SAMYUNG ENC

AIS-50N
USER MANUAL

CE C FC

Industry Canada

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

FCC Statement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a normal installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1- Reorient or relocate the receiving antenna
2- Increase the separation between the equipment and receiver
3- Connect the equipment into an output on a circuit different from that to which the receiver is connected
4- Consult the dealer or an experienced technician for help
5- A shielded cable must be used when connecting a peripheral to the serial ports

Important

It is the owner's sole responsibility to install and use the unit in a manner that will not cause accidents, personal injury or property damage. The user of this product is solely responsible for observing safe boating practices.

Global Positioning System: The Global Positioning System (GPS) is operated by the US government which is solely responsible for its operation, accuracy and maintenance. The GPS system is subject to changes which could affect the accuracy and performance of all GPS equipment anywhere in the world.

Installation: If installation is not correct, the unit can not perform at its designed potential. If in doubt, consult your Samyung ENC dealer. Ensure that any holes made are in a safe position and will not weaken the boat's structure. If in doubt, consult a qualified boat builder.

SAMYUNG ENC DISCLAIMS ALL LIABILITY FOR ANY USE OF THIS PRODUCT IN A WAY THAT MAY CAUSE ACCIDENTS, DAMAGE OR THAT MAY VIOLATE THE LAW.

Governing language: This statement, any instruction manuals, user guides and other information relating to the product (documentation) may be translated to, or has been translated from, another language (translation). In the event of any conflict between any translations of the documentation, the English language version of the documentation will be the official version of the documentation. This manual represents the installation procedures as at the time of printing. Samyung ENC reserves the right to make changes to specifications without notice.

Presentation

Thank you for having purchased a Samyung ENC product. This handbook contains an explanation of how to install, operate and maintain your unit.

SAFETY INSTRUCTIONS

⚠️ This device's electronic chat system(ECS) is developed for the navigational aid only and chart itself does not obtain any approvals; has not been certified from the government authorities. If operator needs safe navigation then must use an official chart that has been approved by government agencies; also operator is fully responsible for using this device.

Please read through this manual before the first operation. If you have any questions, please contact the customer service or your local dealer or distributor Extensive exposure to heat may result in damage to the chart plotter.
Connection to the power source with reversed polarity will damage the chart plotter severely. This damage is not covered by the warranty.
Do not disassemble. The chart plotter contains dangerous transmission, receiving circuits which only experienced technicians must handle Exposure of the display to UV rays may shorten the life of the liquid crystals used in you plotter. This limitation is due to the current technology of the LCD display.
Avoid overheating which may cause loss of contrast and, in extreme case, a darkening of the screen. Problems which occur from over heating are reversible when temperature decreases.

Screen Cleaning Precautions
Cleaning your chart plotter screen is a very important operation and must be done carefully. The following is the cleaning procedure.
You use a tissue or lens tissue and a cleaning spray containing Isopropanol (a normal spray cleaner sold for PC screens. Fold the tissue or lens tissue into a triangular shape, moisten the tip and use the index finger behind a corner to move the tissue across the surface, in overlapping side to side strokes. If the tissue is too wet, a noticeable wet film will be left in its path and you will need to repeat the process. If too dry, the tissue won't glide easily, and may damage the surface.

If you require technical advice or assistance, contact your nearest Samyung ENC office or visit our website, www.samyungenc.com.

1 Introduction

2 Getting Started

3 AIS Function Explanation

4 General Operation

6 INSTALLATION

1 Introduction

1-1 Summary

AIS is a spearhead equipment to provide voyage information such as ship's position, course, speed, etc. real time. This is to protect the marine collision of ships, obligations, IMO promotes. AIS induction makes it possible to recognize the existence of other ships & progress status, even if radar cannot recognize ships around. Under the poor field of visions, this can discern ship name, course, speed, which can make safety managements such as ship collision protection, broad area control, search & rescue, etc, more efficiently. AIS is using VHF frequency. In 1997, International Telecommunication Union World Radio communication Conference specified two VHF frequencies (161.975 MHz - 87B channel & 162.025 MHz - 88B channel) for AIS.

AIS-50N has high efficiency AIS Class B. It provides plotter functions, needed in voyage. Some functions can be used with establishment of option devices and sensors only.
AIS-50N can be connected to outer devices, which have NMEA0183 or NMEA 2000. It can display relevant information.
ex.)
• Navtex
• DSC VHF radiotelegraph
• Auto Navigation equipment

1-2 AIS Technology Summary

Communication methods of AIS are simplex, semi-duplex, or duplex operation of TDMA (Time Division Multiple Access). Allowance of occupied bandwidth is within 25kHz. These are classified into A Class & B Class transceivers, equipped on vessels, according to uses.
► **A Class transceiver :** Mandatory installed in international passenger ships & ocean-going ships over 300ton. Ship positions should be reported on voyage.
► **B Class transceiver :** Mainly installed in small ships of length under 65 feet.

4 data information, used in AIS are as followings.
► **Safety Related Message :** This is according to requirement of message, includes voyage information or weather warning.

► **Static Information :** IMO number, call sign & vessel name, length & width of vessel, vessel type. Renewal of antenna positions (division of vessel prow, stern & left light sides) of GPS is done every 6 minutes or when data are revised, or there is a demand.
► **Dynamic Information :** Accurate mark of ship position, overall status, Coordinated Universal Time (UTC), course, speed, heading, voyage status, yaw angle & sensor information. These are renewed by interval of following table, according to change of speed & direction.
► **Voyage Related Information :** Draft, risk cargo, destination & ETA, route plan & boarding persons. Renewal is done every 6 minutes or when data are revised, or there is a demand.

Intervals of Information renewal are shown by table, according to ship status, classified by two Classes of AIS.

Ship status (A Class)	Interval
Under speed 3 knots, in anchorage or moorage	3min.
Over speed 3 knots, in anchorage or moorage	10sec.
Under 14 knots in voyage	10sec.
Under 14 knots in changing courses in voyage	$3\frac{1}{3}$sec.
Over 14 knots under 23 knots in voyage	6sec.
Over 14 knots under 23 knots in changing courses in voyage	2sec.
Over 23 knots in voyage	2sec.
Over 23 knots in changing courses in voyage	2sec.

Ship status (B Class)	Interval
Under 2 knots in voyage	3min.
Over 2 knots in voyage	30sec.

General Overall contents, explained above, can be summarized as below table.

Data	A Class	B Class
Static Information of radio station - MMSI	✓	✓
- vessel name	✓	✓
- vessel type	✓	✓
- call sign	✓	✓
- IMO number	✓	
- antenna position	✓	✓
Voyage Related Information - draft	✓	
- boarding persons	✓	
- risk cargo	✓	
- destination & ETA	✓	
Dynamic Information of radio station - Universal Time Coordinated. (UTC)	✓	✓
- ship position	✓	✓
- course(COG)	✓	✓
- speed(SOG)	✓	✓
- heading	✓	✓
- turn rate	✓	
- voyage status	✓	
- ship status	✓	
Safety Related Message - alarm	✓	
- safety	✓	✓

1-3 Specification

[AIS-50N]

GENERAL	
Category	**Detail**
Size	164 mm(H) x 183 mm(W) x 92.5 mm(D)
Display	5.6" diagonal, TFT color, 480 x 640 pixels.
Supply voltage	10 to 34 V DC
Supply current	13.8 V 24 V 1A - AIS receiving by mode 0.5A - AIS receiving by mode 2A - AIS transmitting mode 0.9A - AIS transmitting mode
External beeper or light output	Switched to ground to sound alarm, 30V DC, 200 mA maxmum
Operating temperature	-10° to 50°C

ALARMS
User set up: Arrival, Anchor, deviation, risk, low voltage, AIS risk vessel, AIS approaching

GPS NAVIGATION	
Chart card	NAVIONICS SD Card
User card	SD Card
Waypoints	Up to 10,000, with default or user defined alphanumeric names up to eight characters.
Routes	100 Routes, with up to 100 points each
Tracks	By time or distance, 10 track of 15,000 points
Chart datums	216 Chart datums, One user-defined map shift.
Chart scale	0.2 to 500 nm for chart (chart dependent) down to 0.005 nm in plotter mode.

COMMUNICATIONS	
NMEA	NMEA 0183 4800, 9600, 38400 baud, NMEA 2000
NMEA 0183(1) Inputs from compatible instruments	DBK, DBS, DBT, DPT, GGA, GLL, GNS, GGA, GSV, HDG, HDT, MDA, MTA, MTW, MWD, MWV, RMC, RPM, VHW, VTG, VWT, ZDA
NMEA 0183(1) Outputs, for compatible instruments	APA, APB, BWR, GGA, GLL, GSA, GSV, RMB, RMC, VTG, XTE, DBT, DPT, MTW, VHW, XDR
NMEA 0183(2) Inputs from compatible instruments	GGA, GLL, HDT, RMC, GSV, SSD, VSD
NMEA 0183(2) Outputs, for compatible instruments	GGA, GLL, HDT, RMC, GSV, VDM, VDO, ALR, TXT, ACS, ACA, ACK, GSB
NMEA 2000 Inputs from compatible instruments	System date and time(PGN126992),Vessel Heading(PGN127250),Engine parameters/Rapid Update(PGN127488), Engine parameters/Dynamic(PGN127489),Trip parameters/Engine(PGN127497),Engine parameters/Static(PGN127498),Fluid level(PGN127505),Water Speed(PGN128259),Water depth(PGN128267),Position/Rapid Update(PGN129025),COG & SOG/Rapid Update(PGN129026),GNSS Position Data(PGN129029),GNSS DOPs(PGN129539),GNSS Sats in View(PGN129540),Wind Data(PGN130306),Environmental Parameter-Water temp(PGN130310),Environmental Parameter(PGN130311)
NMEA 2000 Outputs, for compatible instruments	Water Speed(128259), Water depth(128267), XTE(128283), NAV. data(129284), NAV. data(129285), COG & SOG(129026), GNSS position(129029), Water temp.(130310)

AIS	
VHF Transceiver Transmitter x 1 Receiver x 2	Frequency: 156.025 to 162.025 MHz in 25 kHz steps Receiver 1. default CH is 87A, AIS (161.975 MHz) Receiver 2. default CH is 88B, AIS (162.025 MHz)
Channel Bandwidth	25 kHz
Communication	Simplex & semi-duplex operation
Antenna Impedance	50Ω(BNC)
Frequency tability	±10 PPM(-20℃ to +60℃)

1-4 Packing List

Item List	Part number
Display	AIS-50N-E
Bracket	N560-DB
Display Cover	N560-CB
Protection Cover	N560-CC
Power Cable	LTW-2000-8
Bracket mounting screw	N560-BP
Flush mount Kit (Including scr w)	N560-TK
Cable tie	N560-CK
User's Manual(Eng)	AIS-50N-ME

1-5 Optional Accessories

Model	Part number	Item List
GPS Antenna + GPS Antenna Installation Material	SAN-60-10M	GPS antenna + TNC Plug
		GPS antenna support
		GPS antenna cable(10m)
GPS Antenna Stand type Support	57745	GPS Antenna Stand type Support
VHF Antenna + VHF Antenna Installation Material	SAN-150	VHF antenna + BNC Plug
		VHF antenna support
		VHF antenna cable(15m)

2 Getting Started

2-1 Mounting the Unit

The chart plotter is supplied with bracket and flush mounting kit. You can choose a method of installation according to your preference.

2-1-1 Bracket Mounting

Select the position, considering weight of equipment, conveniences, etc before installing.

Display installing:
1 Gripping display, find both connecting joints between display & installer.
2 Smoothly push in display into the both connecting groove of installer.
3 Turn on both knobs.

Display separation
1 Switch off the device.
2 Turn off both knobs & separate display & installer.

2-1-2 Flush Mounting
1 Find a location for flush mounting.
2 Drill a hole in the area of the cutout area for the blade of jig saw.
3 insert and cut out the area on the panel using the jig saw
4 Drill four holes for mounting studs.
5 Install the mounting studs on the chart plotter and insert them into the mounting hole.
6 Attach the chart plotter to the mounting location by attaching the supplied hardware to the mounting studs.

📝**Note**
Before drilling work, check if there is enough space for device installation.

2-2 Keys

ESC – Exit from menu and return to previous menu or window. In chart window, it places own ship at center.

SRM – If you push button long, SRM function works. (Refer to 2-5)

CURSOR – Moves the cursor on the display screen. In sonar window, you can review sonar history.

