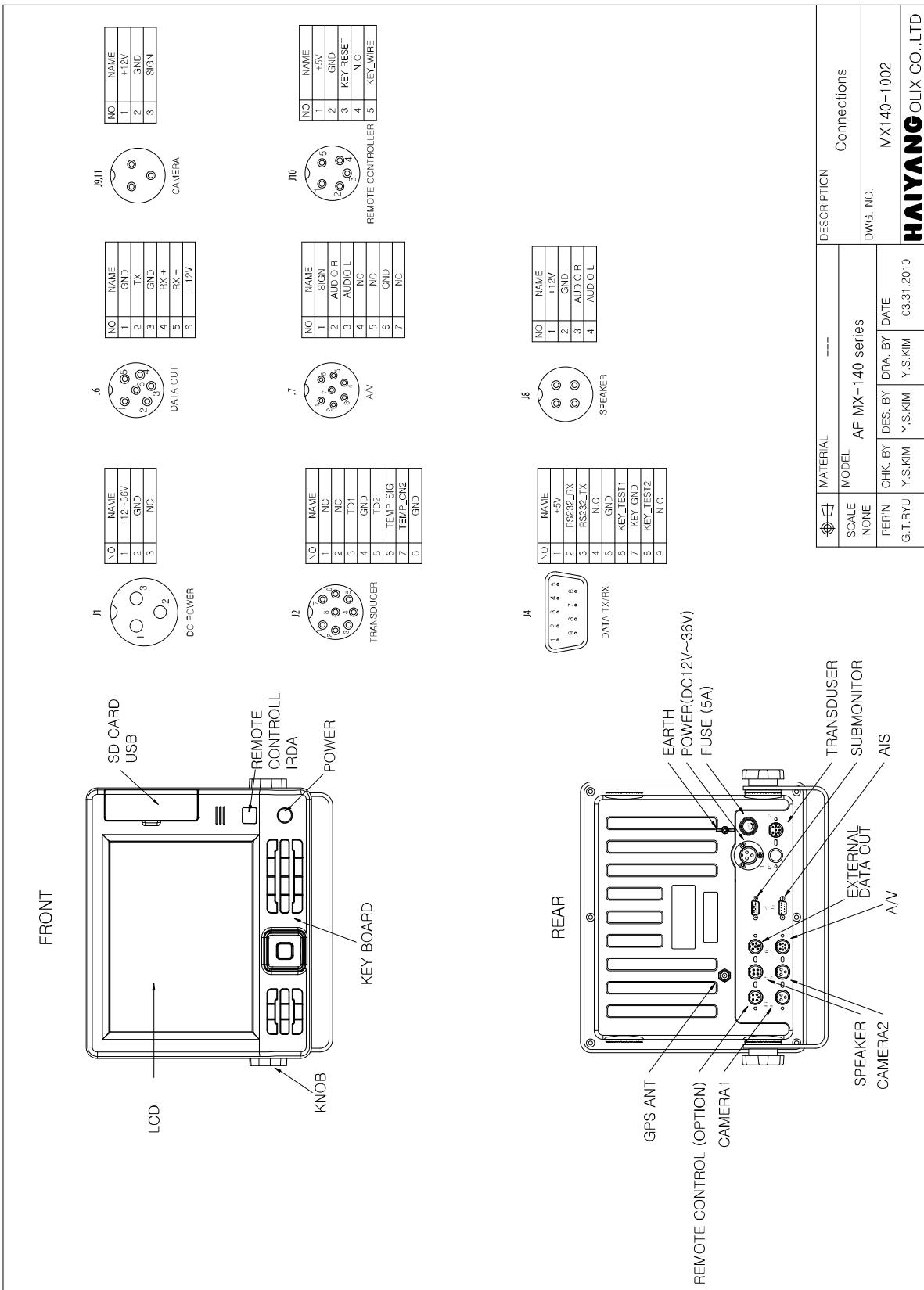
SCALE	MODEL	DESCRIPTION			DWG. NO.	Power Cable
		CHK. BY	DES. BY	DRA. BY		
NONE	MX-140 series					
PERIN	G.T.RYU	H.S.KIM	Y.S.KIM	Y.S.KIM	03.31.2010	MX140-0001 HAIYANG OUX CO.,LTD

