OPERATIONS MANUAL

HE-777

ECHO SOUNDER / FISH FINDER

HONDEX

by HONDA ELECTRONICS

INTRODUCTION

We thank you very much for purchasing HE-777.

- Please be sure to read this operations manual carefully and understand what it describes before you operate this unit in order to keep your safety.
- After you read this manual, please keep it at the place where you will not lose or break and so as to read soon when it necessary.
- In case that you resell or transfer this unit, please give it to the new owner.
- We will not be responsible for product liability (PL) law relating to damage to human or physical property resulted from operation which is not described on this manual or wrong operation.

DEFINITION OF SYMBOL MARK OF 【CAUTION FOR SAFETY】

⚠**DANGER**	: Incur the accident resulting in the death or serious wound unless you keep the descriptions.
⚠**WARNING**	: Be in danger of incurring the accident resulting in the death or serious wound unless you keep the descriptions.
⚠**CAUTION**	: Be in danger or incurring the slight wound to human or damage to other physical property unless you keep the descriptions.

CONTENTS

CAUTION ON SAFETY (PLEASE MAKE SURE TO READ.)

This section explains the important cautions in order to prevent the person who will use our product or other persons from human damage or damage to their property.

HANDLING OF UNIT

⚠DANGER

- High voltage is applied to the inside of unit.
  No one besides authorized technician should disassemble or modify it.
  Unless you keep it, the accident resulting in the electric shock will occur.
  * Please be sure to consult with dealer when you want to repair.

⚠WARNING

- Do not install it simply.
  It causes to the accident like human damage.
  * Please be sure to install correctly according to descriptions on "Installation of the unit" of this manual.

- Do not use the information displayed on the screen of unit for navigation directly.
  It causes to the marine disaster.
  * Please be sure to use the official marine charts for navigation judgement.

- Do not operate the unit when you operate the boat.
  It causes to the marine disaster.
  * Please be sure to operate it after due confirming the surrounding safety.

- Do not put the power on in the presence of flammable materials.
  It causes to firing.

- Do not use the power supply besides the specified ones.
  It causes to heating or firing.

HANDLING OF CABLES

⚠WARNING

- Be sure to use the specified power supply cable.
  It causes to heating or firing.

- Do not leave the power plug as it is while it is pulled out of the unit.
  If the plug gets well, it causes to heating or firing due to short circuited.

- Be sure to wire in order to prevent the cables from interfering to operate boat.
  If feet of crews or operating equipments are caught in cables, it causes to the accident.
  * Do not put the heavy objects on cables or do not bend cables excessively.

- Do not disassemble or modify the cables.
  It causes to heating, firing or electric shock.

- Do not use the damaged cables.
  It causes to firing or electric shock.

⚠CAUTION

- Do not pull the cable when you pull out the plug.
  It causes to firing or electric shock because the cable is broken.
  * When you pull out the plug, be sure to have it in your hand and pull it.

HANDLING OF TRANSDUCER AND WATER TEMPERATURE SENSOR

⚠DANGER

- Work on the bard is too unstable and risky.
  Installation and maintenance of transducer and water temperature sensor should be done after you land and fix the boat.
  Unless you keep it, human damage resulting in death or serious wound will occur.

⚠WARNING

- Installation of the transducer or water temperature sensor inside the hull with adhesive should be done while you ventilate well inside the boat.
  Volatile gas from solvent or etc. causes to toxic symptoms.

- When you work using electric tools, please keep your hands dry.
  If your hands are wet, it causes to electric shock.

- When you pull out or insert the plug of transducer or water temperature sensor, please be sure to turn the power switch off.
  It causes to electric shock.

- Perfect waterproof treatment should be done when you install the transducer or water temperature sensor through the hull.
  If waterproof is not sufficient, It causes to marine disaster because water come in.

CAUTION ON OPERATION

Be sure to put the power switch off when you start to run the engine!

When the engine starts to run, voltage of battery varies heavily. It may influence to the unit.

Be sure to put the power switch of the unit off when you start to run the engine.

Power supply should be 11~35VDC!

Please operate the unit at 11~35VDC of power supply voltage.

Avoid the place where it is high temperature!

When temperature of the unit exceeds 70°C it causes to faulty. Please be more careful to operate or store it under direct sun ray in the summer time and use it carefully where it is in the shade as possible.

Prohibited to use the organic solution!

Do not clean this unit with organic solution like thinner, alcohol or etc. as some parts of the unit and panel are coated or made by plastic. In case it is too dirty, soak the soft cloth in a synthetic detergent and clean with it after wringing well.

Be careful for water-spray!

Water-spray on the unit causes to faulty. Install at the place where there is no water-spray.

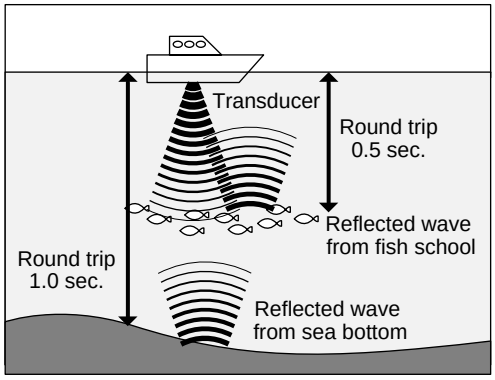
GENERAL INFORMATION OF ECHO SOUNDER/FISH FINDER

THEORY OF ECHO SOUNDER/FISH FINDER

• Theory of echo sounder/fish finder is same as echo.

Ultrasonic pluses transmitted from the transducer into the water are reflected from fish school or the sea bottom and then they are received by transducer.

Echo sounder/fish finder converts round-trip time between the time the ultrasonic wave is transmitted and the time the reflected wave is received into distance and measures the depth. It displays size or density of fish school, the outline of bottom or nature of bottom on the screen in different colors.



The speed at which the ultrasonic wave propagates in water is approximately 1,500mper second.
For example, in case of roundtrip time between transmission and reception is 1 sec. to sea bottom and 0.5 sec. to fish school,

Distance to sea bottom.....

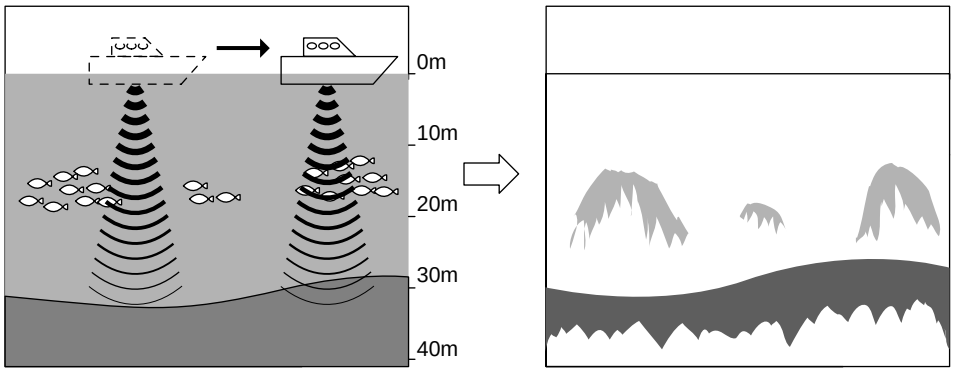
$$\frac{\text{1,500m (1 sec.)}}{\text{2 (round-trip)}} = 750\text{m}$$

Distance to fish school.....

$$\frac{\text{750m (0.5 sec.)}}{\text{2 (round-trip)}} = 375\text{m}$$

• Displayed image

Each time when image is sent by one line to the left, ultrasonic wave is transmitted and it's reflected echo is displayed on the right edge screen. By repeating this, image is formed.



HOW TO DISTINGUISH THE FISH SCHOOL

• Importance is comparison between display of fish school and catch

It is possible to distinguish the fish sort by display of fish school to some extent. But even if fish sort is same, it's form making school is different according to difference of fishing ground and difference of time (day and night, four seasons, variation of current).

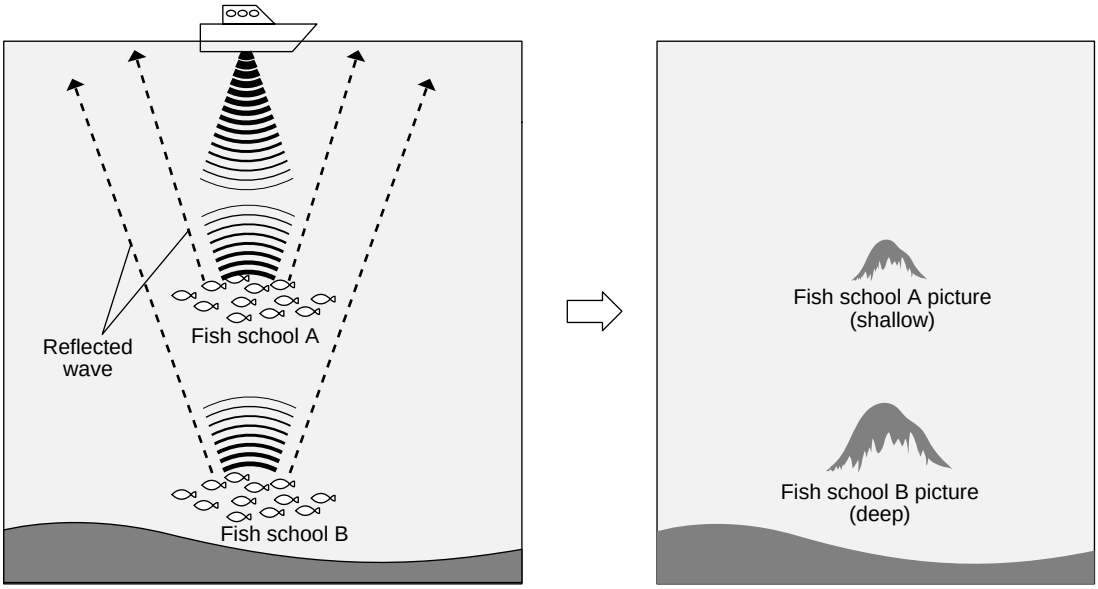
The important thing to distinguish the fish sort is to know the sort according to their fishing ground or fishing period and to find the useful point on the display by comparing between display of fish school and actual catch.