-,+ – zoom in and zoom out to multiple chart level

ENT – Select the desired option or to confirm selection

-,+ – zoom in and zoom out to multiple chart level

AIS – AIS/Plotter mode conversion

WPT – Create a waypoint.

POWER – Turns power on/off. Opens display Brightness, Night mode and background settings.

SD Card – Open the cover to install SD card

GOTO - Start navigating to a destination point such as a MOB waypoint, waypoint.

PAGE – Show main windows and allow you to setup displays as you like.

MENU – Access to setting menu - Show available options of current window.

2-3 NAVIONICS Secure Digital (SD) Card

This section provides instructions for inserting and removing NAVI01NICS SD card procedure.

Inserting the SD Card
1 Hold the SD card so that you can see the NAVIONICS label.
2 Open the door, gently push the SD card into the slot; push the SD card in as far as you hear click sound, then close door.
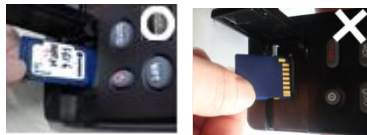
Removing the SD Card
1 Turn off the unit.
2 Open the door and push in on the SD card until it is released.
3 Close the door.

⚠	**Insert NAVIONICS SD card correctly. (DO NOT FORCE) Close SD card door firmly all the times. Do not remove SD card during reading and writing..**
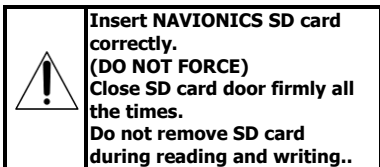
2-4 Manual / Auto Power on and off

Manual power on
Press 🔘 and hold until the display shows the start up page. When the Warning screen appears, press 🔵 to accept.

Warning

S-MAP by Samyung electronic charts (ECs) are derived from geographical data - including official government charts -which we believe to be accurate. They are neither verified nor approved by Hydrographic Authorities. S-MAP by Samyung ECs 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 charts.

Press any key to accept.

Manual power off
Press and hold 🔘 for 5 seconds. A counter timer appears on the screen, if you release the button before the countdown timer reaches zero, the chart plotter will remain On.

Auto power
If the unit is wired for auto then**:**
• The unit turns on automatically when you turn on the boat's ignition.
• You can not turn off the unit if the ignition is turned on.
• If Auto power off is set, the unit turns off automatically when you turn off the boat's ignition.
• If Auto power off is set, the unit will not be turned off even though the boat's ignition is turned off. To turn off, you need to turn off the unit manually.

2-5 SRM(Safety Related Message)

Users can set up 15 letters. If you push SRM button, set up message is transmitted.
If you push SRM button long, counter is displayed. In 3 seconds (3->2->1), setup message is transmitted.
SRM function of AIS-50N is made to meet 62287-1 Message 14 standard of IEC(International. Electrotechnical Commission) Users can set up SRM, which they want, referring to 3-5-1.

⚠ **SRM does not work, when equipment does not receive GPS signals.**

2-6 Brightness, night mode and Background

You can change the screen setting for the display. To change settings, shortly press⊚.

Brightness

Brightness	
Brightness	100
Night mode	☐
Background	Blue

Brightness
To change the brightness, select **Brightness**, and press ◁ to dim or ▷ to brighten.
Press **ESC** to return to the previous screen.

Night mode
The AIS-50N has preprogrammed settings allowing you to customize the look of the **Chart** window. The default is daytime view. Select **Night mood** depending on what mode the display is in at the time of selection.
To change mode:
1 Highlight **Night mode**.
2 Press ▷ or ↵.

💡**Tip:** The screen will be difficult to read if the chart plotter is in **night mood** when the sun is too bright

Background
You can Changes the background color if necessary. This selection is a personal preference. Select the option that gives you the clearest viewing in your weather conditions and viewing angle.

3 AIS Function Explanation

3-1 Screen configuration

Opening screen is the vessel list of AIS-50N, which shows the distances & directions information from own vessel, utilizing received information from other vessels.

ESC **Own vessel information**
Using direction keys, you can check the static Information, voyage information, GNSS antenna information of own vessel.

Other vessel information
Using direction keys, you can check the static Information, voyage information, GNSS antenna information of other vessels.
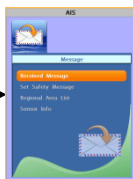
AIS
If you push **MENU** button, it becomes AIS screen. Using direction keys, you can select 2 items, message & initial setting up. Using up down direction keys, you can move to detailed menus of 2 items.
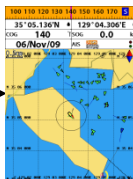
Plotter
You can change screen by **AIS** button. It helps user to navigate, utilizing several functions, such as destination, wake, route, etc.

3-2 Screen change

By **AIS** button you can change screen(AIS/Plotter).

AIS
AIS is the system to discern vessel position & information. As the main function of AIS-50N, this shows on screen the distances & directions information from own vessel, utilizing received information from other vessels.

Plotter
As the additional function of AIS-50N, this helps user to check easily, displaying other ship's movements on marine chart.
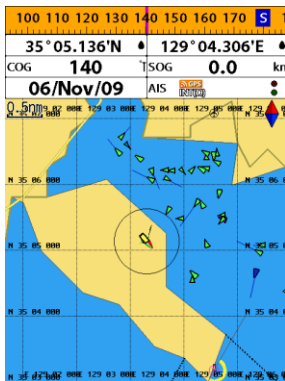
3-3 Vessel list

Opening screen is the vessel list of AIS-50N, which shows the distances & directions information from own vessel, utilizing received information from other vessels.

: Pushing **＋** button, you can check vessel name or MMSI information.

: Pushing **－** button, you can select the lineup.(vessel name / distance / direction)

: Selecting the vessel, which user will check, using up down direction keys, then push **↵**.

: Pushing **ESC** button, you can check own vessel information.

3-4 Own vessel / other vessel information

Using own vessel / other vessel information, user can check the static Information, voyage information, GNSS antenna information of own vessel or other vessels easily.

Own vessel information

1 Check own vessel information, pushing **ESC** button in vessel list screen

2 Return to vessel list screen, pushing **ESC** button in own vessel information screen.

Other vessel information

1 Select the other vessel, which user will check, using up down direction keys in vessel list screen.

2 Pushing **↵**, check other vessel information.

3 Using left right direction keys, select one among 3 items(static, voyage, GNSS antenna), which user wants to check.

4 After checking information, return to vessel list screen, pushing **ESC** in other vessel information screen
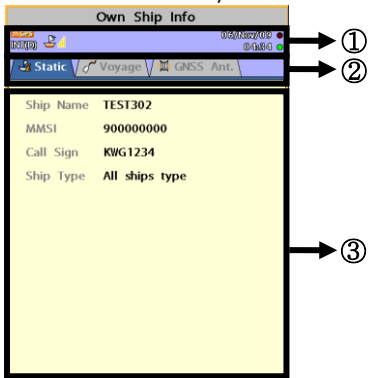
① You can check GPS (DGPS) connecting status, VHF reception, date & time information, AIS transmitting (red flickering), receiving (green flickering) status information.

② You can select static, voyage, GNSS antenna items, using left right direction keys.

③ Information window shows the detailed information of the selected item among 3 items.

3-5 AIS

This shows 2 items, voyage related message(necessary in AIS) & initial information setting up on screen. Pushing **MENU** in vessel list screen, you can move to AIS screen.
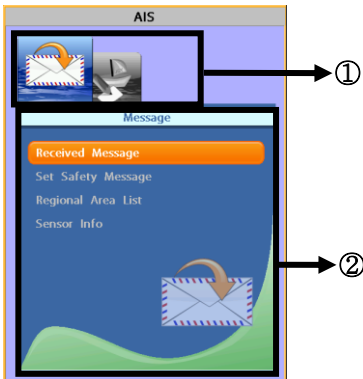
① Using left right direction keys, you can select 2(message, initial setting up) items.

 : message

 : initial setting up

② This shows the detailed items of the selected item between 2 items. You can move, using up down direction keys.

3-5-1 Message

Receiving message

You can check Safety Related Message, Voyage Related Message, which AIS base station or other vessels transmit.

Receiving message is checked as follows.
1 Selecting receiving message item, push
.
2 Selecting the message, use wants to check, push .

Safety Related Message setting up

Users can set up messages to meet 62287-1 Message 14 standard of IEC. (International. Electro technical Commission)
Initial value: "MAYDAY! MAYDAY!"

Setting up SRM is as follows.
1 Selecting SRM setting up item, push .

⚠	**For setting SRM is only permitted by installation company and user cannot change it by her or himself. If you need to change it then please contact your distributor.**

Region area list

Among Voyage Related Messages, AIS base station transmit, you can check the information about region area setting up. If own vessel is within the region area, which AIS base station sets up, communication should be done with frequency band, base station set up.

Region area list is checked as follows.
1 After selecting region area list item, push .
2 After selecting area item, which user will check, push .
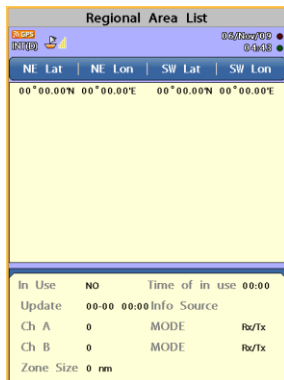
Sensor information

You can check the status of sensor,
Input to AIS in voyage.
► GNSS : Check GPS receiving status
► speed : Check if vessel moving speed data
are input
► course : Check if vessel moving course
data are input
► head direction : Check if vessel head
direction data are input
► UTC **:** Check if Coordinated Universal Time
data are input

Sensor information are checked as follows.
1 After selecting sensor information item,
push .
2 Check the status of sensor.
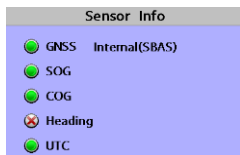
3-5-2 Initial setup

Static information setup

► MMSI : As maritime identification number,
this is assigned for vessel identification.
(9digits-number(0~9))
► vessel name : marked on vessel
► call sign : To identify vessel.(7digits-
capital letter(A~Z), number(0~9), symbol)
► vessel type

Static information setup is done as follows.
1 After selecting static information item, push
.
2 Using up down direction keys, select the
item to set up among 4 items.
3 Pushing , input value, using direction
keys.
4 After selecting saving, using up down
direction keys, push .

Antenna position setup

You can set up the position of GPS
inner/outer antenna of own vessel.
► A+B = 0~511m
► C+D = 0~63m

Region area setup is done as follows.
1 After selecting antenna position setup item,
push .
2 Select the item to set up, using up down
direction keys.
3 Pushing , input value, using direction
keys.
4 After selecting saving, using up down
direction keys, push .
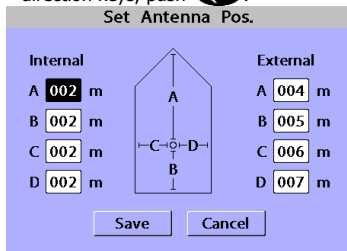
⚠	For static information setup is only permitted by installation company, user cannot change it by her or himself. For more information please contact your distributor.

4 General Operation

4-1 Chart Selection

A user can select a map between NAVI01NICS and S-MAP.

Chart Selection
1 Press and hold **MENU** .
2 Select the system setting icon.
3 Select Chart then a chart you prefer.

> ⚠ **S-MAP is a pre-installed chart but optional NAVI01NICS can be used. Please contact your nearest Samyung ENC office for purchasing the NAVI01NICS**

4-2 Simulate Mode

Simulate Mode is great for practicing the actual use of a product when the satellites signals and internal alarms are not available. In the simulate mode, the unit turns the GPS receiver off and ignores data from all optional devices.

Two simulate modes are available as below.
• **Normal:** Allows a user to practicing the actual use of a product without satellites connection.
• **Demo:** boat travel alone given route at given speed and show different function of the unit.

> ⚠ **Do not try to navigate in a simulate mode. While the simulate mode is turned on, the GPS receiver is not active.**

4-3 Data Bar

Data bar displays useful navigation information at the top of the display.
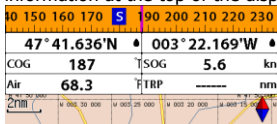
Displaying Data bar
1 Press **MENU** and select **Data bar**.
2 Select **Data bar**.

Setting the data displayed in data bar

1 Press **MENU** and select **Data bar**.
2 Select **Data bar** then **Data bar setup**.
3 Move the cursor key to highlight the data field you want to change then press ⏎.
4 Select **Data type**.
5 Select a desired data you want to display in the field then press ⏎.
6 Repeat above steps if necessary.

