ONWA®
KFISH-7

KFISH-7

OPERATOR'S MANUAL

7 INCHES COLOR DIGITAL FISHFINDER

CE FC

SAFETY INSTRUCTIONS

WARNING

ELECTRICAL SHOCK HAZARD
Do not open the equipment.

Only qualified personnel should work inside the equipment.

Immediately turn off the power at the switchboard if water leaks into the equipment or something is dropped in the equipment.

Continued use of the equipment can cause fire or electrical shock. Contact an ONWA agent for service.

Do not disassemble or modify the equipment.

Fire, electrical shock or serious injury can result.

Do not place liquid-filled containers on top of the equipment.

Fire or electrical shock can result if a liquid spills into the equipment.

Immediately turn off the power at the switchboard if the equipment is emitting smoke or fire.

Continued use of the equipment can cause fire or electrical shock. Contact an ONWA agent for service.

WARNING

Make sure no rain or water splash leaks into the equipment.

Fire or electrical shock can result if water leaks in the equipment.

Keep heater away from equipment.

A heater can melt the equipment's power cord, which can cause fire or electrical shock.

Use the proper fuse.

Fuse rating is shown on the equipment. Use of a wrong fuse can result in damage to the equipment.

TABLE OF CONTENTS

INTRODUCTION

Congratulations! You are now a proud owner of ONWA KFISH-7 Color Digital Fishfinder. We are confident that you will enjoy many years of operation with this fine piece of equipment.

The KFISH-7 is just one of the many developments of ONWA in the field of echo sounding. The compact, lightweight but rugged unit is easy to install and operate and is suitable for both fresh and saltwater applications.
KFish-7 is designed and constructed to withstand the rigors of the marine environment. However, to obtain optimum performance from this unit, you should carefully read and follow the recommended procedures for operation and maintenance. No machine can perform to the utmost of its ability unless it is installed, operated and maintained properly.

We want to Hear from you!
Your suggestions and comments are highly important to us, to further develop our equipment. Let us know if we are achieving our purpose. Please send us your feedback at sales@onwamarine.com

Thank you for purchasing an ONWA equipment.

Features

The KFISH-7 dual-frequency(50KHz and 200KHz) Color Digital Fishfinder has a large variety of functions, all contained in a splash-proof rugged plastic case that is compact to fit small boats. The principal features of the KFISH-7 are

- User-friendly design for simplified operation.
- A wide variety of display modes: bottom-lock expansion, marker zoom and unique bottom zoom displays.
- Potent 600 W transceiver.
- 16-colors presentation(including background) on a 7" diagonal TFT LCD, providing vivid presentation of underwater conditions.
- AUTO function permits unattended range and gain setting operations. The range scale and gain change automatically so that the bottom is displayed in reddish brown or red on the lower half of the screen.
- Sonar sound function gives the user the advantage of not missing any fish echo even if he is not in front of the unit.
- Fish Mark and Size enables the user to locate fish or school of fishes even if the gain is not properly adjusted.
- TVG(Time Variable Gain)can eliminate the shallow noise and not affect the water bottom details.
- A-scope display gives excellent bottom fish discrimination, vital for bottom trawler and lobster/crab plotter.
- Digital display of navigational data (connection to external navigational equipment needed).
- Alarms: fish, bottom, water temperature (requires appropriate sensor).
- Eight pulse lengths for excellent performance on both shallow and deep ranges.
- Universal 12-24 VDC power supply drawing 30 W of power at maximum.
- Water temperature sensor optionally available.

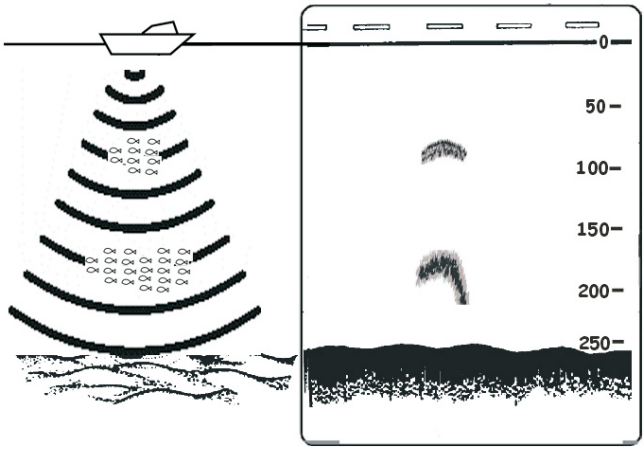
PRINCIPLE OF OPERATION

This Color Digital Fishfinder determines the distance between its transducer and underwater objects such as fish, lake bottom or seabed and displays the results on a 7-inch color screen.