HOW TO DISTINGUISH THE FISH VOLUME

• Fish volume can be distinguished by density and size of fish school

As the harder density the transmitted wave is reflected strongly, you can distinguish the density of fish school according to the strength of reflected echo (that is, different color). Normally we tend to think the larger fish school on the screen the most fish volume. But when fish school are located at the shallow depth and the deep depth, fish school at the deep depth is displayed bigger than at the shallow depth. Because the transmitted wave spreads wider as it goes deeper and the reflected wave spreads wider as it goes shallower. As this result, the deeper depth becomes the wider the width of fish school becomes on the screen.

The important thing to distinguish the fish volume is to judge it according to size of fish school and the strength of reflected echo (color) while you keep "the deeper fish school stays the bigger picture is displayed" in your mind.

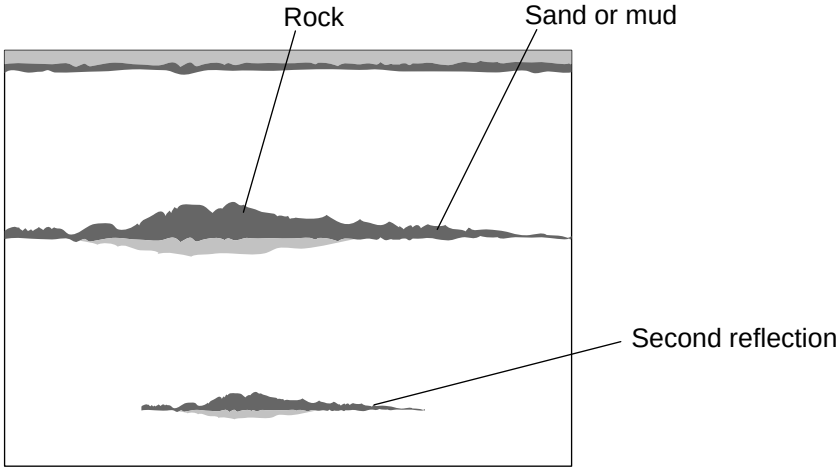


HOW TO DISTINGUISH THE NATURE OF BOTTOM

• There are different natures of bottom such as rock, sand, mud or etc.

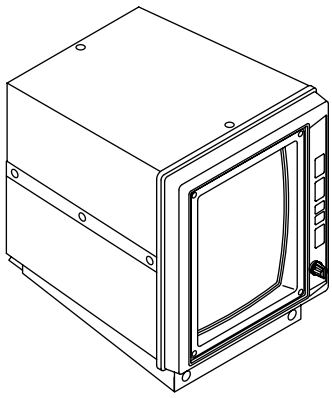
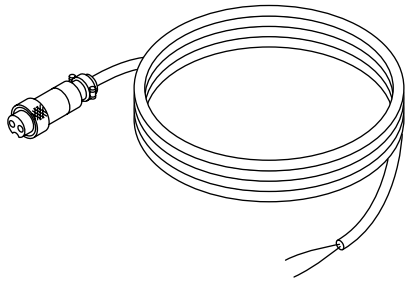
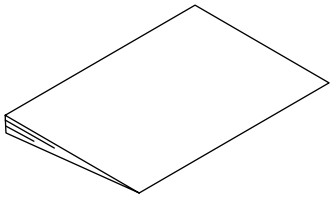
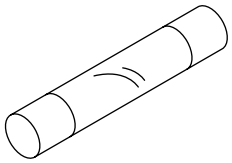
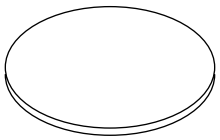
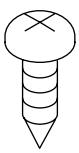
In case you distinguish the nature of bottom, you judge from the thickness of bottom image and the situation of second reflection. At the hard bottom like rock, reflection of transmitted wave becomes strong and bottom image becomes thick and the second reflection becomes easily to appear. On the other hand, at the soft bottom like sand or mud the reflection becomes weak and bottom image becomes thin and the second reflection becomes hard to appear.

*Second reflection ..... Ultrasonic wave transmitted from transducer is reflected from sea bottom and then it is reflected from both sea surface and bottom finally. In short, second reflection is image of two round-trips between sea surface and bottom.



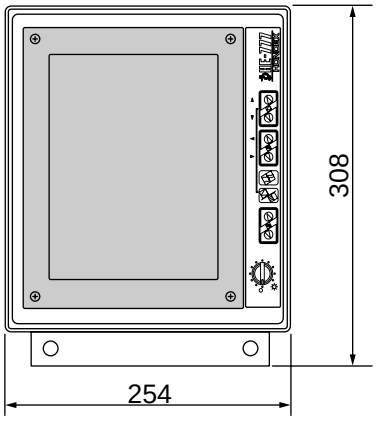
CHECK THE SUPPLIED UNIT AND ACCESSORIES

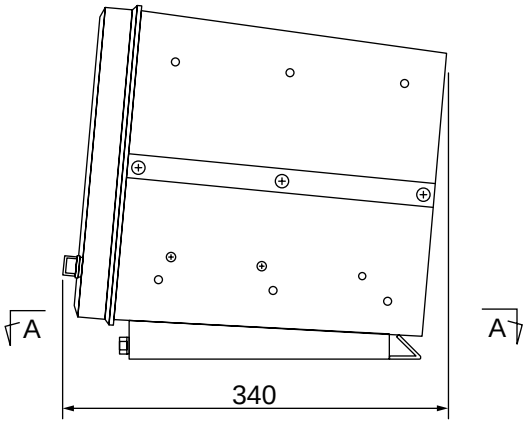
Please check if all of the below-described items are packed when you use the unit for the first time.

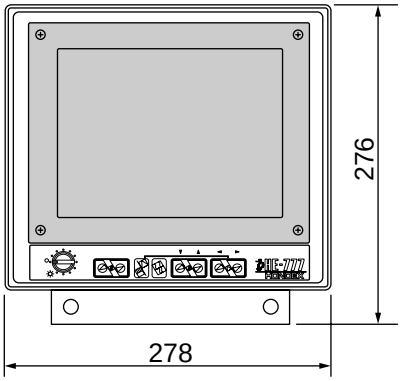
Display Unit (with bracket) (1) 	Power Supply cable (1) 
Operations manual (1) 	Fuse (10A) (1) 
Disk Plate (6) 	
Screw for installing bracket (6)  M6X20 Screw	

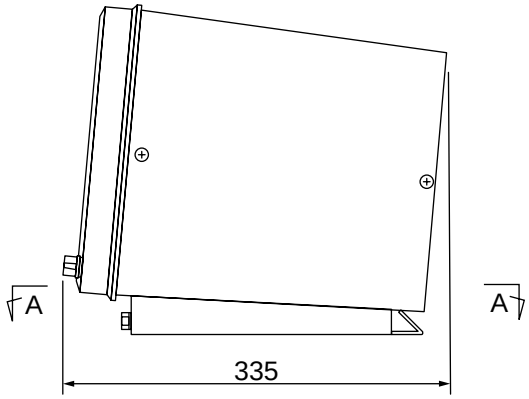
DEMENSIONAL DRAWING (DISPLAY)

: mm

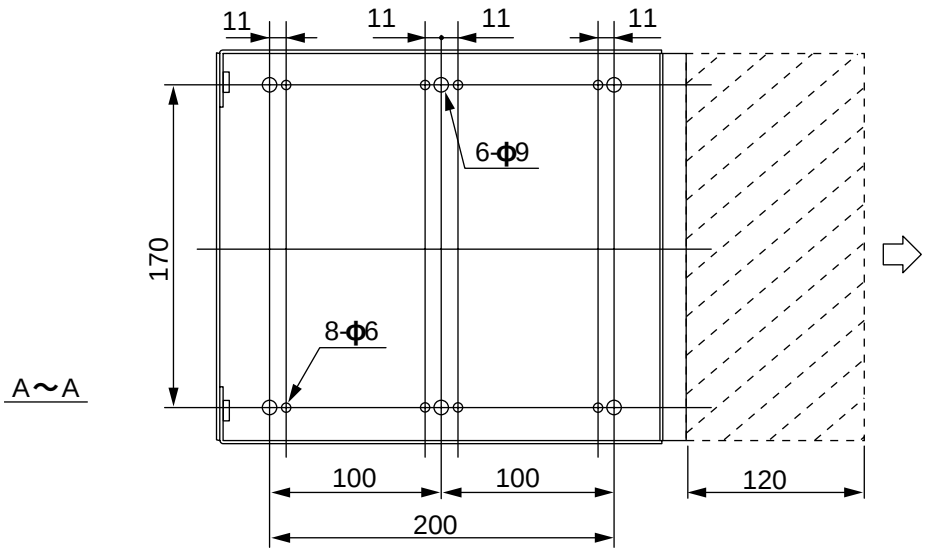








<Drawing of holes for installing bracket>



Confirm no obstacles in this area.