Selecting the Data bar size

1 Press **MENU** and select **Data bar**.
2 Select **Data bar** then **Data bar size**.
3 Select the desired size of data bar.

[Large]

47°41.415'N ◆	003°22.238'W◆	
COG 194	SOG 4.1	kn
Air 50.2	TRP ------	nm

[Small]

47°41.238'N ◆	003°22.289'W ◆	
COG 187	SOG 5.9	kn
Air 52.6	TRP ------	nm

Tip: If you select None for all data fields, the data bar will disappear to save space for the chart.

Tip: Even though you setup a data bar for specific window, the data bar is not apply to all other window.

4-4 Compass

The chart plotter computes compass direction from the constellation of GPS satellites. For the GPS chart plotter to compute direction the vessel must be moving through the water.

For easy reading and recognition, there is a compass needle at top right side.

When the compass is displayed, COG is always displayed in data field.
Also when you are navigating to a point, COG and BRG is always displayed in data bar.

Tip

COG(Course Over Ground) – The course you vessel is heading.
BRG(Bearing) – The direction from your current position to a destination point.

To turn the compass off or on:
1 Press **MENU** and select **Data bar**.
2 Select **Compass**.
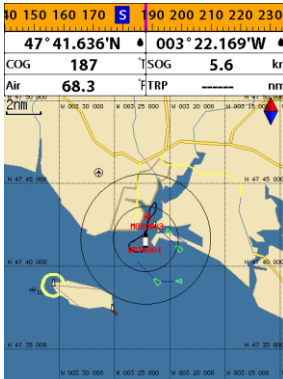
4-5 Multi window displays

The Chart plotter can display up to four windows at the same time.
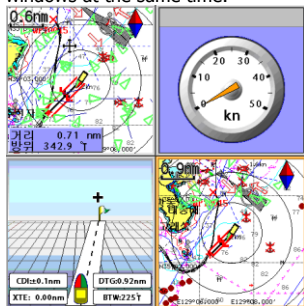
⊕ Adding a window

1 Press **PAGE** and select **Add** icon.
2 Select an icon you want to add.
3 Repeat above steps if necessary.

⇔◇⇕ Changing window size

1 Press **PAGE** and select **Split** icon on bottom.
2 Press △ or ▽ to change the height of the windows if there is only two windows. If the unit is displaying more that three windows, press △, ▽, ◁ or ▷ to change the height of the windows.

⊖ Deleting a window

1 Press and hold **PAGE** to select a window you want to delete.
2 Press **PAGE** and select **Remove** icon to remove.

↻↺ Replacing two windows on the display

1 Press and hold **PAGE** to active desired window you want to replace.
2 Press **PAGE**, select **Replace** icon.
3 Select icon you want to display then press ↵.

The active window

To distinguish an active window among windows, an orange border indicates the active window. To change the active window to the next window, press and hold **PAGE**.
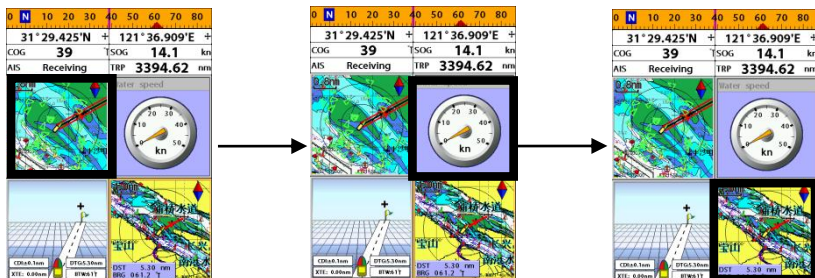
Favorite displays

The most commonly used windows are called favorite displays and up to six favorite windows can be saved. Also each favorite display can have data bar and compass.

Displaying a favorite display

1 Press **PAGE** twice.
2 when above window pops up select a desire display you want.

Adding a favorite display

1 Organize a window as you want.
2 Press **PAGE** to show the main window.
3 Select **Save** icon at the bottom
4 Select an icon where you want to add your favorite display. If you add the new favorite display on existing favorite display new display will overwrite the old display.

4-6 The page window

Press **PAGE** to show the page window and select a function icon you want to display.

Chart

Note

1 Some function icons require optional units and connected sensors.

2 If you press **PAGE** one more time in the main window, favorite window is displayed.

Chart

130 140 150 160 170 S 190 200 210 22
34°53.042'N   128°45.639'E
COG   173   °T SOG   48.1   kn
수심   9.4   m TRP   662.22   nm
0.9m

Highway

240 250 260 W 280 290 300 310 320 3
34°39.924'N   128°36.010'E
COG   281   °T SOG   36.9   kn
To WPT0005   ETA   00:08
WPT0005
CDI: ±0.1nm   DTG: 5.44nm
XTE: L0.08nm   BTW: 276°T

Data

34°59.890'N   129°18.633'E
COG   140   °T SOG   10.0   kn
Baro   2.0   mB Consump. 0.07 L/nm

Water speed   Water pressure
kn   kPa
RPM   Fuel remaining
rpm   L

Waypoints

	Waypoints			
NAME	Latitude Longitude	DST nm BRG °T	Disp Disp	

Routes

	Routes			
Name	Start	End	Legs	DST(nm)
ROUTE01	WPT0001	WPT0003	2	02.
ROUTE02	WPT0001	WPT0003	3	10.
ROUTE03	WPT0003	WPT0003	3	07.
ROUTE04	WPT0003	WPT0006	3	10

Satellite

Satellite information
47°40.921'N   003°22.389'W
1 3 6 8 10 15 15 18 22 25 31
HDOP : 1.5
Used in fix
Not used
No signal

Tides

Tides
PORT LOUIS   01/Jan/09
Distance from boat: 1.96 nm
Sunrise 09:02   Moonrise 10:27
Sunset 17:32   Moonset 21:50
Moon phase 35.7 %
Low water   High water
01:12 1.57   07:18 4.78
13:42 1.56   19:16 4.50
Time 11:58 (3.18 m)

AIS

		AIS		
Vessels		messages		
DST(nm) CPA(nm)	SOG(kn) TCPA	BRG (°)	MMSI NAME	
0.49	5.6	1.333333333		
___/h_m_s			PLASTIMO-C	
0.76	1.2	12.11111111		
___/h_m_s			PLASTIMO-A	
1.53	12.3	6.666666666		
___/h_m_s			LORENT-B	
1.69	7.8	7.444444444		
___/h_m_s			PLASTIMO-D	
1.94	3.4	25.222222222		
___/h_m_s			PLASTIMO-B	
2.10	15.6	10.88888888		
___/h_m_s			LORENT-D	
2.65	17.8	16.999999999		
___/h_m_s			LORENT-E	
2.89	9.0	3.555555555		
___/h_m_s			LORENT-A	
3.25	13.4	13.77777777		

DSC

	DSC		
Distress		Poll	
Date Time	Latitude Longitude		MMSI NAME
01/01/2009	36°24.125N		111111111
12:42	129°34.587S		———
Undesignated			

Navtex

	NAVTEX	
Time	MsgID	Freq
12:11 24/Jan09	E01	518kHz
13:02 24/Jan09	ADK1	518kHz
16:10 24/Jan09	VL13	518kHz

ISSUED ON SATURDAY 24 AUGUST 2009.
INSHORE WATERS FORECAST TO 12 MILES
OFFSHORE FROM 1700 UTC TO 0500 UTC.

NORTH FINELAND TO SELLEY ISL.
12 HOURS FORECAST.

SHOWERY WINDS, STRONGEST IN NORTH.

Engine Faults

	Engine Faults	
Engine	Status	
Port	Over Temperature	
Port	Low fuel pressure	
Port	Charge indicator	
Port	Preheat indicator	
Starboard	Low oil pressure	
Starboard	Low fuel pressure	

![SAMYUNG ENC]

4-7 Chart

The **Chart** window mainly shows all relevant navigation data available on your preloaded maps, including buoys, lights, cables, depth soundings, marinas, and tide station in an overhead view.

4-7-1 Chart window

To go to the **Chart** window**:**
• Press **PAGE** and select **Chart** icon by pressing **↵** .

A typical Chart window shows:
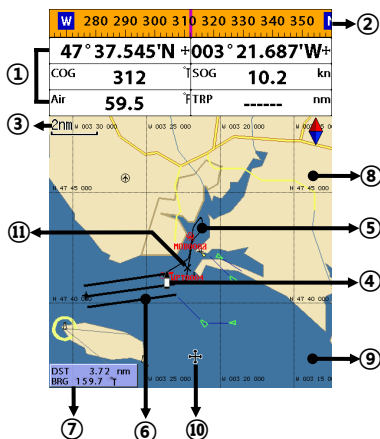
① Data bar. To turn the data off or on or to change what data is displayed
② Compass
③ Chart scale
④ Boat position
⑤ Boat track
⑥ Boat course and CDI lines
⑦ Distance and bearing of cursor from boat
⑧ Land
⑨ Sea
⑩ The cursor
⑪ A typical waypoint

> ⚠ **The built-in world chart does not show enough detail for navigation. When you use the Chart Plotter to navigate, always use a chart card which covers the region.(NAVI01NICS)**

4-7-2 Perspective view

If NAVI01NICS is selected for the chart, 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.

To activate this function follow the procedure**:**
1 Press **MENU** .
2 Select **Perspective**.

> ⚠ **S-MAP does not support the Pespective View.**
> **(See 4-1 for chart selection)**
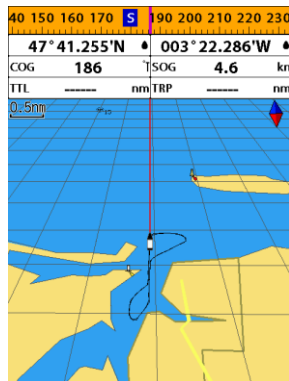
4-7-3 Latitude and longitude

Latitude and longitude coordinates define a position on earth and can be displayed in data bar.

In the data bar, own ship position is shown as below:

- 🌢 47° 43.000' N or S Latitude
- 🌢 003° 21.656' E or W Longitude

47°43.000'N 🌢	003°21.656'W 🌢

However, if you move the cursor, then the latitude and longitude in the data bar is the cursor's position as below.

- ✛ 47° 43.325 N or S Latitude
- ✛ 003° 29.607 E or W Longitude

47°43.325'N ✛	003°20.607'W ✛

Info

Latitude**:** Angular distance North or South of the equator measured by lines encircling the earth parallel to the equator in degrees from 0° to 90°.

Longitude**:** angular distance North or South of the equator measured by lines encircling the earth parallel to the equator in degrees from 0° to 90°.

⚠	**When reading the boat position, make sure the position is not the cursor position.**
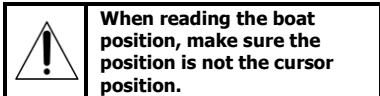
4-7-4 Chart scale

The chart scale change by pressing ➕ to show more detail information of chart and by ➖ to show wider view of the chart.

When you press ➕ or ➖, the scale of chart is display in the chart on top left corner.

Air 69
0.5nm
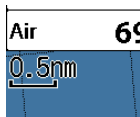
4-7-5 Finding a chart symbol

This function is only available when NAVI01NICS SD card is inserted and NAVI01NICS is selected.

To find a port by name

1 Press ⟨MENU⟩.
2 Select **Find** then **Port by name**.
3 Press 🔼 or 🔽 to select a letter then press ▶ for next letter.
4 Once you enter the name of port, press ◀ᴶ.
5 After searching process, select a nearest port in the list then the cursor will place on the port you selected on the chart window.
6 Repeat 2-3 steps of D section to display the information.

To find port & service

1 Press ⟨MENU⟩.
2 Select **Find** then **Port & service**.
3 Select a service you want to find.
4 After searching process, select a nearest service area in the list then the cursor will place on the service area you selected on the chart window.

⚠	**S-MAP does not support this function. (See 4-1 for chart selection)**

Ports & service
Marina

SAMYUNG ENC
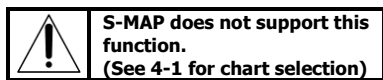
4-7-6 S-Map search
This function is available when NAVI01NICS
SD card is inserted and NAVI01NICS is
selected.
To find port & service
1 Press (MENU).
2 Select **Find** then **Port**.
3 Press (▲) or (▼)to select a port then(↵).
4 After searching process, select a nearest
port in the list then the cursor will place
on the portyou selected on the chart
window.