It does this by utilizing the fact that an ultrasonic wave transmitted through water travels at a nearly constant speed of 4800 feet (1500 meters) per second. When a sound wave strikes an underwater object such as fish or sea bottom, part of the sound wave is reflected back towards the source. Thus by calculating the time difference between the transmission of a sound wave and the reception of the reflected sound wave, the depth to the object can be determined. An Echosounder is capable of resolving time differences shorter than one thousandth of a second.

The entire process begins in the display unit. Transmitter power is sent to the transducer as a short pulse of electrical energy. The electrical signal produced by the transmitter is converted into an ultrasonic signal by the transducer and transmitted into the water. Any reflected signals from intervening objects (such as a fish school) are received by the transducer and converted back into an electrical signal. It is then amplified in the amplifier section, and finally, displayed on the screen.

The picture displayed by the Color Digital Fishfinder is made up of series of vertical scan lines, one for each transmission, Each line represents a "snapshot" of what has occurred beneath the boat. The series of snapshots are accumulated side by side across the screen, and the resulting contours of the bottom and fish between the bottom and surface are displayed. The amount of history of objects that have passed beneath the boat over a series of transmission varies from less than a minute to a few minutes, depending on how you adjust the unit.

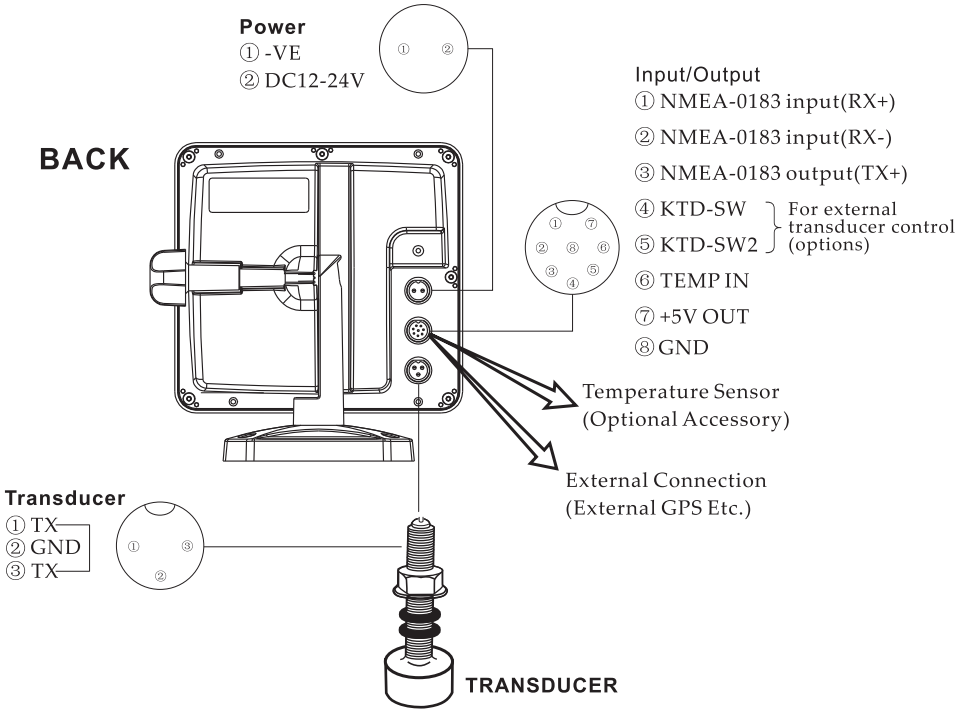


SYSTEM CONFIGURATION

DISPLAY UNIT
KFISH-7

FRONT

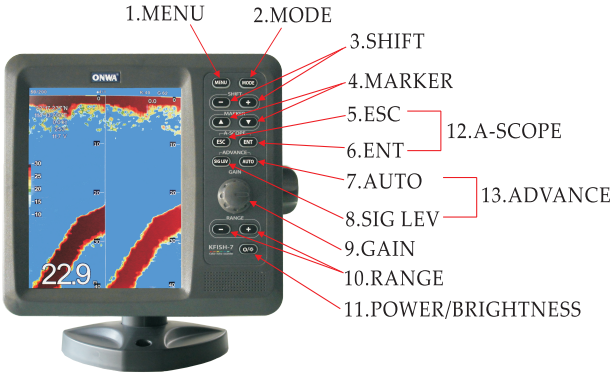
BACK



1. CONTROLS, INDICATIONS

1.1 Control Description

The equipment is designed that even a first time user can quickly become acquainted with the operating procedure. Operation of each control or key is acknowledged by an alphanumeric message or symbol indication on the screen.