INSTALLATION OF WATER TEMPERATURE SENSOR

***Water temperature sensor is option.**

⚠DANGER

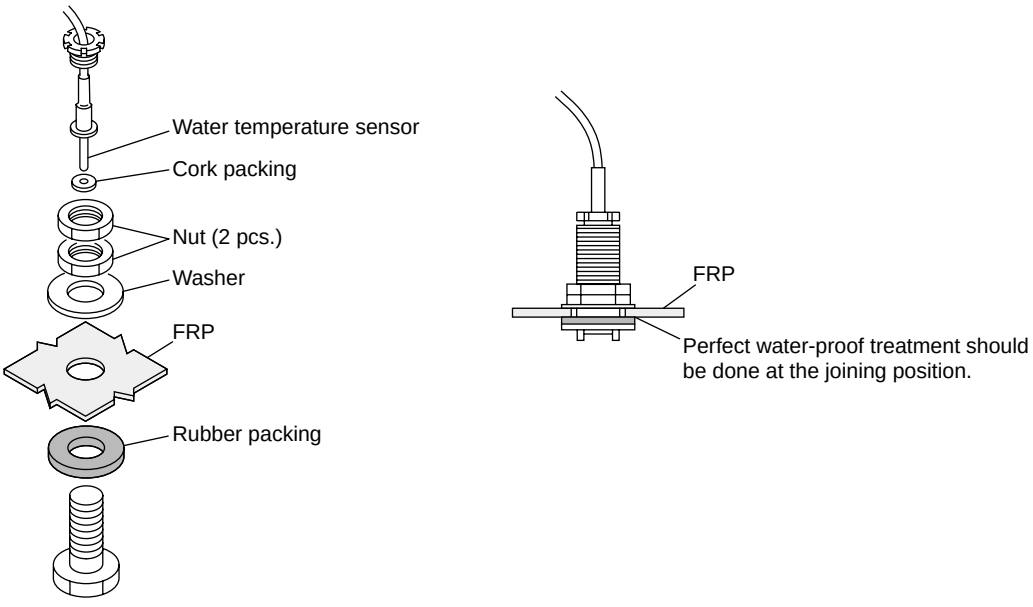
- Work on the board is too unstable and risky.
  Installation and maintenance of the water temperature sensor should be done after you land and fix the boat.
  Unless you keep it, human damage resulting in death or serious wound will incur.

⚠WARNING

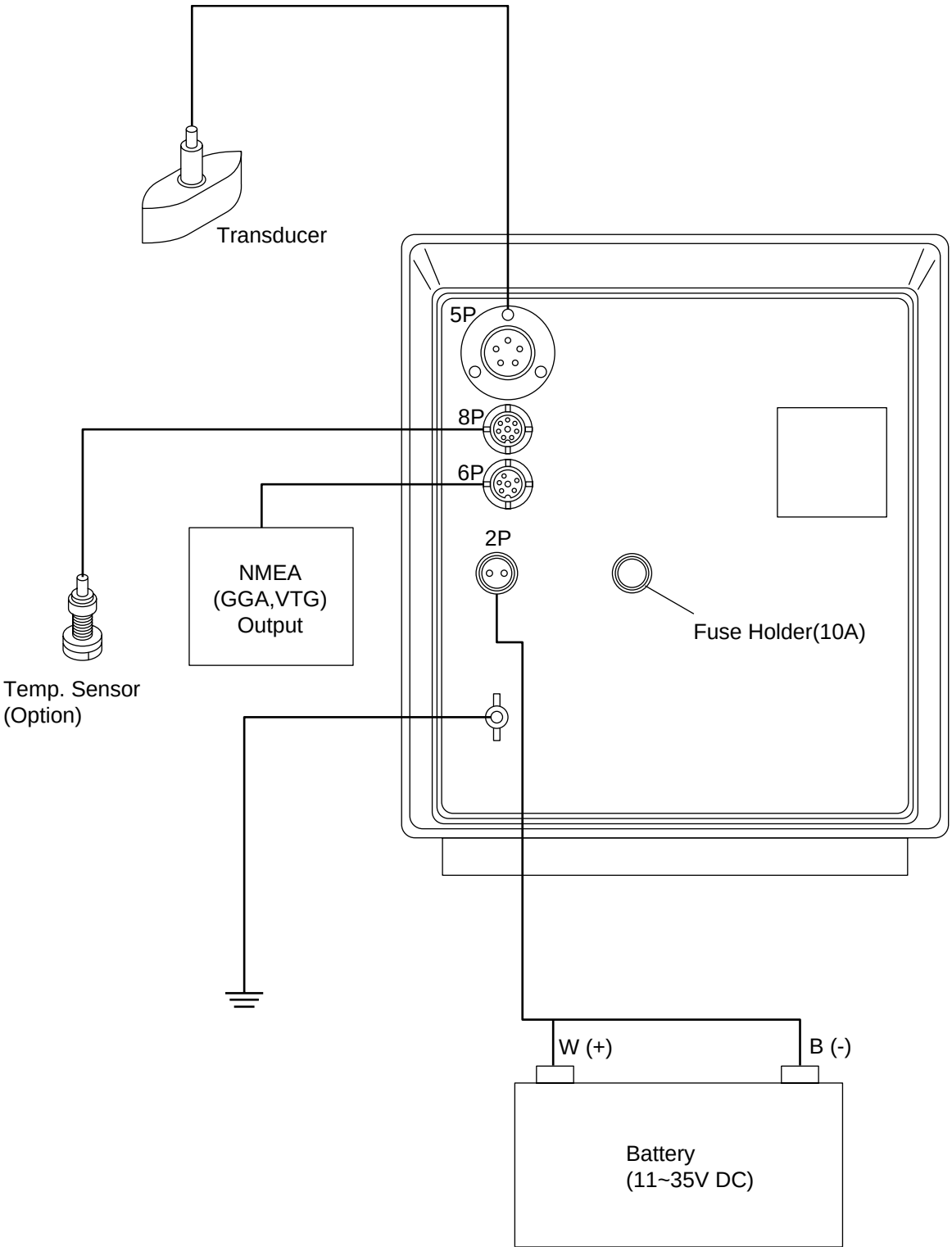
- Perfect water proof treatment should be done when you install the water temperature sensor through the hull.
  Unless perfect, it causes to marine disaster due to inundation.

- When you work using electric tools, please keep your hands dry.
  If your hands are wet, it causes to electric shock.

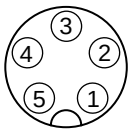
<Installation of thru-hull water temperature sensor (TC02C)>

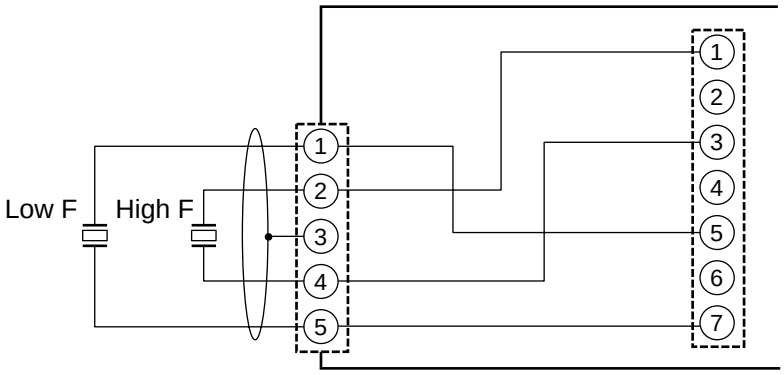


CONNECTION WITH DISPLAY UNIT

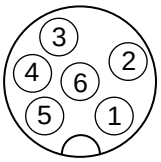


1. Transducer (5-P)

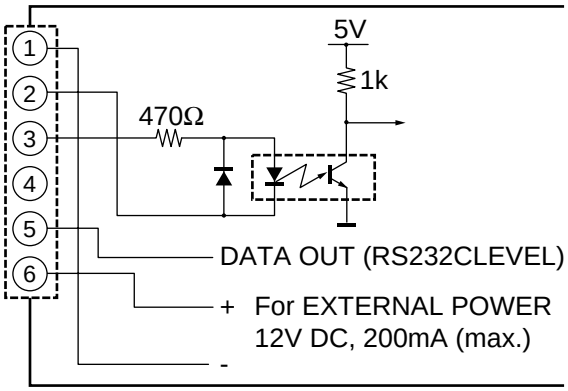




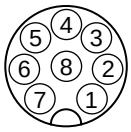
2. Data In/Out (6-P)



1. GND
2. RXD-C
3. RXD-H
4. N.C.
5. TXD
6. DC12V out (max. 200mA)

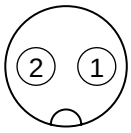


3. Temperature (8-P)



1. N.C.	5. N.C.
2. N.C.	6. (+)
3. N.C.	7. (-)
4. N.C.	8. N.C.

4. Power Supply



1. (+) 11~35VDC
2. (-)

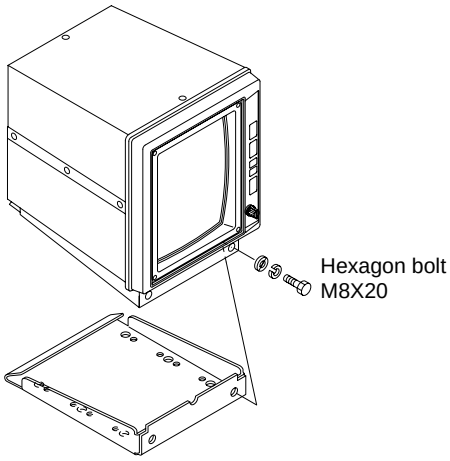
INSTALLATION OF THE UNIT

⚠WARNING

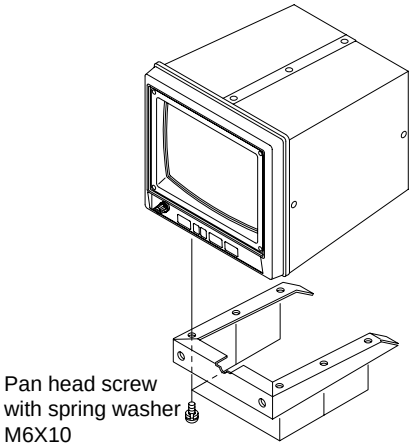
- Do not install it simply.
  If your hands are wet, it causes to electric shock.
  It causes to the accident like wound.
  * Please install correctly according to [Installation of the unit].