> ⚠ **NAVI01NICS Chart does not support this function. (See 4-1 for chart selection)**
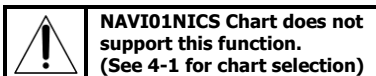
4-7-7 Chart symbols and information
This function is only available when
NAVI01NICS SD card is inserted and
NAVI01NICS is selected.

Using NAVI01NICS Max card allows you to
show different kind of symbols and their
information on chart plotter display. On some
objects such as a port, you can see a picture
of landscape layout.

> ⚠ **S-MAP does not support this function. (See 4-1 for chart selection)**

[Chart symbol Data Box]

To display information
1 Move cursor on an icon to display its name.
2 Press (MENU) and select **Chart info**.
3 Move cursor key to highlight an item and
press (↵).
4 Information related to the item appears at
the bottom window.
[Chart info]
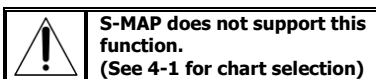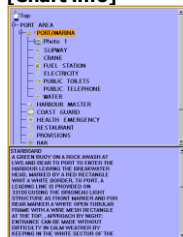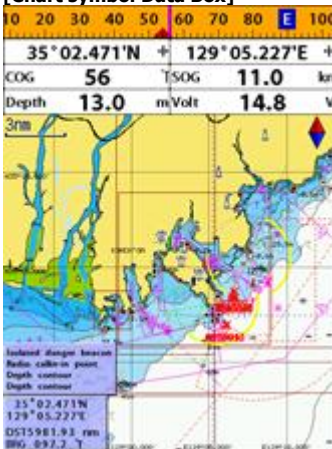
4-7-8 Introduction to navigating
Use the navigation chart to plan your course, view map information, and as a navigational aid.
This unit has two ways of navigating, going straight to a waypoint or following a route (a
group of waypoints).

4-7-9 Going to a waypoint or to a point on the chart

A waypoint is a particular location on a voyage whether it is a starting, intermediate or destination point. A waypoint is the simplest piece of information your equipment requires to get you to a destination. In the shortest distance possible. This unit can save up to 10,000 waypoints.

Goto Cursor Option

1 Press 🅟🅐🅖🅔 and select the **Chart** window.
2 Move the cursor to the destination point.
3 Press 🅜🅔🅝🅤 and select **Goto cursor** to start navigating.

Goto WPT Option

1 Press 🅟🅐🅖🅔 and select the **Chart** window
2 Move the cursor to place cursor on a waypoint.
3 Press 🅜🅔🅝🅤 and select **Goto WPT** to start navigating.

Find Option

1 Press 🅟🅐🅖🅔 and select the **Chart** icon.
2 In the **Chart** window, press 🅜🅔🅝🅤 and select **Find** then **Waypoints**.
3 select a waypoint to start navigation.

Cancelling navigating

1 Press 🅟🅐🅖🅔 and select the **Chart** icon.
2 Press 🅜🅔🅝🅤 and select **Cancel Goto**.

4-7-10 Following a route

Often a trip from one place to another involves several course changes, requiring a series of route points (waypoints) which you navigate to, one after another. The sequence of waypoints leading to the ultimate destination is called a route. You can save up to 100 routes and a route may consist of 100 waypoints.

Start Route Option

1 Press 🅟🅐🅖🅔 and select the chart window.
2 Press 🅜🅔🅝🅤 and select **Start Route**.
3 Move cursor keys to select a route to start navigating.
4 Select **Forward** or **Reverse** to decide which direction you want to navigate.

Route Window Option

1 Press 🅟🅐🅖🅔 and select the routes window
2 In the route window, mover the cursor to highlight a route you want to start navigating to.
3 Press 🅜🅔🅝🅤 and select **start**
4 Select **Forward** or **Reverse** to decide which direction you want to navigate.

Create Route Option

1 Press 🅟🅐🅖🅔 and select the chart window.
2 Select **New route**.
3 Name a route name.
4 Move cursor keys to select a waypoint. (Repeat this step as much as you need)
5 Press 🅜🅔🅝🅤 and select **Add**.
6 Press 🅔🅢🅒.
7 Repeat 2-4 steps of Route window option.

Skipping a waypoint

1 Press 🅟🅐🅖🅔 and select the chart window.
2 Press 🅜🅔🅝🅤 and select **Skip**.
3 Repeat above step if necessary.

Cancelling a route

1 Press 🅟🅐🅖🅔 and select the chart window.
2 Press 🅜🅔🅝🅤 and select **Cancel route**.

4-7-11 Goto Key

This key is very useful when you desire to start navigating to a destination point. When the key is pressed, it starts navigating to the point of the cursor or Route.

Going to a point

1 Move the cursor to an open position.
2 Press 🅖🅞🅣🅞.

4-7-12 Distance and bearing calculator

The unit can show the bearing and the length of leg and the total distance of legs.

Setting Legs

1 In the chart window, press **MENU** and select **Distance**. Information is displayed on window showing bearing/leg distance/total distance at bottom pop up at the bottom left side
2 Move the cursor to the start point which is start point of first leg and press **↵**.
3 Move the cursor to a point which is the end of first leg.
4 Repeat 2-3 steps for more legs.
5 Press **ESC** to exit.

Deleting the last leg

1 Press **MENU** and select **Remove**.
2 Repeat above step if you want to remove more legs.

Saving as a route

1 Once you set all the legs, press **MENU** and select **Save**.
2 Enter a route name by pressing **▲** or **▼** to select a letter then press **▶** for next letter.
3 Press **↵** to save the new route.

Tip: Bearing and distance

4-7-13 COG

The COG shows you how far it can go at give time and speed.
This function is very useful to avoid collusion with other vessels.

Projected position

Boat's COG

Boat position
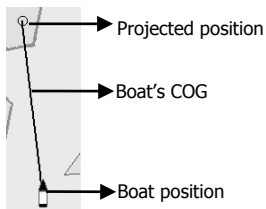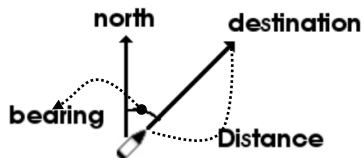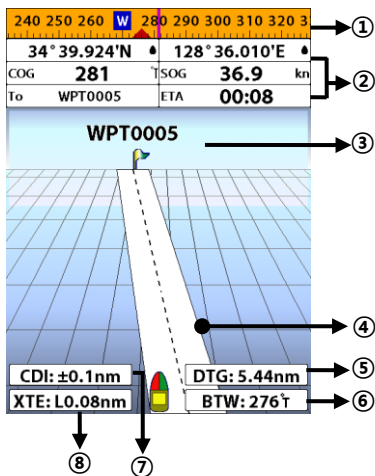
4-8 Highway

The **Highway** window shows a 3D view of the vessel traveling through the water when navigating to a destination point.

To go to the **Highway** window, press **PAGE** and select **Highway** icon.

The **Highway** window shows**:**
① Compass.
② Data bar.
③ Destination waypoint.
④ Boat's plotted course to destination.
⑤ DTG scale (Distance To Go).
⑥ BTW scale (Bearing to waypoint).
⑦ CDI (Course Deviation Indicator).
⑧ XTE scale (Cross Track Error).

4-9 Gauges

The **Gauges** window displays all the information you need during navigation such as water, engine, fuel related information, etc.

To select the **Gauges** window, press **PAGE** and select **Data** icon.

Selecting a Gauges layout
The **Gauges** window can show one of seven gauge layouts.

To select a layout from the **Gauges** window:
1 Press **MENU** and select **Gauge Layout**.
2 Select one layout.

Changing a gauge in one selected
To change a gauge displayed in a layout in Data display.
1 Press **MENU** and select **Gauge Setup** then the upper left side gauge will be highlighted.
2 Select a gauge you want to change and select Gauge type.
3 Select a data type you want to display.

4-10 Waypoints

A waypoint is a particular location on a voyage whether it is a starting, intermediate or destination point. A waypoint is the simplest piece of information the unit requires to get you to a destination in the shortest distance possible. This unit can save up to 10,000 waypoints.

To display waypoint list, press **PAGE** and select **Waypoint** icon.

NAME	Waypoints Latitude Longitude	DST nm BRG °T	Dispr Disp
MOB0008	47°42.293N 003°22.081W	9.4 20.5	No H-N
MOB0009	47°43.693N 003°21.553W	1.8 15.5	No H-N
MOB0010	47°43.242N 003°21.869W	1.3 11.8	No H-N
MOB0012	47°43.693N 003°21.553W	1.8 15.5	No H-N
WPT0002	47°41.852N 003°21.556W	0.5 101.6	No H-N
WPT0003	47°41.073N 003°21.696W	1.0 156.2	No H-N
WPT0004	47°41.315N 003°24.635W	1.7 248.2	No H-N
WPT0005	47°42.899N 003°24.355W	1.7 304.1	No H-N
WPT0006	47°41.051N 003°22.326W	0.9 182.3	Yes H-N

to select   to Page Up/Down

4-10-1 Creating a new waypoint

To create a waypoint from the chart window

There are two ways to create a new waypoint from the chart window as described below:
1 Press **WPT** on at the current boat position.
2 Move the cursor to a point where you want to create a waypoint and press **WPT**.

To create a waypoint from the waypoints window

1 Press **MENU** and select **Create**.
2 Enter waypoint data, change alphanumerical name, choose between 48 icons, 16 colors and display option.
3 Select **Save**.

4-10-2 Moving a waypoint

To move a waypoint from the chart window

1 Move the cursor to place it on the waypoint you want to move. (If you move the cursor on the waypoint correctly, waypoint information will be displayed at the bottom left).
2 Press **MENU** and select **Move**.
3 Move the cursor to a point where you want to move and press **↵**.

To Move a waypoint from the waypoints window

1 Highlight a waypoint you want to move.
2 Press **MENU** and select **Edit**.
3 change the existing latitude and longitude to new position.
4 Select **Save**.

4-10-3 Editing an existing waypoint

To Edit a waypoint from the chart window

1 Move the cursor to the waypoint you want to edit. (If you move the cursor on the waypoint correctly, waypoint information will be displayed at the bottom left)
2 Press **MENU** and select **Edit**.
3 Edit waypoint data as you need and press **↵**.

To Edit a waypoint from the waypoints window

1 Move cursor key to highlight a waypoint you want to edit.
2 Press **MENU** and select **Edit**.
3 Edit waypoint data as you need and press **↵**.

4-10-4 Deleting a waypoint

To delete a waypoint from the chart window

1 Move the cursor to the waypoint you want to delete. (If you move the cursor on the waypoint correctly, waypoint information will be displayed at the bottom left)
2 Press **MENU** and select **Delete**.
3 Select **Yes**.

Deleting a waypoint from the waypoints window

1 Move cursor key to highlight a waypoint you want to delete.
2 Press **MENU** and select **Delete**.
3 Select **Yes**.

> ⚠ **A waypoint can not be deleted if the final destination of navigation is the waypoint.**
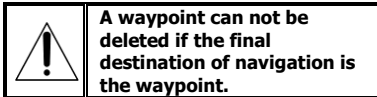
4-10-5 Find a waypoint

To find a waypoint from the chart window

Finding waypoints from the chart window is a simplified function.
1 Press **MENU** and select **Find**.
2 Select **Waypoints**.
3 Move cursor key to highlight a waypoint you want to find and press **↵**.

To find a waypoint from the waypoint window

Finding waypoints from the waypoint window is provided by a full function.
1 Press **MENU** and select **Find**.
2 Press ⊙, ⊙, ◁ or ▷ to find a waypoint name.
3 Select **↵**.
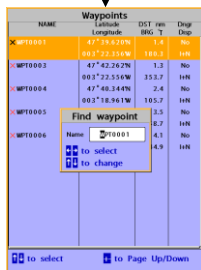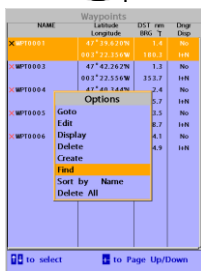
4-10-6 Sort Waypoints

To change the order of displayed waypoint list:
1 Press **MENU** and select **Sort by**.
2 Select a sort type.

4-10-7 Deleting all waypoints

1 In the waypoints window, press **MENU** and select **Delete all**.
2 Select **Yes**.

4-11 Routes

A trip from one place to another often involves several course changes, requiring a series of waypoints which you navigate to, one after another. The sequence of waypoints leading to the final destination is called a route. The unit can automatically advance to the next waypoint on a route. So you do not have to change the destination waypoint repeatedly.
The unit has the capability to store 100 routes with maximum of 100 waypoints each.

To display the **Routes** window, press **PAGE** and select the **Routes** window.