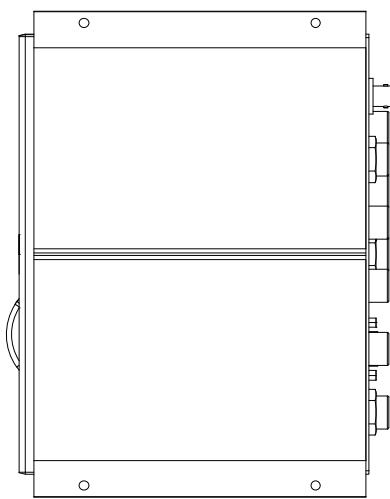




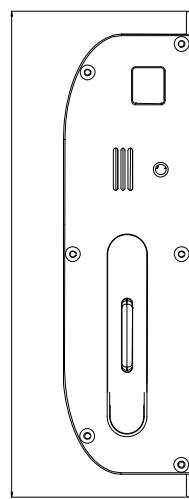


MATERIAL		---		DESCRIPTION		External Dimension	
SCALE	MODEL	AP MX-140 series				DWG. NO.	
PER/N	CHK. BY	DES. BY	DRA. BY	DATE			MX140-1001
	G.I.RYU	Y.S.KIM	Y.S.KIM	03.23.2010	HAIYANG OLIK CO.,LTD		

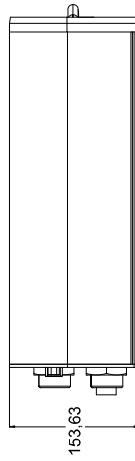




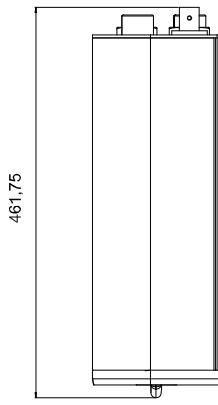
[BOTTOM]



[FRONT]