<Procedure of installation>

1. <Selection of installation method> Unit is supplied in Portrait.
   a. Installation in Portrait: Remove lower bracket by loosing 2 pcs. Hexagon bolts (M8X20) in front of the bracket. Go to procedure 2.

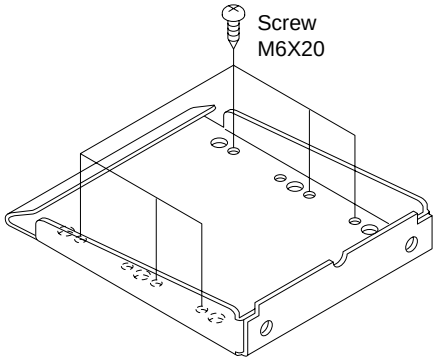


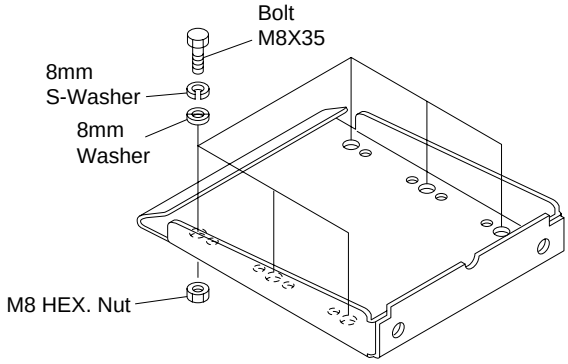
   b. Installation in Landscape: After procedure 1 a, remove upper bracket by loosing 6 pcs. Pan head screws with spring washers (M6X10)and install them on the side of display unit.
   TO CHANGE DISPLAY STYLE, Call menu 3 and set Portrait, Portrait Reverse, Landscape or Landscape Reverse.
   After setting the unit, make sure to seal unused 6 holes by stickers to prevent damages from splash, etc.



2. <Fixing the lower bracket>

After you decide the location to install the unit, fix the lower bracket with 6 pcs. screws M6X20 which are supplied with the unit. Refer to [Dimensional drawing] for the position of holes.(Page 9)





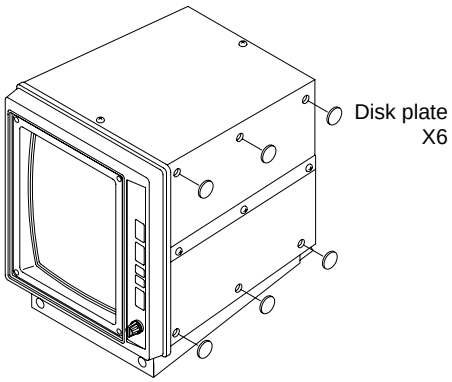
IMPORTANT NOTICE

When you install the unit on the ceiling, DO NOT USE pan head screws supplied with the unit.

You must use hexagon bolts (bigger than M8X35) and install firmly.

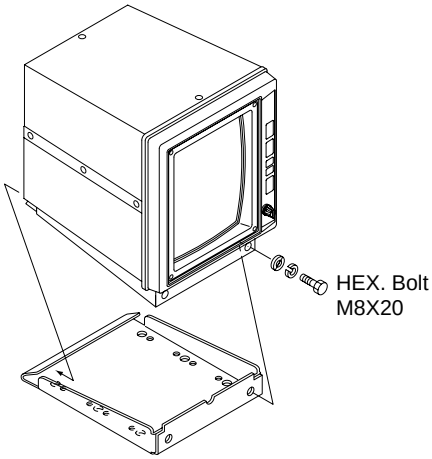
3. <Putting the disk plate>

Put the supplied disk plates on six holes which are not used for installing the unit to prevent the water or foreign substance from entering.

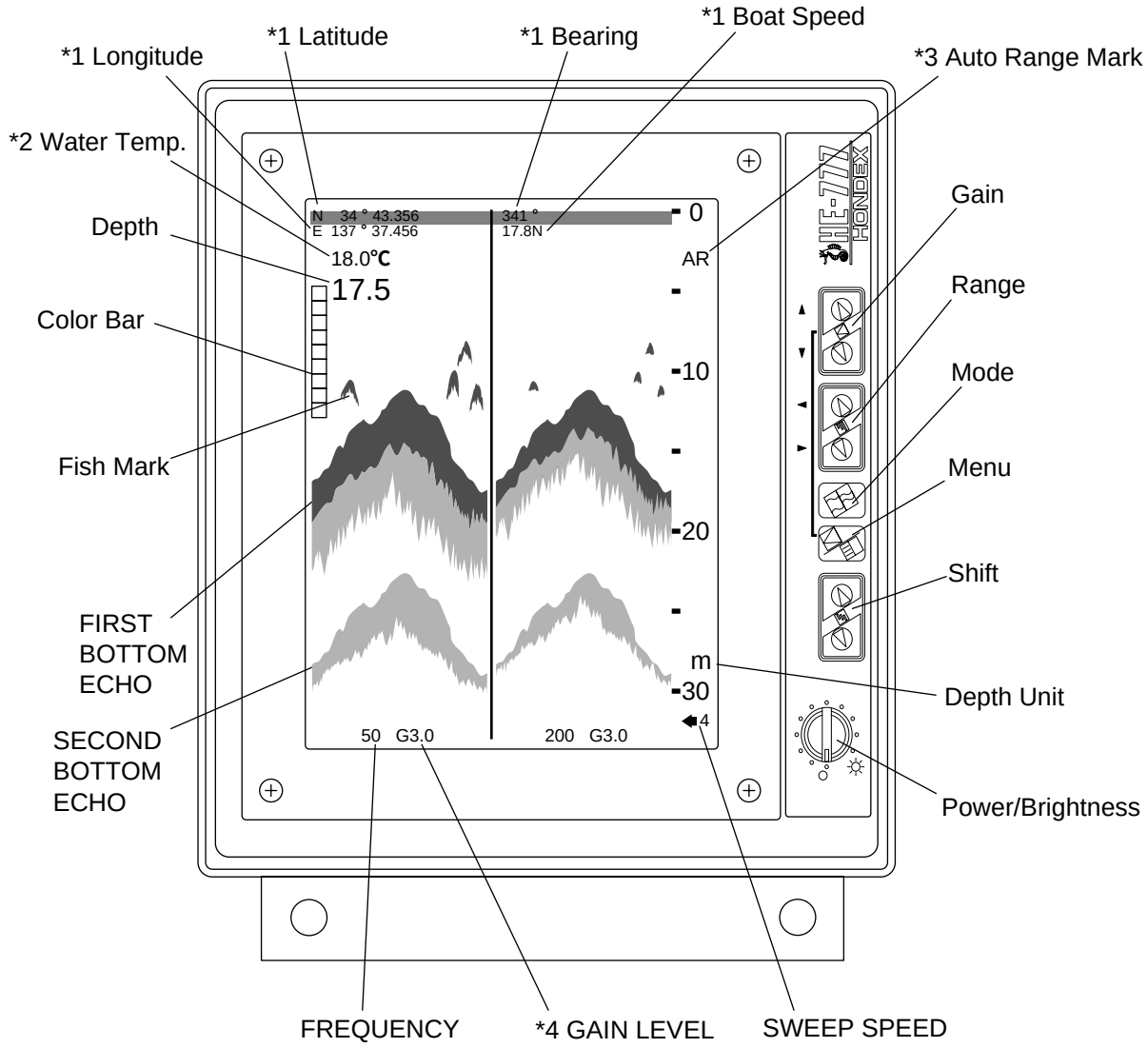


4. <Installing the unit>

Put the unit on so that the rear of it's upper bracket could fit in inner bento position at rear of lower bracket. And then, fix the front of bracket with 2 pcs. hexagon bolt (M8X20).



HOW TO SEE THE DISPLAY AND DESCRIPTIONS OF CONTROL KEYS



REMARKS;

*1: To be shown when “NMEA(GGA, VTG)” is connected.

*2: To be shown when “Temp. Sensor (Option)” is connected.

*3: AR is shown when “Auto Range” is set.
AS is shown when “Auto shift” is set.

*4: “G AUTO” is shown when “Auto Gain” is set.

POWER ON/OFF OF THE DISPLAY UNIT

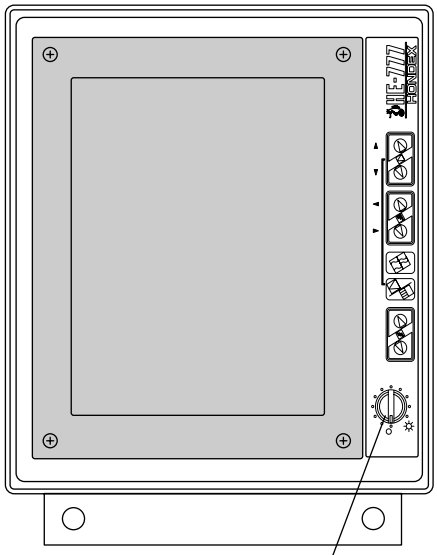
POWER ON/OFF

⚠CAUTION

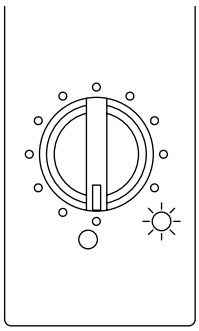
- Please be sure to turn the power on after you start the engine of boat to prevent the malfunction of unit or damage to memory contents.