Item	Control	Function
1	MENU	Displays the menu of the screen
2	MODE	Selects the Display mode
3	SHIFT-,SHIFT+ (Appears in text as [-],[+])	• Changes the starting depth of the display • Select options on menus
4	MARKER▲,MARKER▼ (Appears in text as[▲]or[▼])	• Shift the Variable Range Marker (VRM) • Set alarm zone • Select menu items • Set white marker
5	ESC	• Exit the submenu • Cancel the alarm • Changes the display mode in reverse direction
6	ENT	Confirms adjustment changes
7	AUTO	Turns the automatic sounder adjustment feature on/off
8	SIG LEV	Eliminates low intensity echoes (up to light-blue echoes) in two steps
9	GAIN	Adjusts receiver sensitivity
10	RANGE-,RANGE+ (Appears in text as [-],[+])	Set the basic range of display

Item	Control	Function
11	POWER/BRIGHT ⏻/☼	• Turns the unit on/off • Adjusts the screen brightness and control panel dim
12	A-SCOPE (ESC+ENT)	Pressing the ESC and ENT keys together Displays the A-scope display at the right 1/4 of the screen
13	ADVANCE (SIG LEV+AUTO)	Pressing the SIG LEV and AUTO keys together Selects display advancement speed

1.2 Key Description

MENU — Pressing it once displays the MENU, pressing it twice enter the system menu. Short Press - Displays the menu of the screen. Long Press - Enter the extension MENU.

MODE — Pressing it once displays the MODE; Long pressing it displays the graph mode, Press [SHIFT] key's +/- to select the function, Press [ESC] key to exit, Press [ENT] key to confirm.

SHIFT − + — Pressing [SHIFT] key's +/-, Change display start depth, Select options on menus

MARKER ▲ ▼ — Pressing [MARKER] key's ▲/▼, Shift the Variable Range Marker （VRM）.Set white marker, Set alarm zone, Select menu items.

ESC — Pressing [ESC] key, Exit the submenu, Cancel the alarm.

ENT — Short Press - Confirms adjustment changes, Long Press - Switch to AUTO GAIN. Pressing the [ESC] + [ENT] keys together, Displays the A-scope display at the right 1/4 of the screen.

SIG LEV — Eliminates low intensity echoes(up to light-blue echoes) in two steps.

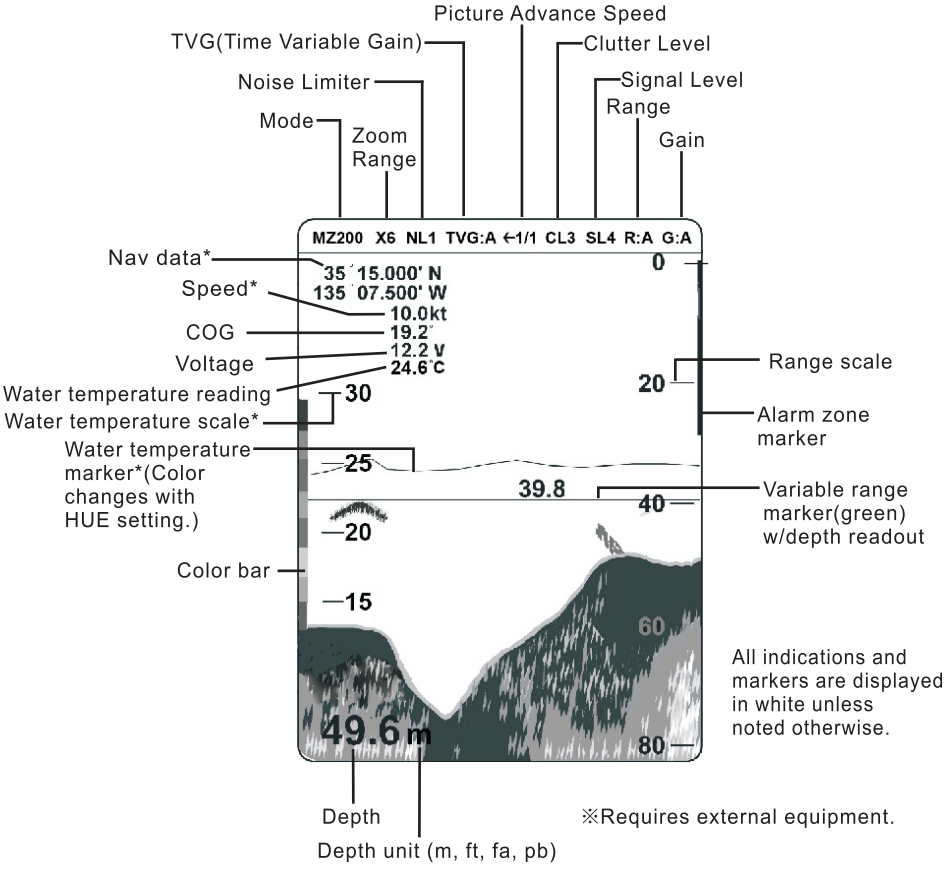
AUTO — Turns the automatic sounder adjustment feature on/off, Pressing the [SIG LEV] + [AUTO] keys together, Selects display advancement speed.