4-11-1 Managing a route from the chart window
Creating a new route window
1 Press **MENU** and select **New route**.
2 Enter the new route name using cursor key and press **↵**.
3 On the **Chart** window, move the cursor to the position of the starting waypoint in the Route and press **↵**.
4 Move the cursor keys to the position of next waypoint and press **↵**.
5 Repeat step 4 to enter more waypoints.
6 Once you entered the last waypoint in the route, press **MENU** and select **End**.

Editing a waypoint in route while creating a route
1 Move the cursor to the waypoint you want to move.
2 Press **MENU** and select **Move**.
3 Move cursor to a position where you wan to move the waypoint and press **↵**.

Deleting a last waypoint from the route while creating a route
1 Press **MENU** and select **Delete**.
Deleting a waypoint from the route while creating a route
1 Move the cursor to the waypoint you want to remove.
2 Press **MENU** and **Remove**.
Tip: Even though you deleted a waypoint in the route, the waypoint still remains in the waypoint list.

Inserting a waypoint while creating a route
1 If you want to insert a waypoint between waypoints which will be just after the one you want to insert.
2 Press **MENU** and select **Insert**.
3 Move the cursor to the new inserted waypoint and press **↵**.

Inserting a waypoint in front of starting waypoint while creating a route
1 Move the cursor to the starting waypoint
2 Press **MENU** and select **Insert**.
3 Move the cursor to the new start location and press **↵**.

4-11-2 Managing a route from the route window

Creating a rout from the route window

1 To go to the **Route** window, press 🔵PAGE🔵 and select the **Route** icon
2 Press 🔵MENU🔵 select **Create**
3 If you want to enter a route name, highlight name and press 🔵↵🔵.
4 Press 🔵▼🔵 and press 🔵↵🔵.
5 Press 🔵▲🔵 or 🔵▼🔵 to highlight a waypoint
6 Press 🔵↵🔵 to insert a waypoint
7 Repeat step 5 and 6 until you create a route
8 Press 🔵ESC🔵 to exit

Inserting a waypoint between two waypoints

1 In the **Route** window, select a route you want to insert in the route list and press 🔵↵🔵 or press 🔵PAGE🔵 and select **Edit**.
2 Highlight a leg where you want to insert a waypoint
3 Press 🔵MENU🔵 and select insert
4 Highlight a waypoint and press 🔵↵🔵.
5 Press 🔵ESC🔵 to exit

Editing a route in the chart window

1 In the route list, press 🔵MENU🔵 and select **Edit** on chart.
2 Follow the procedure of "Editing a waypoint in route while creating a route "

Deleting a waypoint in the waypoint list

1 Highlight a waypoint you want to delete in the waypoint list.
2 Press 🔵MENU🔵 and select **Remove**.

Deleting a route in the route window

1 Highlight a route you want to delete.
2 Press 🔵MENU🔵 and select **Delete**.

Deleting all route in the route window

1 Press 🔵MENU🔵 and select **Delete All**.

Displaying a route in the **Chart** window from the route list:
1 Highlight a route you want to display in the **Chart** window.
2 Press 🔵MENU🔵 and select **Display**.

Routes				
Name	Start	End	Legs	DST(nm)
▶ROUTE 01	WPT0001	WPT0003	2	02.
ROUTE 02	WPT0003	WPT0006	3	10.
ROUTE 03	WPT0001	WPT0003	3	07.
ROUTE 04	WPT0003	WPT0006	3	10.

▲▼ to select   ◀/▶ to Page Up/Down

4-12 Satellites

4-12-1 Satellite information

Acquiring GPS signals

When the unit is first turned on it will take some time for the GPS signal acquiring. After signals are received, the unit will automatically find a position of boat in the chart window.

Satellite information window

The satellite window displays different information about the GPS satellites and GPS position as below.

To go to the satellite window, press PAGE and select **Satellite** icon.

The satellite window shows:

① Ship's Coordinates.
② Time received GPS satellites.
③ Date received GPS satellites.
④ HDOP: Horizontal Dilution of Precision. It is a parameter indicating the accuracy of the GPS.
⑤ Location of GPS Satellites.
⑥ GPS signal strengths status in graph.

Press ⏎ to display GPS signal information from GPS satellite in NMEA0183 data format at the GPS signal strengths status display. To return to GPS signal strengths status display, press ⏎ again.
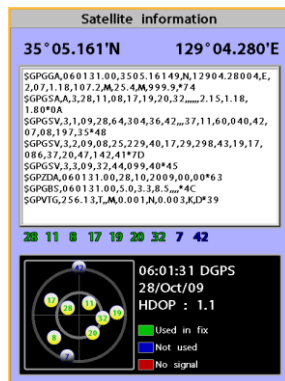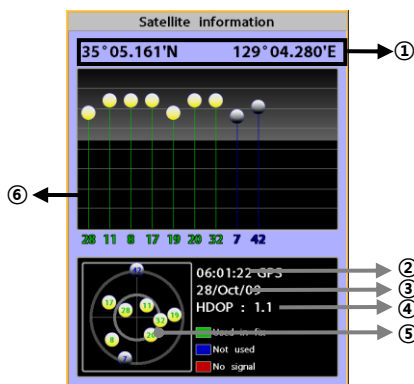
4-13 Tides

The **Tides** window is useful for boaters that are concerned about the height of the water or by fisherman that wish to know the tide and moon phase of a specific date.

Displaying a tide information from the chart window

1 In the **Chart** window, press **MENU**.
2 Select **Find** and **Tide station**.
3 Press ⊙ or ⊙ to move cursor and select a tide station
4 Press ⊙, ⊙, ⊙ or ⊙ to the position of selected tide station and press ⊙.
5 Select **Tide height station** to display the information
6 Press **ESC** to exit.

Displaying tide station information in the tides window

1 Press **PAGE** and select **Tides** window.
2 Select **Tide height station** to display the information.
3 Press **ESC** to exit.

◈**Tip:** The unit only displays the tide information nearest your boat in the tides windows.

Choosing the date of the tide information.

1 In the Tides window, Press **MENU** and select one of the following options.
  - **Set date:** manually set a date.
  - **Today:** automatically set the date of today.
  - **Next day:** automatically set the date of today.
  - **Prev day:** automatically set the date of yesterday
2 Press **ESC** to return to the window.

The tides window shows data for the chosen date
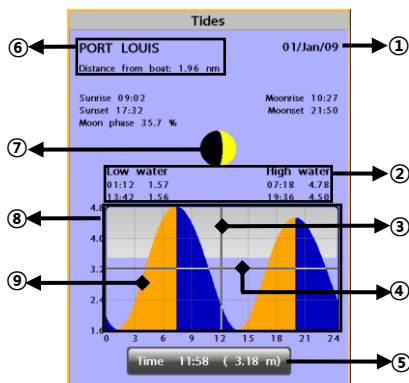
① Current time and chosen date for display.
② Data for the chosen date.
③ Tide height cursor, a horizontal dotted line. Press ⊙ or ⊙ to move cursor up and down.
④ Time cursor, a vertical dotted line. Press ⊙ or ⊙ to move cursor sideways.
⑤ Time of cursor and tide height at that time.
⑥ Tide station name and distance from boat.
⑦ Moon phase for moon at the current time on the chosen date.
⑧ Tide chart.
⑨ Tide height.

4-14 AIS

AIS is an Automatic Identification System for identification and localization of boat. AIS provide a means for boats to exchange and share boat data including identification, position, course, etc. This information can be displayed on the screen of you unit. AIS is intended to assist you to monitor other boats movements to improve safety and prevent collision.

AIS functions require an optional AIS unit to be installed. Contact your nearest Samyung ENC dealer for more details or visit at www.samyungenc.com.
To activate AIS function:
1 Press and hold **MENU** and select **System Configuration** icon.
2 Select **Features** then **AIS**.

4-14-1 Viewing AIS Vessels

When the unit is connected to AIS unit which support NMEA0183 or NMEA2000, you can check other vessel that are equipped with AIS unit on the screen. To check AIS information place the cursor on the AIS object then AIS information displays at the bottom of window.
① AIS equipped vessel
② Dangerous Vessel
③ COG
④ AIS equipped vessel Data Box
⑤ Range Rings
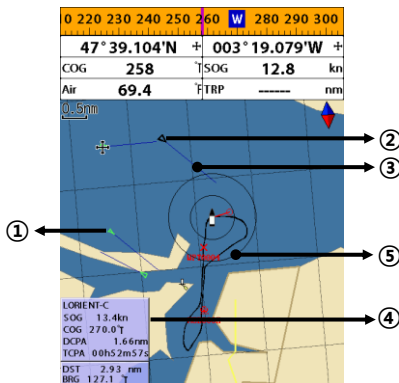
4-14-2 AIS Windows

To display the AIS windows:
1 Press **PAGE**, and select **AIS** icon.
2 Press and hold **PAGE** to select one of the two tabs**: Vessels** or **Messages** tab.
 - **Vessel:** show you all the AIS equipped vessel around you. (up to 200 vessels)
 - **Message:** show you all the messages related to safety from other AIS equipped vessels.

Sorting Vessels
1 Press **MENU**, select **Sort by**.
2 Select one of the options.

Displaying an AIS vessel on the chart
To overlay AIS equipped vessel on the chart window:
1 Press ⋀ or ⋁ to select a vessel you want to display in **AIS** window.
2 Press **MENU** and select **Display**.

Displaying AIS equipped vessel Details
1 Press ⋀ or ⋁ to select a vessel you wan to display full AIS detail in the **AIS** window.
2 Press **J** or press **MENU** and select **More Info**.
3 Press ◁ or ▷ to see more detail.

[AIS Vessel Information -1]

AIS

Vessels | messages

Vessel Info:PLASTIMO-C

Position	007°57.005'N
	000°33.678'W
Heading	0°T
ROT	0°/min
COG	45.0°T
SOG	5.6kn
BRG	12.9°T
DST	0.1nm

◄► to select page   1/4

[AIS Vessel List]

AIS

Vessels | messages

DST(nm) CPA(nm)	SOG(kn) TCPA	BRG (°)	MMSI NAME
0.49	5.6	1	333333333
___.__	__h__m__s		PLASTIMO-C
0.76	1.2	22	111111111
___.__	__h__m__s		PLASTIMO-A
1.53	12.3	6	666666666
___.__	__h__m__s		LORIENT-B
1.69	7.8	2	444444444
___.__	__h__m__s		PLASTIMO-D
1.94	3.4	25	222222222
___.__	__h__m__s		PLASTIMO-B
2.18	15.6	10	888888888
___.__	__h__m__s		LORIENT-D
2.65	17.8	16	999999999
___.__	__h__m__s		LORIENT-E
2.89	9.0	3	555555555
___.__	__h__m__s		LORIENT-A
3.25	13.4	13	777777777

[AIS Vessel Information -2]

AIS

Vessels | messages

Vessel Info:PLASTIMO-C

Antenna Location

75ft

88ft

◄► to select page   4/4

[AIS Vessel Safety message]

AIS

Vessels | messages

Time	MMSI

![SAMYUNG ENC]

4-15 DSC

This feature requires connection to optional DSC VHF radio.
DSC window shows the distress and poll information received from other vessel through DSC VHF radio.

To go to the DSC windows:
1 Press **PAGE**, select **DSC** icon.
2 Select one of two tabs**: Distress** or **Poll**.

4-15-1 distress

During a distress situation, a vessel that is equipped with a DSC VHF radio and connected to GPS has the capability to transmit a DSC distress call with GPS position. When a compatible VHF radio receives a distress call, the distress call location is displayed on the screen and it is logged into **DSC Distress** window.

Displaying a distressed vessel in the chart window
1 Highlight a received distress call you want to display.
2 Press **MENU** and select **Display**.

Going to the distress position
1 Highlight a received distress call you want to navigate to.
2 Press **MENU** and select **Goto**.

Editing a distress waypoint
1 Highlight a received distress call you want to edit.
2 Press **MENU** and select **Edit Waypoint**.
3 Change data field and select **Save**.

Tip : When receiving a Distress call from other vessel, it creates a distress waypoint automatically. However, the waypoint you edit in option menu is a different waypoint from the distress waypoint.

Deleting a Distress Call
1 Highlight a received distress call you want to delete.
2 Press **MENU** and select **Delete**.

Deleting all Distress Call
1 Press **MENU** and select **Delete all**.

Tip: Even though you delete a DSC call, the DSC waypoints still exist.