MEMO:

When you use the unit for the first time, please read "TO USE FOR THE FIRST TIME AFTER PURCHASING"



1. By rotating POWER & BRIGHT switch clockwise, a sound like "piroro" sounds and power is turned on.
   Adjust the brightness with rotating this switch.



   When you turn the power on, version No. of the system and frequency are shown on the screen.

2. When you rotate this switch counterclockwise until a "Click" is heard, power is turned off.

IMPORTANT NOTICE

The HE-777 is designed to use Hondex transducer.

If you use other brand transducer, please ask your local dealer to make sure it works properly.

TO USE FOR THE FIRST TIME AFTER PURCHASING

INPORTANT

In order to protect the unit and transducer from damage, at first, DISCONNECT transducer from unit.

HE-777 has multi-lingual menu mode. (Factory setting is in English)

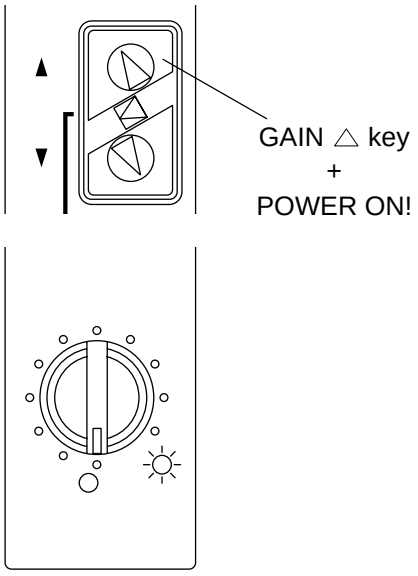
Before starting to use the unit, set the menu language first. (English, Japanese, Chinese, Korean, Spanish, Italian and Thai)

1. Turn the unit power on.
2. Call “Other Setting” menu (See page 24).
3. Set language.
4. Return to sounder mode by menu key.

NOTE: Once you set the language, no need to set again from next time use.

ECHO SIMULATION

For demonstration purpose, echo simulation is available.

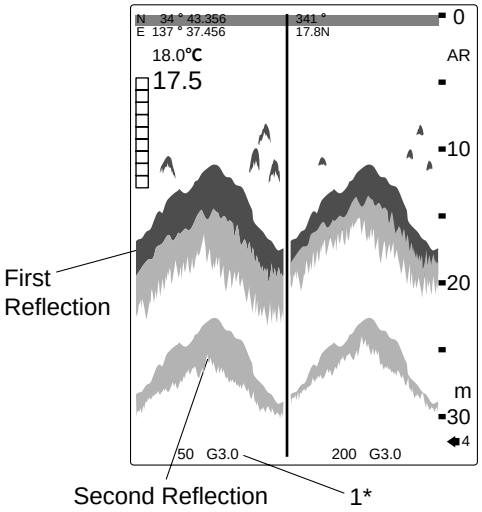


With pressing GAIN △ key, turn the power on and hold the GAIN △ key for abaout 3 seconds.

A sound like “piroro” sounds once at first, then after sounding for 3 times like “piroro, piroro, piroro”, echo simulation is shown on the screen. To finish the echo simulation mode, simply turn the power off.

TO SET THE SENSITIVITY

How to see the sensitivity



<**Sensitivity**>

This adjust the sensitivity to distinguish the bottom or fish school easily. 101 steps from 0.0 to 10.0 are available. The sensitivity level is displayed on the bottom of the screen. Optimum setting to distinguish is that the second reflection of the bottom is displayed in weaker color and the first reflection of the bottom is shown in red.

<**Second Reflection**>

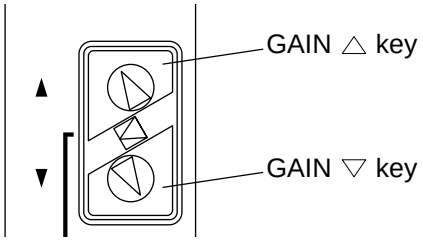
The first received echo reflected from bottom is called the first reflection (first echo). Generally, at shallow depth, the first reflection (first echo) reflected by the surface of water goes toward the bottom again. The next reflection from bottom is called the second reflection (second echo). Normally, the second reflection (second echo) is shown at the twice of the actual bottom (first reflection).

1* Sensitivity

It indicates present value of sensitivity. (101 steps from 0.0 to 10.0 can be adjusted.)

How to set the sensitivity

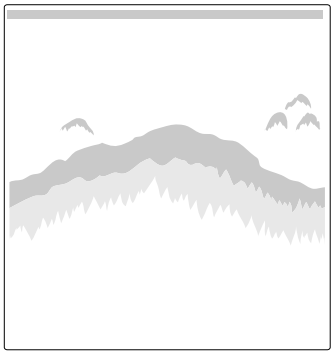
AUTO GAIN mode is <u>NOT</u> recommendable when the transducer was installed inside of the hull.



<**To decrease the sensitivity**>
Each time when you press GAIN ▽ key, sensitivity decreases and number indicating sensitivity decreases.

<**To increase the sensitivity**>
Each time when you press GAIN △ key, sensitivity increases and number indicating sensitivity increases.

<Poor sensitivity>

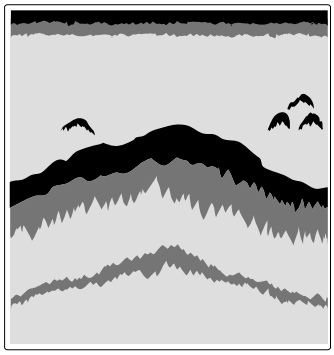


Bottom is shown in green or white.

<Good>

As second reflection is shown, it is easy to distinct the fish school.

<Too much sensitivity>

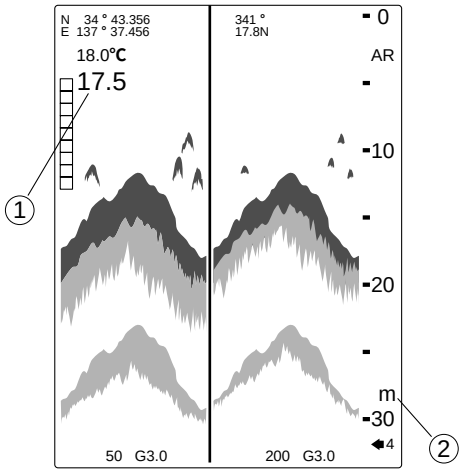


As plankton, stains in water, and etc.

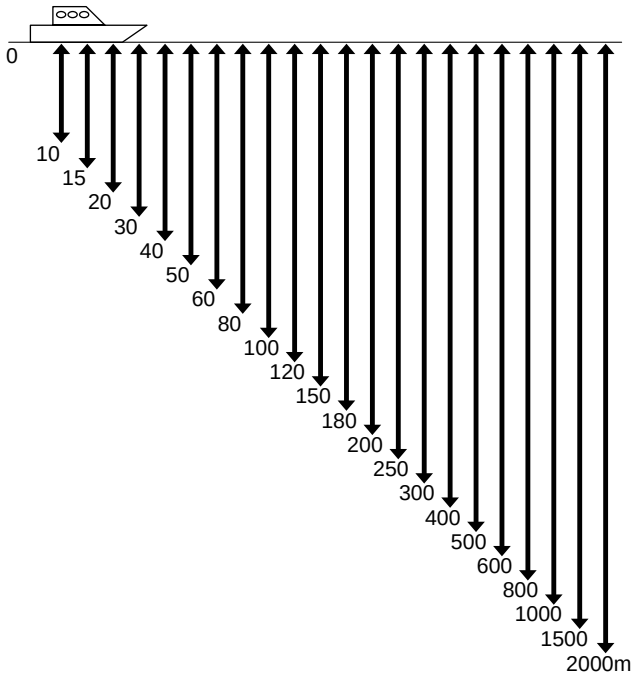
To set GAIN level in dual frequency mode, press menu key shortly for selecting the frequency.
(Numbers in YELLOW is in action)

TO SET THE DEPTH

How to see the depth



<Depth (Display Range)>
Display ranges from 0-10m to 0-2,000m are available.
2,000m-4,000m by SHIFT is maximum.



Depth Read Out

Digital depth read out shows the distance from transducer surface to the bottom.
However, under certain condition, such as “Soft bottom”, “Planktons”, “Big fish school”, etc., it may show uncertain distance(depth). You must check by picture or official chart to make sure the bottom depth, whenever any uncertain number (depth) is shown.

1. Depth read out is shown at the top or bottom on left side of screen, and its size of number is selectable by menu 2.
2. Unit of the depth is selectable among Meters, Feet, Fathoms and Brazas by Menu 3.

Digital Read Out ranges are limited as follows:

Depth (Display Range): m	Deepest number
0- 10m ~ 0- 600m	Display range X 2
0- 800m ~ 0-1500m	Display range X 1.5
0-2000m	Display range X 1.2

IMPORTANT

The maximum detectable depth varies depending upon the water or bottom condittion.(No relation with maximum depth range)

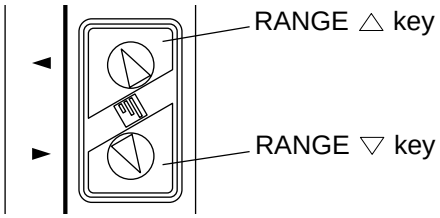
When in dual frequency (50 & 200kHz) mode, right (upper) frequency has a priority in parallel display, i.e., right (upper) side: Normal, left (lower) side: EXP., B/L or HISTORICAL.