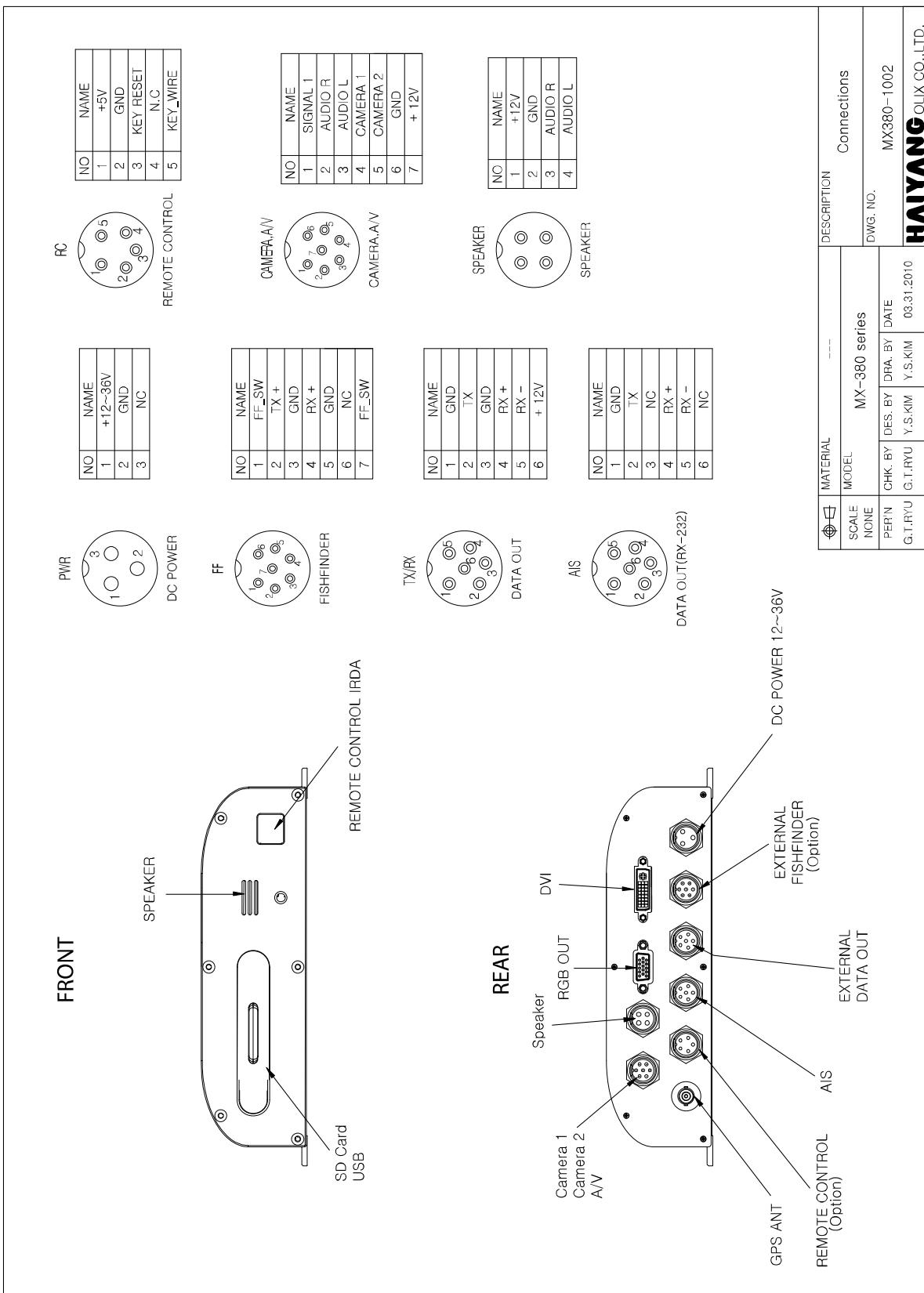


[LEFT]



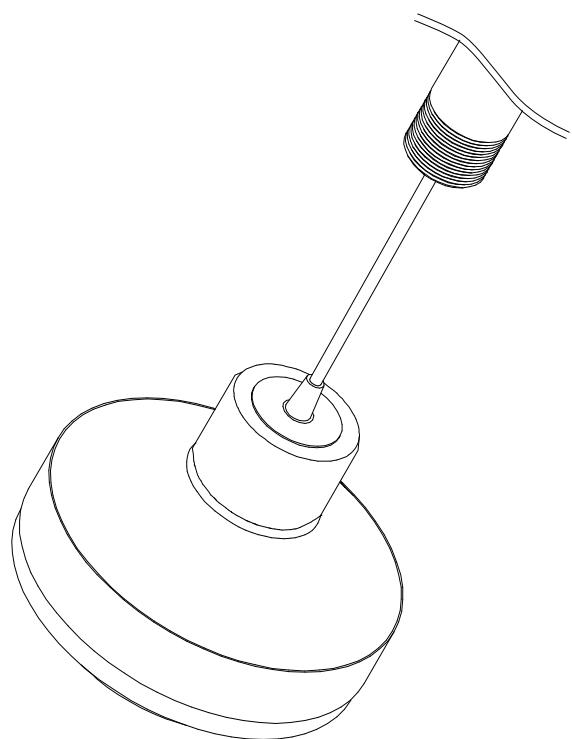
[RIGHT]