Distress Message
When the distress message is received, the distress message will be popped up as below.
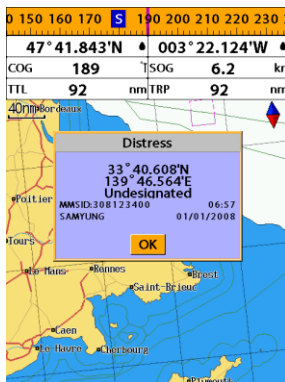
4-15-2 Poll

Poll

A compatible radio with the unit can request the position of other DSC VHF radio equipped vessels around its position. When the position of a vessel is received, the location is displayed on the screen and it is logged into Poll window

To display the **Poll** tab, press and hold 🔘PAGE .

Displaying an poll vessel in the chart window

1 Highlight a poll you want to display.
2 Press 🔘MENU and select **Display**.

Going to the poll vessel position

1 Highlight a poll you want to go.
2 Press 🔘MENU and select **Goto**.

Edit a distress waypoint

1 Highlight a poll you want to edit.
2 Press 🔘MENU and select **Edit Waypoint**.
3 Change data field and select **Save**.

🔷**Tip :** When receiving a poll from other vessel, it does not create a waypoint as a distress call

Deleting a poll

1 Highlight a received distress call you want to delete.
2 Press 🔘MENU and select **Delete**.

Deleting all poll

1 Press 🔘MENU and select **Delete all**.

🔷**Tip:** Even though you delete a DSC call, the DSC waypoints still exist.

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☼ 4-16 NAVTEX

NAVTEX is an international automated direct printing service for delivery of navigational and meteorological warnings and forecast, as well as urgent marine safety information.

NAVTEX functions require an optional NAVTEX receiver with NMEA0183 output to be installed and connected to the chart plotter.

To go to the NAVTEX window, press **PAGE** and select the **NAVTEX** icon.

Reloading NAVTEX messages
NAVTEX messages need to be loaded from NAVTEX receiver manually. (Up to 50 messages)
1 Press **MENU** and select **Reload all**.

Deleting a message
1 Move the cursor to a message you want to delete.
2 Press **MENU** and select **Delete**.

◈ 4-17 Engine Faults

Engine faults window show you all the errors or malfunctions of relating to the engine in real time. If any reason causing a problem is solved then corresponding error or malfunction indication will disappear.

5 Advanced Settings

The system menu mainly consists of settings which do not require frequent adjustment.
To go to system menu, press and hold **MENU** then select the icon you want.

① System Configuration.
② Chart.
③ Comms.
④ GPS.
⑤ Track & log.
⑥ Memory.
⑦ AIS.
⑧ Alarms.
⑨ Others.
⑩ Set Alpha blending (set transparency of menu boxes' background over main windows)

5-1 System Configuration Settings

To go to **System configuration**:
1 Press and hold **MENU**.
2 Select the **system configuration** icon.
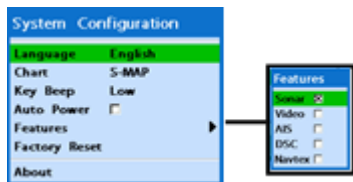
5-1-1 Language
Change the language for menus and data screens.

5-1-2 Chart Selection
Select a chart between S-MAP or NAVI01NICS chart.

5-1-3 Beep volume
Select the level of beep sound.

5-1-4 Auto power
See section 2-4.

5-1-5 Features
When external devices are connected to the unit, the corresponding options need to be set.

5-1-6 Factory reset
When this option is selected. All settings of this unit returns to default factory settings.

5-1-7 About
This shows factory information:
1 Software version & sale date
2 NAVI01NICS version.
3 Wiring information of connector
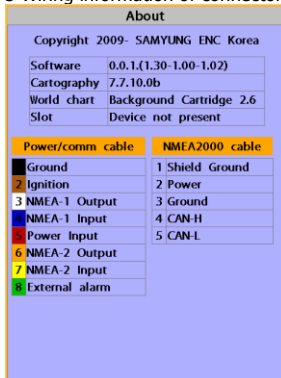
5-2 Chart Settings

To go to the chart settings:
1 Press and hold **MENU**.
2 Select the chart icon.

Chart	
Rotation	North up
Palette	Normal
General	▶
Land & Sea	▶
Map Datum	WGS84
NMEA datum offset ☐	
Map shift	Off
Restore default	

NAVI01NIC

General		Land & Sea	
Plotter mode	☒	Water features	☒
Mixing levels	☒	Object depths	☒
AntiClutter	☒	Spot soundings	☒
Value added data	☒	Sounding min	0 ft
Lat/Lon grid	☒	Sounding max	10 ft
Text/Icon Size	Small	Tidal stream	☒
Names	☒	Land features	☒
Nav-aids & Light Sector	On	Land elevation	☒
Nav-aids	Intl	Security navigation zone	
Attention areas	☒	
Projected course	Off	
CDI scale	0.1 nm	

Security navigation zone	
Enabled ☒	
Value	5 ft

S-MAP

General		Land & Sea	
Lat/Lon grid	☒	Land	6
Depth Digit	☒	Mud	4
Lighthouse	☒	Rocky	5
Buoy	☒	5 m	13
Wreck Ship	☒	10 m	12
Fish Haven	☒	Sea	
Sea Lane	☒		
Restricted Area	☒	20 m	3
Fishing Area	☒	30 m	9
Sea Cable	☒	50 m	11
Name	☒	100 m	12
Mark Attribute	☒	200 m	6
Sea Sector No	☐	300 m ~	7
EEZ Area	▶		
Projected course Off			
CDI scale	0.1 nm		

5-2-1 Rotation

Three types of display presentations are provided. The default is heading up.
North up: North is at the top of the display.
Heading up: When course is set, the course is at the top of screen all the times.
Course up: When destination is set it is at the top of the screen. This option is only available when you are navigating to a destination.

5-2-2 Palette

Palettes are used to enhance the visibility of the display depending on the surrounding light environments. Four types of displays are provided; Normal, NOAA, Sunlight and Night.

5-2-3-1 General(NAVI01NICS)

Plotter mode: this mode allows you to zoom in and out at scales where cartographic data are not available.

Mixing levels: when the map coverage at the current chart scale does not fill the entire display, the GPS chart plotter draws the rest of map using charts from above and below the current scale. When this function is turned on you will notice the display may redraw 2 to 3 times to show all the detail.
AntiClutter: when this option is selected, less important information (names & icons) are hiden when they are overlapped.
Value added data: The Value Added Data(VAD) is a collection of additional cartographic objects which are not present on the original paper chart. These objects have been obtained from other sources and then merged to the electronic charts in order to provide more information useful for the navigation.
Lat/Lon Grid: Turns the displaying of the latitude and longitude grid lines on or off on the chart window.

Boundaries: Turns the displaying of chart boundaries on, off or auto mode which shows the chart boundaries of the two charts below the current scale.

Text/Icon Size: change the size of text and icon on the chart.

Names: Display area names in the chart.

Nav-aids & Light Sector: Turns the presentation of Light, Signals, Buoys and Beacons On, Off, No Sector (Nav-Aids are shown, Light Sectors are hidden) or Animated (The lights are flashed).

Nav-aids: The way to display fog, radar and radio station signals. (International and US)

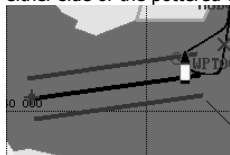**Attention areas:** Turns the displaying of Attention Areas where need to pay attention more) On or Off.

Projected course: Display the Projected course in given set time.

CDI scale: Set CDI (Course Deviation Indicator) scale which is a parallel line on either side of the pottered course.

5-2-3-2 General(S-MAP)

Lat/Lon grid: Turns the displaying of Lat/Lon on or off

Depth Digit: Turns the displaying of water depth on or off

Lighthouse: Turns the displaying of Lighthouse on or off

Buoy: Turns the displaying of buoys on or off

Wreck Ship: Turns the displaying of Wreck Ship on or off

Fish Haven: Turns the displaying of Fish Haven on or off

Sea Lane: Turns the displaying of Sea Lane on or off

Restricted Area: Turns the displaying of Restricted area on or off

Fishing Area: Turns the displaying of Fishing Area on or off

Sea Cable: Turns the displaying of Sea Cable on or off

Name: Turns the displaying of area name on or off

Mark Attribute: Turns the displaying of Mark Attribute on or off

Sea Sector No: Turns the displaying of Sea Sector No on or off

5-2-4-1 Land & Sea (NAVI01NICS)

Water features: Turns the displaying of sea bed nature and tide stations icon on or off.

Object depths: Turns the displaying of object depths on or off.

Spot soundings: Turns the displaying of spot sounding on or off.

Sounding min: Set the minimum depth limit to show depth sounding, bathymetric lines and depth area.

Sounding max: Set the maximum depth limit to show depth sounding, bathymetric lines and depth area.

Tidal stream: Turns the displaying of tidal streams on or off.

Land Features: Turns the displaying of land features on or off.

Land elevation: Turns the displaying of land elevations on or off.

Safe Navigation Area: Set the water depth for safe navigation and displaying safe navigation area in color.

5-2-4-2 Land & Sea (S-MAP)

Turns the displaying of sea color in 16 different colors.

5-2-5 Map datum

This unit has a compatibility with most of major chart system and this option allows you to select a map datum. The default datum is WGS84.

Map datum Selection
1 Press and hold **MENU** and select chart icon
2 Select general and Map datum
3 Select a desired map datum

5-2-6 NMEA datum offset

When you select other Map datum different from WGS84, latitude and longitude will be different from WGS84'S coordinates and this might confuse other device such as VHF radio if connected to the unit. If this option is applied, latitude and longitude send on the unit NMEA output will be the same as coordinates in WGS84.

5-2-7 Map shift

Sometimes current position of own ship does not match with the current location on the chart. To correct this position error, you can apply a map shift.

Applying a map shift

1 In the Chart setup menu, press and hold
   MENU and select **Chart** icon.
2 Select Map shift to **ON**.
3 Move cursor to the actual position on the chart.
4 Press **MENU** and select **Set**.

Canceling a map shift

If you want to clear the map shift:

1 In the Chart setup menu, select **Map shift**.
2 Press **MENU** and select **Clear**.

5-2-8 Restore default

Returns every chat settings to default.

5-3 Communication setup

When this equipment is connected to marine communication equipments through compatible NMEA equipment, you can use this function.

You can use as follows.
1 Push **MENU** long.
2 Select communication icon.
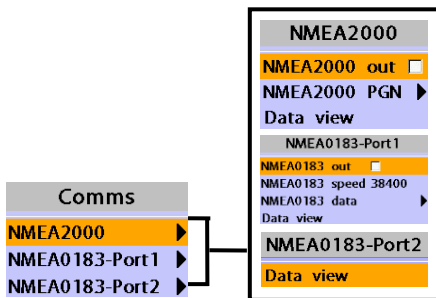
5-3-1 NMEA 2000
Communication with other equipments by NMEA 2000 method.
• **NMEA 2000 output**: Select, if you want to output data.
• **NMEA 2000 PGN**: User select the data item, which he wants to output
• **View**: You can check data, output in real-time.

5-3-2 NMEA 0183-Port 1
Communication with other equipments by NMEA 0183 method.
• **NMEA 0183 output**: Select, if you want to output data.
• **NMEA 0183 speed**: You can set up the speed of data output.
• **NMEA 0183 selection**: User select the data item, which he wants to output
• **View**: You can check data, output in real-time.

5-3-3 NMEA 0183-Port 2
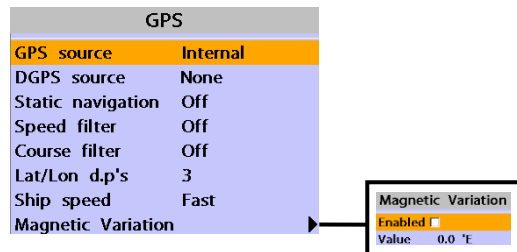This is used exclusively for AIS, always output AIS message.
• **View**: You can check data, output in real-time.

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5-4 GPS Settings

To go to the GPS settings:
1 Press and hold **MENU**.
2 Select the **GPS** icon.

GPS	
GPS source	Internal
DGPS source	None
Static navigation	Off
Speed filter	Off
Course filter	Off
Lat/Lon d.p's	3
Ship speed	Fast
Magnetic Variation	▶

Magnetic Variation	
Enabled ☐	
Value	0.0 °E

When the GPS device is connected properly, the GPS settings provide the access to GPS functions and features connected with the satellites information used for further navigation.