How to set the depth

MEMO:

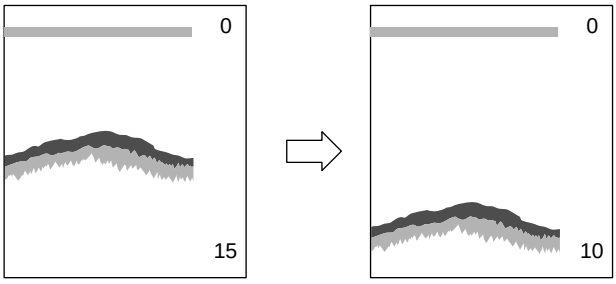
When you set AUTO RANGE, range is automatically changed so that the bottom is always kept on the optimum position of screen.

AUTO RANGE mode is <u>NOT</u> recommendable when the transducer was installed inside of the hull.



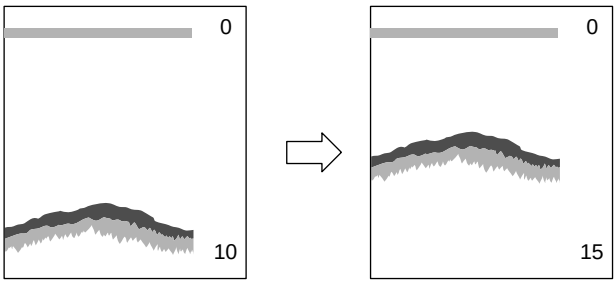
<To decrease the depth (display range)>

Each time when you press RANGE △ key, the depth decreases (getting shallower).



<To increase the depth (display range)>

Each time when you press RANGE ▽ key, the depth increases (getting deeper).



TO CHANGE THE DISPLAY MODE

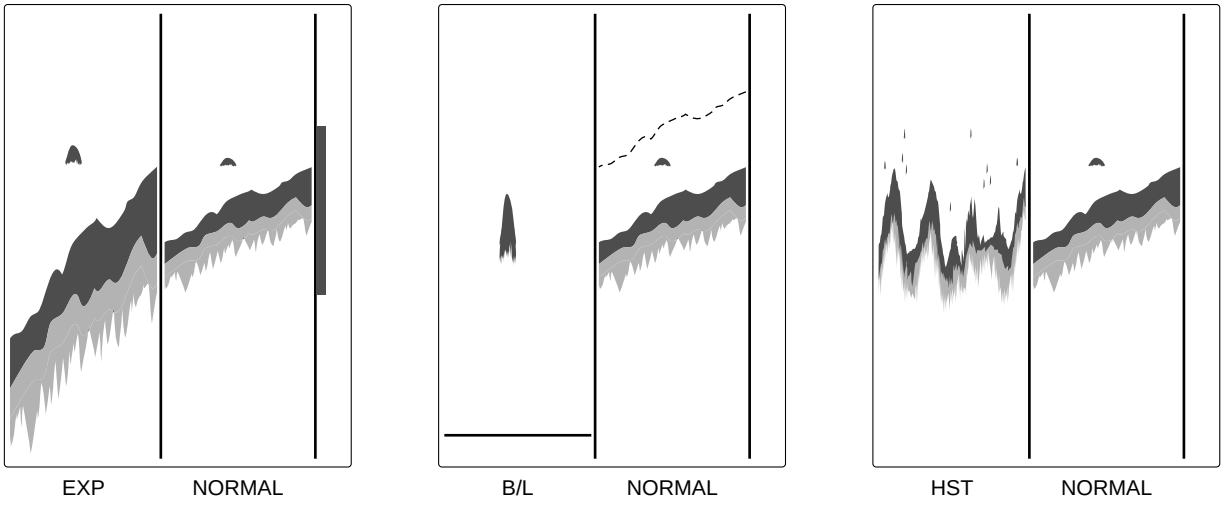
There are four kinds of display mode. Press MODE key for:

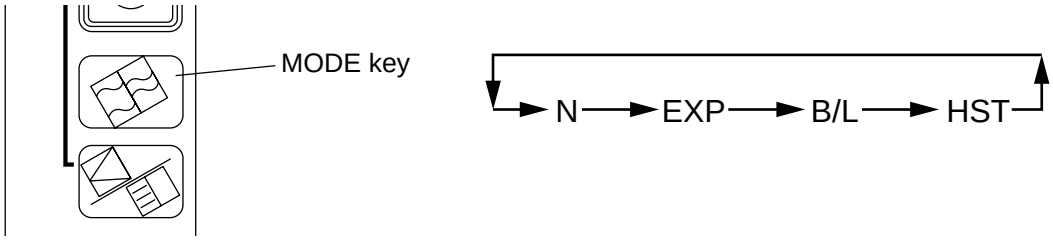
NORMAL
NORMAL + ZONE EXPANSION
NORMAL + B/L EXPANSION
NORMAL + HISTORICAL

1. The rate of EXPANSION and B/L EXPANSION are selectable by Menu 2.
2. In B/L mode, the bottom line positions are selectable, BOTTOM or CENTER of screen by Menu 2.
3. HISTORICAL display shows about 10 times of the sweep speed.

IMPORTANT

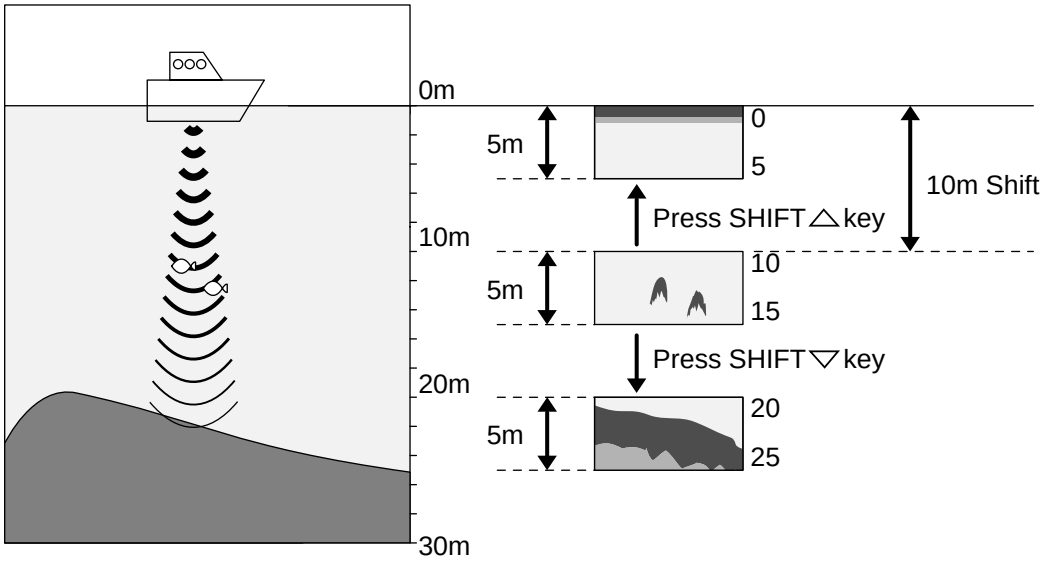
In case there is a sharp undulating bottom or bottom is indicated unevenly due to pitching or rolling, B/L may not be displayed properly.





SHIFT

SHIFT

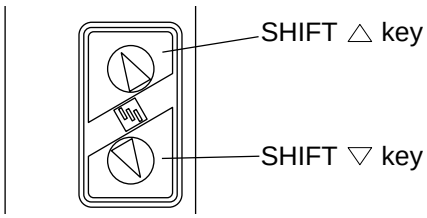


You can move the display range to the shallower depth or deeper depth without changing the depth (display range).

MEMO:

When you set AUTO SHIFT, range is automatically shifted.

AUTO SHIFT mode is <u>NOT</u> recommendable when the transducer was installed inside of the hull.

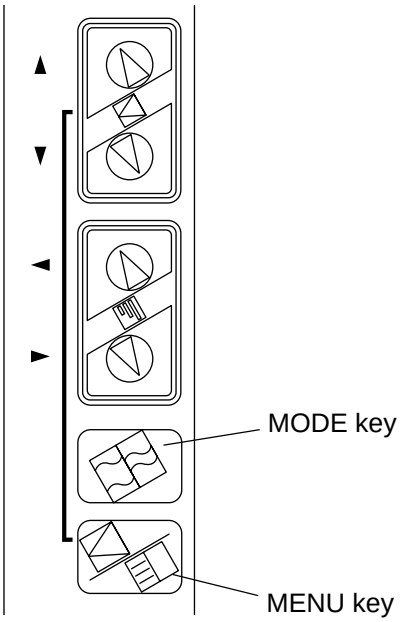


<**To shift to shallow depth**>
Each time when you press SHIFT △ key, the display range becomes shallow.

<**To shift to deep depth**>
Each time when you press SHIFT ▽ key, the display range becomes deep.