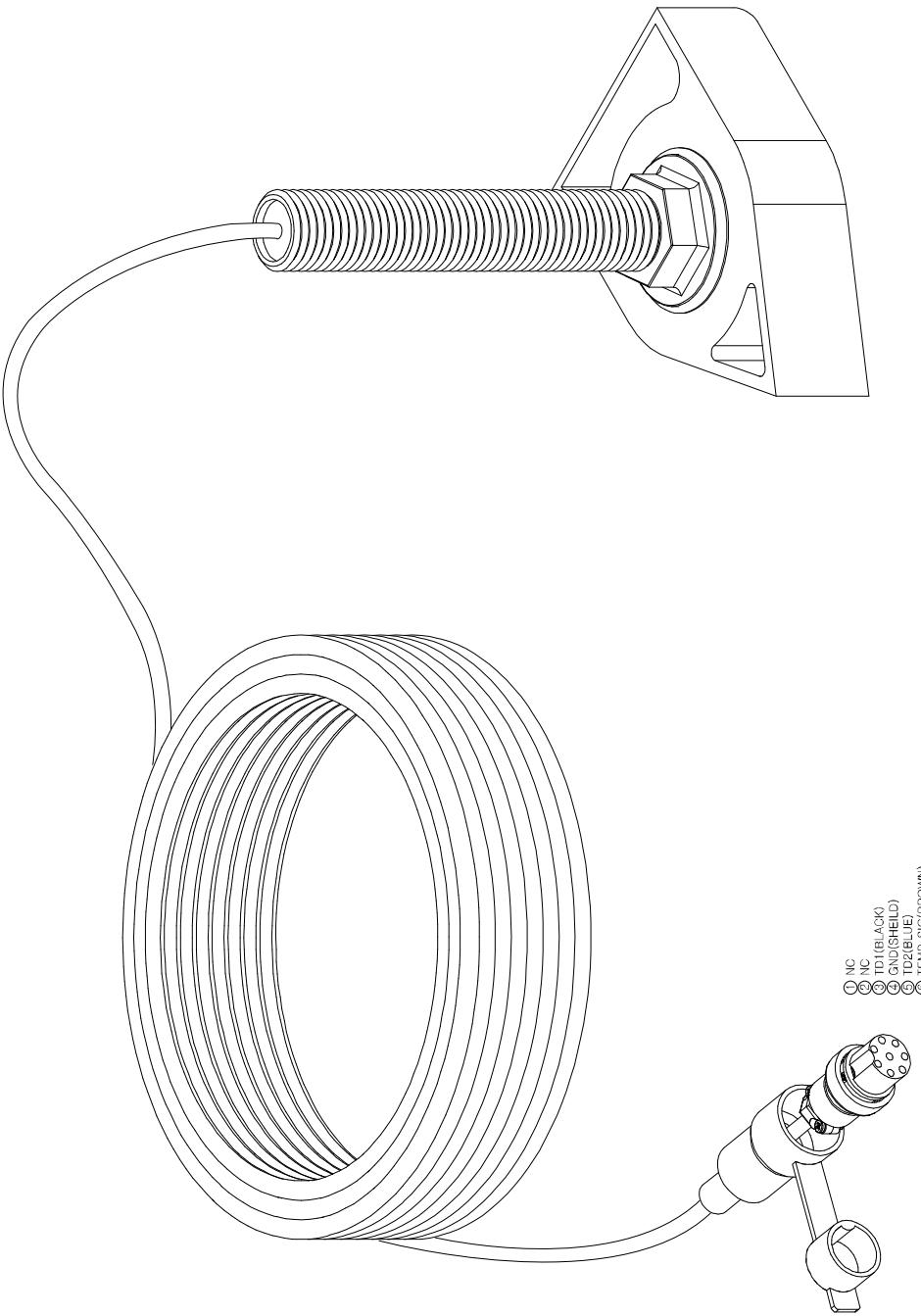
SCALE	CHK. BY	DES. BY	DRA. BY	DATE	DESCRIPTION	
					Material	---
NONE	Y.S.KIM	Y.S.KIM	Y.S.KIM	03.23.2010	AP	MX-380
G.T.RYU						DWG. NO. MX380-001 HAIYANG OLLX CO.,LTD



◆		MATERIAL	---			DESCRIPTION	GPS ANT
SCALE	MODEL	MX series			DWG. NO.		
None					ANT-0001		
		CHK BY	DES BY	DRA BY	DATE		
		G.T.RYU	Y.S.KIM	Y.S.KIM	03.31.2010		HAIYANG OILIX CO.,LTD

To MX series GPS ANT





	MODEL	MATERIAL			DESCRIPTION		
		---	---	---	50KHz/200KHz Transduser		
SCALE	MX series				DWG. NO.		
NONE							
PIERN	C+K, BY	DES. BY	DRA. BY	DATE	TD-0001		
G.T.RYU	Y.S.KM	Y.S.KM	Y.S.KM	03.31.2010			
					HAIYANG OILX CO.,LTD		