5-4-1 GPS Source
Select a source of GPS signals
Internal: Select this option when uses the internal GPS.
NMEA0183 & NMEA2000: Select this option when using an external GPS or DGPS antenna via NMEA.

5-4-2 DGPS Source
Select WAAS/EGNOS when you want to utilize DGPS.

5-4-3 Static Navigation
This option is very useful when the boat stops or moves very slowly. This option allows you to set a minimum speed at which movement is assumed. The value range is from 0.00 to 9.99.

5-4-4 Speed Filter and Course Filter
Occasional waves and wind at sea affect the boat speed and course. In order to have stable boat speed and course, the unit calculates these factors to give the value of stable speed and course information.

5-4-5 Lat/Lon d.p's
Select number of last digit of Lat/Lon to be sent to other marine electronics.

5-4-6 Ship speed
To have more precise boat speed and course, you can select your boat speed. Mid is highly recommended option for the most of common boat.
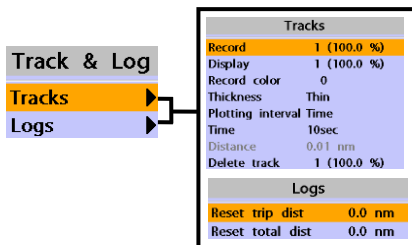
5-4-7 Magnetic Variation
This option compensates the difference between true north and magnetic north.

5-5 Track & Log Settings

To go to the tracking and long settings:
1 Press and hold **MENU**.
2 Select the **track & log** icon.

The unit has the capability to store 10 individual tracks and record up to 15,000 track points.
Before using the track function you will need to setup the track function that suits your boat.

5-5-1 Track

Record
Off**:** Stop a recording of Track
1 to 10 (select a track number)**:** Start a recording of the boat's course.

Display
Off**:** Display no track on the chart.
1 to 5 (select a track number)**:** Display a selected track on the chart.

Record color
Select the color of recording track.

Thickness
Select the thickness of recorded track.

Plotting Interval
Select the method of plotting interval between time and distance.

Distance
Select the distance of plotting interval.

Time
Select the time of plotting interval.

Delete track
Delete a selected track record.

5-5-2 Logs

Reset trip dist
Shows you the trip distance. If you select this option it resets the trip distance.
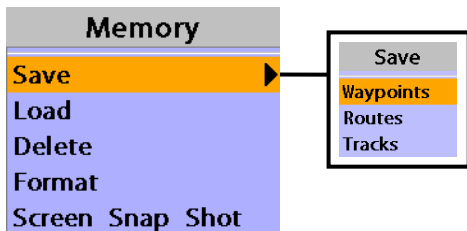
Reset total dist
Show you the total trip distance. If you select this option it resets the total trip distance.

5-6 Memory Settings

To go to the memory settings:
1 Press and hold **MENU**.
2 Select the **Memory** icon.

A user card is an option SD card which you need to purchase additionally.
Before you use a user card it must be formatted. Note that formatting a user card erases all saved data.

5-6-1 Save

Select a data type you want to save in the user card then the data will be saved in the user card automatically.
1 If you select waypoint for saving data, enter the file name and press **↵**.
2 If you select routes for saving data, enter the file name and press **↵**.
3 If you select tracks for saving data, enter the file name and press **↵**.

[Waypoints]   **[Tracks]**

5-6-2 Load

Select a data you want to road into the load list then press **↵**.

5-6-3 Delete

Select a data you want to delete then press **↵**.
Also, you can sort the file by name. Press **MENU** and select **sort by name**.

5-6-4 Format   ## 5-6-5 Screen snap shot

Erase all data in the user card. Format the user card before using it.

To take the snap shot of current screen, press ⓓ twice. To save the captured image, press **MENU** and select **Save** or **Save all** to save the captured images on the user card.

NAME	Size	Time
080101A.bmp	901KB	01/Jan/09 00:00
080101B.bmp	901KB	01/Jan/09 00:00
080101C.bmp	901KB	01/Jan/09 00:00
080101D.bmp	901KB	01/Jan/09 00:00

5-7 AIS Settings

Note

AIS feature require an optional AIS receiver.
To go to the AIS settings:
1 Press and hold **MENU**.
2 Select the **AIS** icon.

5-7-1 Display filter

There are a couple of methods to filter AIS vessel in this unit as below.

Filter by Type : The type of vessel which is selected will not be displayed on the chart.

Filter by distance : Vessels outside the radius of selected distance from own ship is filtered.

Filter by speed : Vessels with speed below the set value are filtered.

Show Dangerous Only : When this option is selected, it shows dangerous vessel only.

5-7-2 Alarm option

5-7-3 Display options

Dangerous Vessel Alarm : When this option is selected an alarm will activate. Even this option is not selected; dangerous vessels will still be on the chart.

TCPA Limit : Set the Time of Closet Point of Approach limit.

CPA Limit : Set the Closet Point of Approach limit.

Proximity alarm : Trigger an alarm when any AIS equipped vessel is within a set proximity radius.
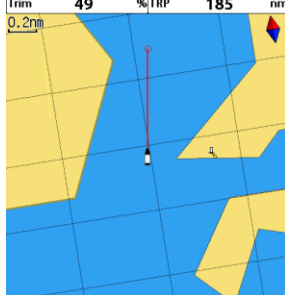
Proximity radius : Set a radius for proximity alarm.

Projected course : Set a time for projected course. The project course show the estimate course of vessel base on the given time.

Range rings : Select a number of Range rings.
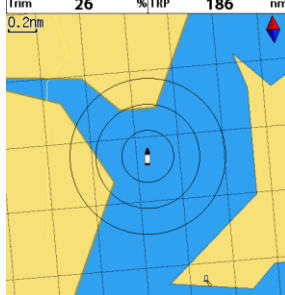
5-7-4 Restore default
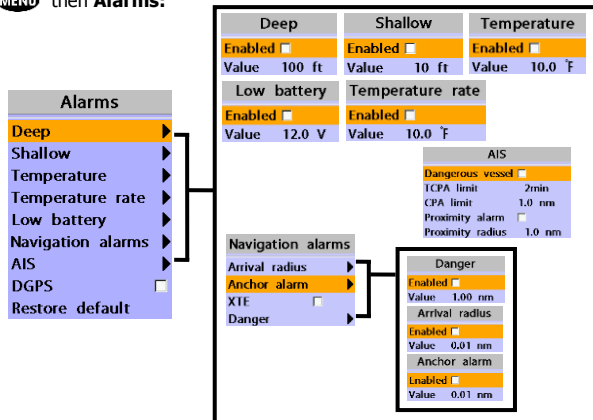Returns every AIS setting to default.

🔊 5-8 Alarms

Press and **MENU** then **Alarms:**

A warning message with beep sound is displayed when an alarm condition is met by user setting. Press **ESC** to clear the alarm. However, the alarm will be displayed again when the alarm condition occurs again. The unit provides alarms for various functions.

5-8-1 Fish
Trigger an alarm when echo from the sensor is matched to preprogrammed fish profile.

5-8-2 Deep
Trigger an alarm when the depth value received from the sensor is deeper than a set value.

5-8-3 Shallow
Trigger an alarm when the depth value received from the sensor is shallower than a set value.

5-8-4 Temperature
Trigger an alarm when the reported temperature from the sensor is same as a set value.

5-8-5 Temperature rate
Trigger an alarm when the rate of temperature change from the sensor is same as a set value.

5-8-6 Low battery
Trigger an alarm when battery voltage is lower than a set value.

5-8-7 Navigation alarms
Arrival radius : Trigger an alarm when your boat is approaching the destination to set value
Anchor alarm : Trigger an alarm when your boat moves more than set valve
XTE : Trigger an alarm when your boat moves off the current CDI scale.
Danger : Trigger an alarm when your boat is getting closed to dangerous point.

5-8-8 AIS
See the Alarm option of 4-7 (AIS Settings).

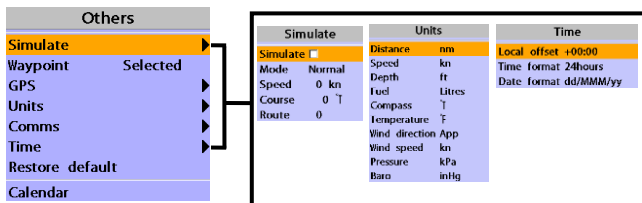### 5-8-9 DGPS
Trigger an alarm when DGPS signal is not received.

5-8-10 Restore default
Returns every alarm settings to default.

SAMYUNG ENC

5-9 Others

Press and **MENU** then **Others:**

5-9-1 Simulate
simulation: Start/end exercise mode.
mode: Refer to exercise mode of 4-2.
speed: Simulated boat speed
direction: Simulated course
route: route to follow

5-9-2 Waypoint
Select a way to display waypoints.

5-9-3 GPS
5-4 Refer to GPS setup.

5-9-4 Units
Select units of each number.
Tip: air pressure

VHF receiver of the option, connected to barometer, is required: InHg or mB

5-9-5 Comms
5-3 Refer to communication setup.

.

5-9-6 Time
local time
Change the sunrise & sunset time of chart in order to read correct time, provided from GPS satellite.
time indication: Select time indicating form.
date indication: Select date indicating form.

5-9-7 Screen saver
LCD screen will be off when you don't press any front key pads within setting time, and while screen saver is on if you press any front key pads then LCD screen will be on again.

5-9-8 Restore default
It initializes all the set up information.

5-9-9 Calendar
It provides calendar function.

6 INSTALLATION

Correct installation is important to the performance of the unit. It is vital to read the entire installation section of this manual and the documentation that comes with the antenna and any other units before starting installation. For further information, please contact Samyung ENC.

6-1 Options and Accessories

Optional sensors and instruments
• External alarms
• GPS or DGPS antenna
• Fuel sensors
• DSC VHF radio

• NMEA 2000: The chart plotter can display engine data and.
• Other instruments: The chart plotter can receive data from other instruments and send data to other instruments by NMEA.

6-2 Connections

You can connect AIS-50N to power supply, GPS antenna, VHF antenna, automatic navigation device, digital device, etc.


[Pin Number]

VHF antenna(BNC)

Power & Data
−ALARM
−Autopower
−NMEA 0183

GPS(TNC) NMEA 2000
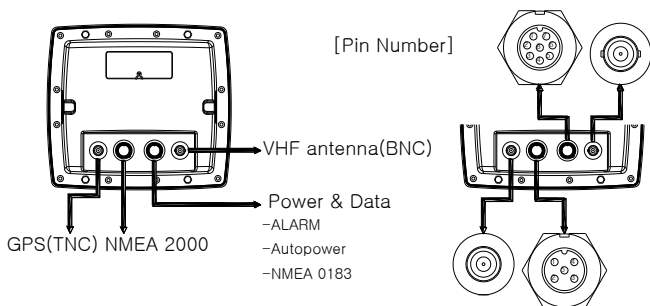
[Power & Data(ALARM, Auto power)]

| Number	Color	Function
1	Black	Ground: - power in, NMEA ground.
2	Brown	Ignition_On
3	White	NMEA 1 Out (Plotter)
4	Blue	NMEA 1 In (Plotter)
5	Red	+ power in, 12 to 34 V DC
6	Orange	NMEA 2 Out (AIS)
7	Yellow	NMEA 2 In (AIS)
8	Green	External alarm

6-3 Power/data cable

Basic power
• Wire the display unit for basic power as below picture.

Power/Data cable

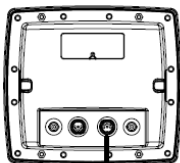**Pin number : 5**
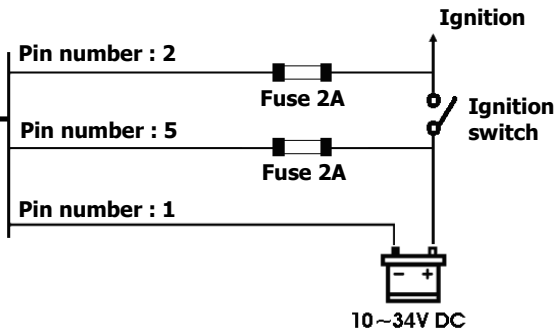
Pin number : 2

Fuse 2A

Pin number : 1

10~34V DC
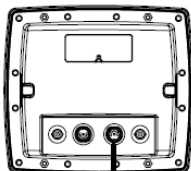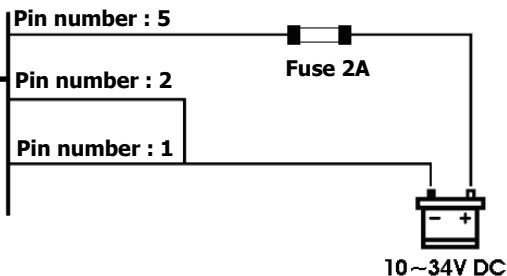
Auto power
• Wire the display unit for auto power as below picture.
• During setup, set up Auto power off.