SETTING THE FUNCTION BY MENU

MENU LIST AND IT'S INDICATION METHOD



Press menu for about 3 seconds.

```
< MENU 1 >
SWEEP        : FRZ 1 2 3 4 5
AUTO GAIN    : OFF  L  M  H
AUTO R/S     : OFF RNG SFT
A-MODE       : OFF  ON
SCALE LINE   : OFF  ON
TEMP GRPH    : OFF  ON
ALARM
PICTURE      : L H L/H H/L
 [ ▲▼▶◀ ] MENU SETTING
  ☰ TO NEXT MENU
```

Press menu

```
< MENU 2 >
BACK RGD :BLACK   BLUE
COLOR:
          OWN SETTING
EXP RATE  : X2 X4 X8
B/L EXP   : X2 X4 X8 5 10 20
B/L POSI  : BTM  CTR
DIGIT     : SMALL LARGE
DIG POSI  : UPPER LOWER
  ☰ TO NEXT MENU
```

Press menu

```
< MENU 3 >
SCALE UNIT   : M FT FA BR
TEMP UNIT    : °C  °F
TEMP ADJ
C-ECHO       : OFF  1  2
STC          : OFF  L  M  H
PW REDUCER   : A  B  C
SPLIT SCR    : L/R  U/L
DISPLAY      : P  PR  L  LR
RESET
  ☰ TO FINISH MENU
```

Press menu → Finish menu

Press menu for about 3 seconds.

```
< OTHER SETTING >
FACTORY SET  BY ~ KEY
LANGUAGE

 [ ▲ / ▼ ] MENU SETTING
   ☰ TO FINISH MENU
```

Perss cursor▼

```
< OTHER SETTING >
FACTORY SET
LANGUAGE     BY ~ KEY

 [ ▲ / ▼ ] MENU SETTING
   ☰ TO FINISH MENU
```

Press menu → Finish menu

Press menu

Press mode

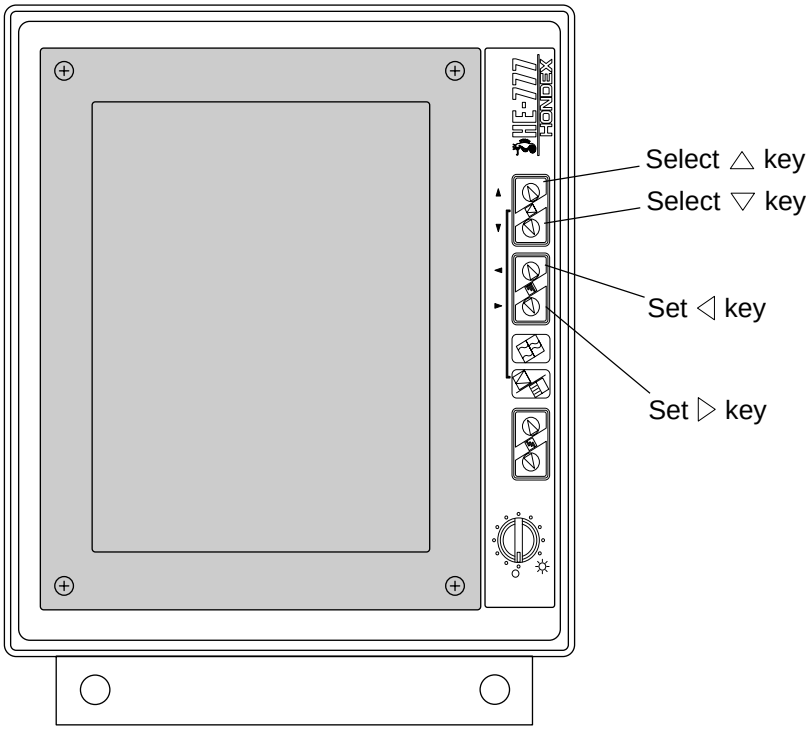
```
< LANGUAGE >
ENGLISH
日本語
中文  CHINA
한국어
中文  TAIWAN
ESPANOL
ITALIANO
THAI ไทย

 [ ▲ / ▼ ] MENU SETTING
   ☰ PREVIOUS MENU
```

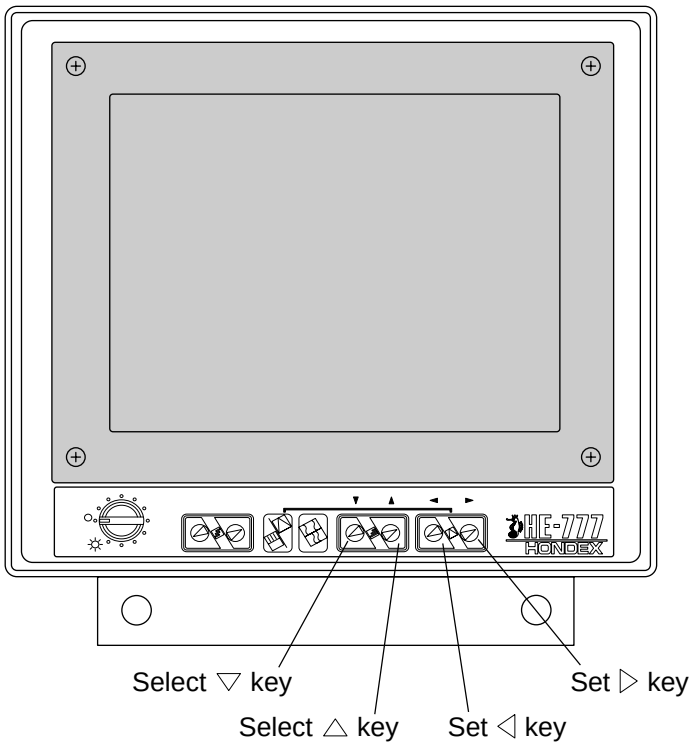
TO SELECT MENU ITEM

Menu item is selected moving cursor (in yellow square) with Select △, Select ▽, Set ◁ or Set ▷ key. Selected item is covered with frame.

Installation Portrait



Installation Landscape



FUNCTIONS WHICH CAN BE SET BY MENU

Functions:

The following functions are selectable and set by cursor.

< MENU 1 >

SWEEP Picture moving speed is selectable.

FRZ : Stop
1 : Slowest
:
:
5 : Fastest

AUTO GAIN

OFF : Manual control.
L : Low Gain Setting.
M : Medium Gain Setting.
H : High gain Setting.

AUTO R/S

OFF : Manual control.
RNG : Depth Range is automatically changed by bottom depth.
SFT : Picture is automatically shifted with the same scale at any depth.

A-MODE Selectable OFF or ON.

SCALE LINE Scale Line is selectable OFF or ON.

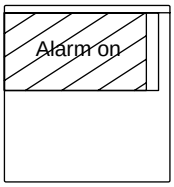
TEMP GRPH Temperature Graph is selectable OFF or ON.
(Optional sensor required)

ALARM

Press Mode key to go ALARM setting mode.
Shallow, Deep, Zone and Anchor alarms are available.

SETTING THE FANCTION BY MENU

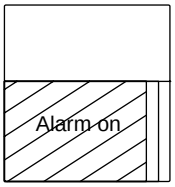
Call menu 1.
Set cursor to ALARM.
Press MODE.
Set ALARM ON.



Shallow

For SHALLOW alarm setting;
Set shallow limit depth by RANGE key with watching RED BAR on the right edge of sounder image.

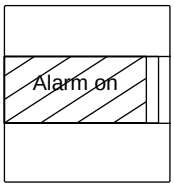
For DEEP alarm setting;
Set deep limit depth by RANGE key with watching RED BAR on the right edge of sounder image.



Deep

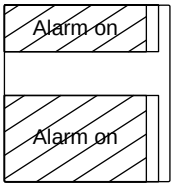
For ZONE alarm setting;
Set shallow and deep limits by RANGE key with watching RED BAR on the right edge of sounder image.

For ANCHOR alarm setting;
Set shallow and deep limits by RANGE key with watching RED BARs on the right edge of sounder image.



Zone

To select ALARM LEVEL;
Set the cursor to LEVEL and select echo level to activate ALARM.



Anchor

Set MENU to exit menu mode.

PICTURE

In dual frequency mode, display mode (Frequency) is selectable.

- L : Lower Frequency only
- H : Higher Frequency only
- L/H : Lower Frequency is in Left half
  Higher Frequency is in Right half
- H/L : Higher Frequency is in Left half
  Lower Frequency is in Right half

< MENU 2 >

BACK GRD Back ground color is selectable Black or Blue.

COLOR Color configuration (Pattern) is selectable among 8 patterns.
Also, your own original setting is available for special mode.

EXP RATE Expansion rate is selectable among 2 times (X2), 4 times (X4) or 8 times (X8) for each depth range.
Expanded area is shown by red bar on the right side of picture.

B/L EXP Bottom Lock (Bottom is displayed as straight line in any contour) expansion rate is selectable among 2 times (X2), 4 times (X4) or 8 times (X8) for each depth ranges.
Also, fixed ranges such as 5, 10, 20 (M, FA, BR), 10, 20 or 40 (FT) are selectable.

B/L POSI Bottom Line in Bottom Lock mode picture is shown on center or bottom of screen.

DIGIT Size of Bottom Depth display is selectable.

DIG POSI Digital depth read out position is selectable at upper or lower left side of screen.

< MENU 3 >

SCALE UNIT Scale unit in depth is selectable among Meters (M), Fathoms (FA), Feet (FT) and Brazas (BR).

TEMP UNIT Temperature unit is selectable in ° C or ° F (Optional sensor required).

TEMP ADJ Temperature fine adjustment is available.

C-ECHO “Clean Echo” (noise rejecter) circuit eliminates small noise or interference from other sounder, selectable OFF or ON.

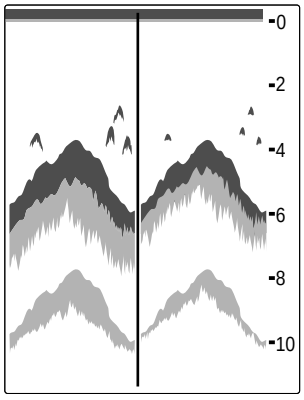
STC “Sensitivity Time Control” circuit eliminates clutters or noises near the surface, selectable Low, Medium, High settings.
High settings eliminates them excessively.

PW REDUCER Output power is reducible from normal mode. Approx. rates are;

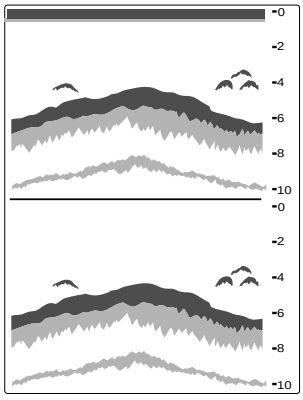
A : 1/3B
B : 1/3C
C : NORMAL

SPLIT SCR Screen picture mode is selectable in 2-Frequency mode or special modes like EXP, B/L or HIS.

L/R:

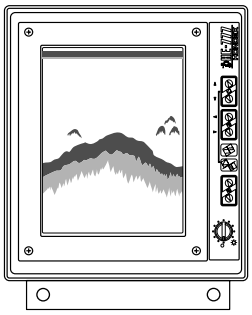


U/L:

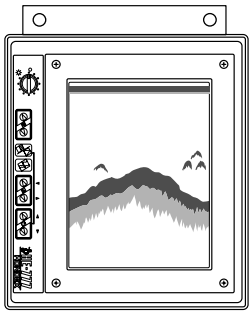


DISPLAY Display mode is selectable.

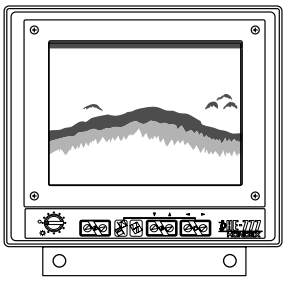
P: Portrait



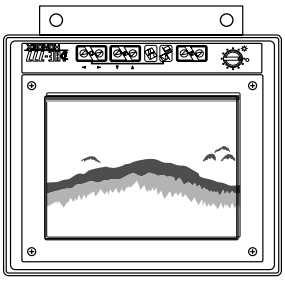
PR: Portrait Reverse



L: Landscape



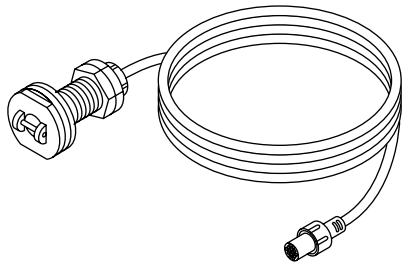
LR: Landscape Reverse



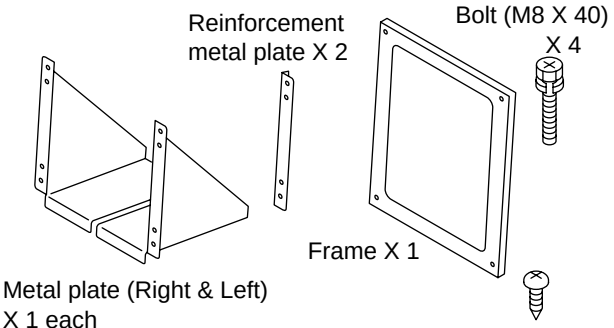
RESET Return to First setting mode.

OPTIONS

Water temperature sensor (TC02C)

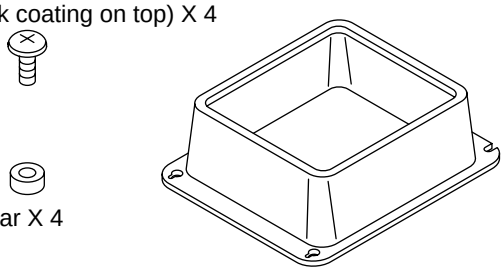


In-dash plate (WP04)



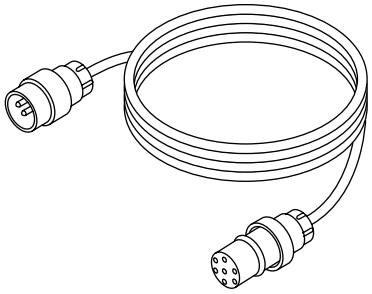
Sun hood (SF05)

M4 X 8 SUS
Mushroom head screw
(black coating on top) X 4



Collar X 4

Water temperature extension cable (EK11)

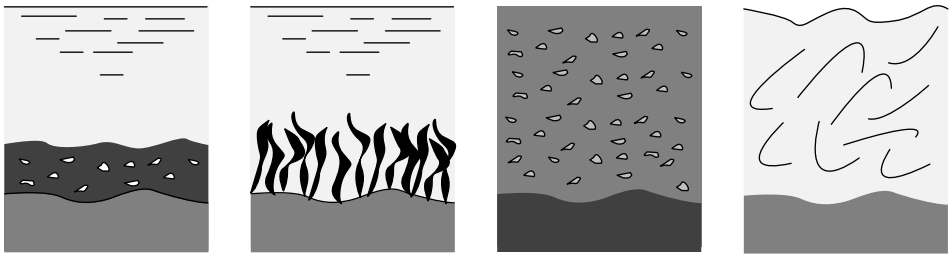


TROUBLE SHOOTING

When the condition of this unit is bad, please check the following points before asking to repair;

Symptoms	Causes	Remedy
Power can not be turned on.	Voltage of battery is lower than standard value (11V).	Recharge the battery.
	Contact of power connector is poor.	Tighten firmly. Clean and remove the rust, dust, etc. In case of corrosion, please replace. • Replace power supply cable. • Replace the connector.
	Incorrect connection of power cable to boat battery.	Check the polarity and connect correctly.
	Wire inside power cable is cut.	Replace the polarity and connect correctly.
	Blown fuse.	Replace fuse (10A).
No display on th screen.	Brightness control is set to minimun.	Adjust the brightness control. (Refer to page16)
Bottom or fish school can not be displayed at all.	Contact of transducer connector is bad.	Connect surely. Clean the surface of transducer and remove the rust, stain, or etc. Replace in case of corrosion. • Replace in case of corrosion. • Replase connector on the unit (ask to repair).
	Frequency is wrong.	Select the correct frequency on.
	Transducer is not immersed into water well.	Install the transducer where it is always immersed in water.
	In case of installing the transducer inside the hull, it is not immersed into water because internal liquid becomes less.	Supplement liquid so that transducer can be immersed into water.
Image does not appear sometimes.	Transducer is not immersed into water well.	Install the transducer where it is always immersed under the waterline.
	When installation of transducer is bad, air bubbles wind is easily at high speed sailing. It results in no display.	Check the installation of transducer.
	Influence of air bubble when the boat runs across the wakes of another boat.	Move the own boat or wait until air bubbles disappear.

<table>
<tr><th>Symptoms</th><th>Causes</th><th>Remedy</th></tr>
<tr><td rowspan="3">Bottom or fish school is not displayed well.</td><td>Too low sensitivity.</td><td>Increase the sensitivity.
Or set Auto Gain.</td></tr>
<tr><td>Weeds, barnacles, oyster shell, rubbish or etc. attach on the surface of transducer.
Install it inside the hull, bottom or liquid is dirty.</td><td>Remove the attachment well.

Remove the stain on the bottom. Replace the liquid.</td></tr>
<tr><td colspan="2">As the reflected echoes are very weak at the below described place, the image low sensitivity may be shown.
But it is not trouble.
 
where there are many sludge. | where there are many sea weeds. | where there are many mud or rubbish. | where the water is whirled by rapid current.</td></tr>
<tr><td rowspan="3">Many noise appears on the display.</td><td>Too high sensitivity.</td><td>Decrease the sensitivity.
Or set Auto Gain.</td></tr>
<tr><td>Interference with other boat's fish finder.</td><td>Noise disappears if the adequate distance between own boat and other keeps.</td></tr>
<tr><td>Noise from engine.</td><td>Change the routing of cables like transducer cable, power supply cable or etc. (Separate from engine as far as possible.)</td></tr>
</table>

SPECIFICATIONS

DISPLAY	10” Color CRT
PIXELS	320X240
VOLTAGE	11-35VDC
POWER CONSUMPTION	60W
SIZE	308X254X340mm w/bracket
WEIGHT	9.4Kgs approx.
OUTPUT POWER	600W
FREQUENCY	50&200KHz Simultaneous Soundings
GAIN	101 steps
RANGE	10, 15, 20, 30, 40, 50, 60, 80, 100, 125, 150, 180, 200, 250, 300, 400, 500, 600, 800, 1000, 1500, 2000 (m, Ft, Fa, Br)
SHIFT	2000-4000 Max.
MODE	L+H, H/EXP+H, H/BL+H, H/HIS+H or H+L, L/EXP+L, L/BL+L, L/HIS+L
IMAGE STYLE	Portrait/P-Reverse, Landscape/L-Reverse
MENU	English, Italian, Spanish, Thai, Korean, Chinese
SPLIT SCREEN	side/side or upper/lower
EXPANSION	X2, X4, X8
B/L EXP.	X2, X4, X8 or 5/10/20 (M, FA, BR), 10/20/40 (Ft)
SWEEP SPEED	Freeze, 1/2/3/4/5
AUTO GEIN	Off/L/M/H
AUTO RANGE/SHIFT	Off/Range/Shift
CLEAN ECHO	Off/1/2
STC	Off/W/M/S
POWER REDUCER	L/M/H
UNIT	M/Fa/Ft/Br/Hiro
B.G.COLOR	Black/Blue
COLOR CONFIGURATION	8 kinds
CALIBRATION LINE	Off/On
A-MODE	Off/On
NMEA0183 INPUT	GGA (L/L), VTG (Speed/Direction)
NMEA0183 OUTPUT	DBT (Depth), MTW (Temp)
ALARM	Shallow, Deep, Zone, Anchor