Power/Data cable

Ignition

Pin number : 2

Fuse 2A

Ignition switch
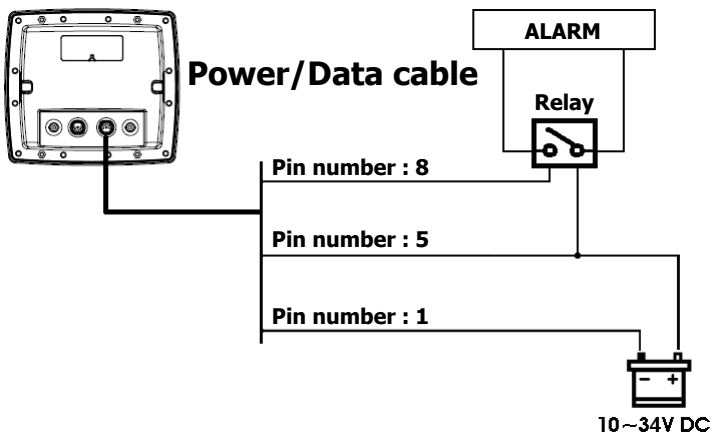
Pin number : 5

Fuse 2A

Pin number : 1

10~34V DC

6-4 Alarm

• Wire the chart plotter for any external alarm beepers or lights as below picture.
• The output from the unit to external alarm is maximum 30V DC 200mA. It is needed to fit a suitable relay.

Power/Data cable

ALARM

Relay

Pin number : 8

Pin number : 5
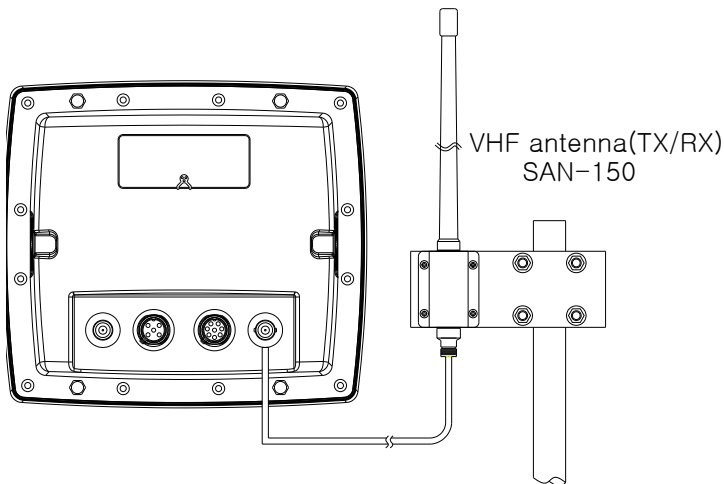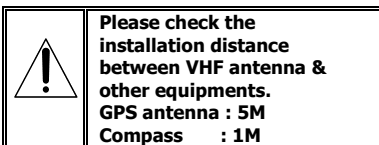
Pin number : 1

10~34V DC

6-5 VHF antenna installation

VHF antenna play roles in stable communication of AIS-50N. Several important points in antenna installation are as follows.

► Normally VHF antenna should be installed at high position of vessel. It should be separated from other equipments as much as possible.

► VHF antenna should be separated from the structure of conductive materials. It should be laid at higher place by 2M at least. Besides, it should not be near big vertical objects. Also, it should have 360-degree horizontal view.

► VHF antenna should be separated from high pressure energy sources, such as radars, other transmitting radars, transmitting radio antenna by 2M at least. Also, it should be out of transmitting beam.

► At same height more than one antenna should not be installed. If VHF antenna is at the same height with other antennas, distance between antennas should be 2M at least.

VHF antenna installation is done as follows.

► Locate antenna installing bracket at structurally solid position.

► Install antenna on antenna mount-make coaxial cable from antenna reach the body position. In order to use high quality RG-8U coaxial cable & reduce the drop of electric current, keep the length of cables as short as possible.

► Give some space to the cable length toward body direction.

► Stick connector to the end of coaxial cable.

► Connecting cable to body, use BNC connector.

⚠	**Please check the installation distance between VHF antenna & other equipments.** **GPS antenna : 5M** **Compass : 1M**

VHF antenna(TX/RX)
SAN-150

6-6 GPS antenna

Selecting an antenna
Fit one of these GPS antennas:

6-6-1 GPS antenna of TNC type

Position, where GPS antenna is installed, affects GPS receiving rate. Connector of connecting device is TNC type.

Antenna installation
Installation should be done where sky is open 360-degree. Proper distance should be kept between VHF antenna & compass.
For detailed installation method, please refer to SAMYUNG ENC or agencies.

⚠	Please check the installation distance between GPS antenna & other equipments. VHF antenna : 3M Compass : 1M
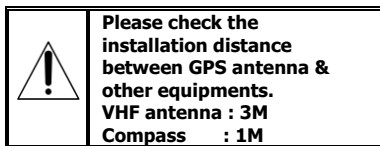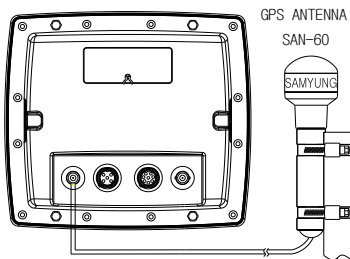
6-6-2 The antenna using NMEA

The chart plotter can receive the GPS data from the compatible device (NMEA). The chart plotter can connect several devices to an external GPS.

• An optional differential beacon DGPS antenna to give enhanced accuracy within range of land based differential beacons in areas where WAAS or EGNOS are not available. Such a DGPS antenna has both a GPS receiver and a beacon receiver, and it automatically applies the beacon correction to the GPS position.

To set the DGPS options(None or WAAS/EGNOS):
Connect the GPS directly to the input. Set the option. The new setting will be displayed if it was successfully applied.

Note:
The chart plotter can apply the WAAS and EGNOS DGPS corrections to any GPS antenna.

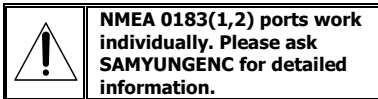For more information, contact Samyung ENC.

6-7 NMEA 0183

The GPS chart plotter can be connected to external devices with NMEA0183 and display information such as followings.
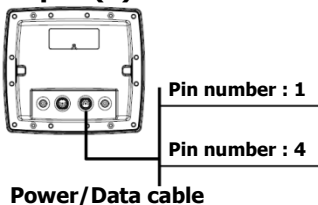• DSC VHF Radio
• GPS antenna(NMEA 0183)
• Navtex
Main functions of NMEA 0183 port in AIS-50N are as follows.
► **NMEA 0183(1):** Used as exclusive plotter port. Option device should be connected to (1), in order to use additional functions, provided from plotter, Navtex,   DSC, etc.
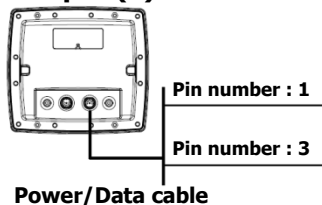
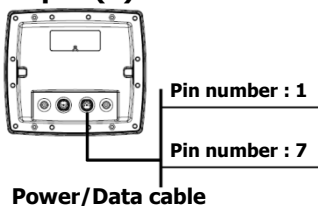► **NMEA 0183(2):** Used as exclusive AIS port. This outputs AIVDM, AIVDO messages of AIS.

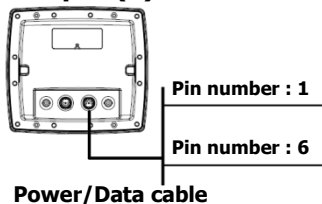> ⚠ **NMEA 0183(1,2) ports work individually. Please ask SAMYUNGENC for detailed information.**

Input (1) NMEA 0183

Pin number : 1
Pin number : 4
Power/Data cable

Output (1) NMEA 0183

Pin number : 1
Pin number : 3
Power/Data cable

Input (2) NMEA 0183

Pin number : 1
Pin number : 7
Power/Data cable

Output (2) NMEA 0183

Pin number : 1
Pin number : 6
Power/Data cable

DSC VHF radio
Install DSC VHF wireless devices of option, referring to above NMEA 0183(1) input pictures.
Other NMEA instruments
NMEA is an industry standard for interconnecting instruments. The chart plotter can be connected to other NMEA instruments. Set up the optional NMEA instruments as above pictures.

• The chart plotter can send GPS position and

• The chart plotter can receive and display depth, paddlewheel boat speed and water temperature from an optional compatible instrument.
• The chart plotter can receive data from an optional compatible GPS or GPS/DGPS source.

During setup to send NMEA data to other

other navigation data to an autopilot or other instrument. An autopilot requires APB, APA and VTG sentences

For information on sending NMEA data to the instrument, contact Samyung ENC.

instruments, set NMEA out and specify the NMEA data to send.

6-8 NMEA 2000

NMEA 2000 interface standard was introduced for communications network to interconnect marine electronic equipments such as navigation chart plotter, engine, tank level sensor and others on vessels. The standard is regulated by The National Marine Electronics Association in USA.

The chart plotter can be connected to external devices with NMEA2000 and display information such as followings.

• Engines have fuel flow sensors, therefore fuel sensors are not required.

• The chart plotter can receive and display wind speed and direction from an optional compatible wind instrument.

• The chart plotter can receive and display depth from an optional depth instruments.

• The chart plotter can receive and display boat speed and water temperature from a paddlewheel sensor on a optional speed instrument.

If connected display unit, use the cable compatible with NMEA 2000 standard.

NMEA 2000
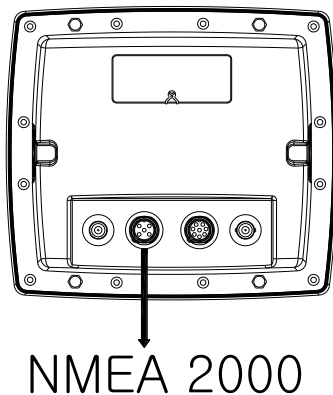
6-9 Setup and test

1 Put a blanking cap on any unused connector on the back of the display unit. Ensure all connectors are plugged in and the display unit is in place.

2 If the display unit is bracket mounted, adjust tilt and rotation for best viewing and hand tighten the knob.

3 Insert any required NAVI01NICS chart card.

4 Enter setup data to set up the chart plotter to your requirements and to set up any optional sensors or instruments.

5 At the satellite display, check that it picks up GPS satellites. Wait for the GPS receiver to start up and the GPS satellite to change to 'Used in fix'.

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Thank you for purchasing an SAMYUNG ENC product. This product has been thoroughly checked and is covered by the **Samyung ENC's warranty** for defects in materials and workmanship under normal use from the date of purchase.

This warranty provides for the free repair or replacement of defective parts from our Samyung ENC authorized dealer.

In the event that your SAMYUNG ENC product needs service, please return your SAMYUNG ENC product at your expense (shipping and insurance) to your Samyung ENC distributor or SAMYUNG ENC authorized Service Centers. SAMYUNG ENC will, at its discretion, repair or replace any defective products or its components at no cost to you. This is your exclusive remedy for defective products

Exclusions: are specifically excluded from warranty;
1. Consumable items, including, but not limited to: fuses, impellers, impeller bearings, impeller shafts are specifically excluded from this warranty. . .
2. All costs associated with transducer replacement, other than the cost of the transducer itself.
3. Routine system checkouts, alignment and calibration, seatrials, unless required by replacement of defective parts.

Limited warranty: SAMYUNG ENC will not be responsible for equipment that has been damaged or rendered defective:
1. as a result of incorrect installation, misuse, accident, water damage, abuse or other external causes
2. by modification or service other than by SAMYUNG ENC or authorized distributors, authorized Service Centers. SAMYUNG ENC will not be liable in any event for any consequential or indirect loss or damage. Exceptions are expressly set out in this warranty, SAMYUNG ENC makes no other warranties, express or implied, including any implied warranties of merchantability and fitness for a particular purpose. If any limitation or exclusion of liability in this warranty is invalid and SAMYUNG ENC becomes liable for loss or damage that would otherwise have been excluded, such liability will be limited to the total amount actually paid by you for the product.
3. if the serial number label on the unit has been removed, altered or mutilated

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