GAIN, turn the knob to change the gain, In automatic mode, Rotate the knob to switch to manual mode.

RANGE − + — Pressing [RANGE] key's +/-, Change the range, Pressing the [ESC] + [ENT] keys together, Switch to AUTO RANGE.

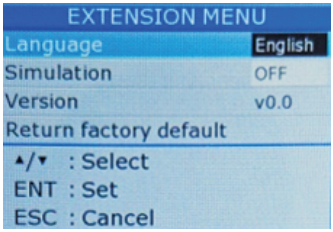
⏻/☼ — Long Press - Turn the power ON/OFF. Short Press - Adjust the screen brightness and control panel dim.

1.3 Display



1.4 Language choice

1.Press [MENU] key 3 seconds to enter the EXTENSION MENU window.
2.Select the language item and press the [ENT] key.
3.Select the language you need, and press [ENT] key.



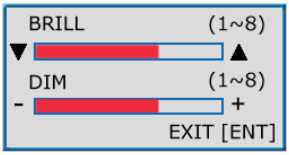
2.BASIC OPERATION

2.1 Turning the Power On/Off

Use the [⏻/☼] key to turn the power on. The unit starts with the settings used before it was turned off last time. To turn the power off, long press [⏻/☼] key for 3 seconds to turn the power off.

2.2 Adjusting Brilliance

Use the [⏻/☼] key to adjust the brilliance. The selected brilliance level is shown on the display as below. There are eight levels of brilliance including off.



Use MARKER ▲ ▼ to adjust LCD display brightness and use SHIFT − + as a dimmer control for panel keypad backlight.

2.3 Display Mode Selection, Description

2.3.1 Display mode selection

Five display modes are available and you may select one of them with the [MODE] key. Every press of [MODE] key will change the following modes in the order below or you can press [ESC] key to reverse the order of the display mode.

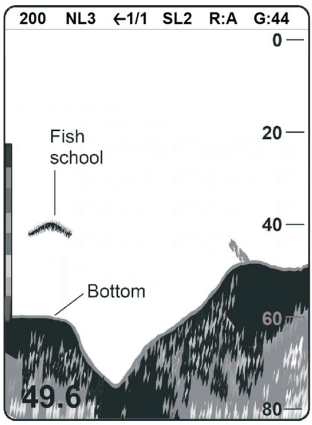
Modes description

Modes	Function
200K	Displays the high frequency (200KHz)normal picture on the full screen.
50K	Displays the low frequency (50KHz)normal picture on the full screen.
50/200K	Displays the normal display for high frequency (200KHz) on the right half and that for the low frequency (50KHz)on the left half.
200K/Z	Displays the normal display of the high frequency (200KHz) on the right half and its zoom display on the left half.
50K/Z	Displays the normal display of the low frequency (50KHz)on the right half and its zoom display on the left half.

2.3.2 Display mode description

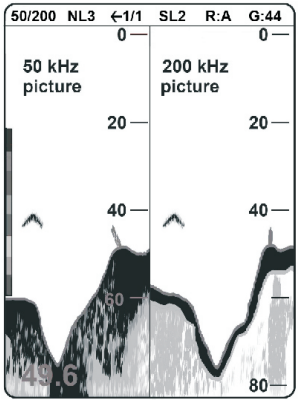
200K, 50K (high frequency, low frequency) mode

The sounder uses ultrasonic pulses to detect bottom conditions. The lower the frequency of the pulse the wider the detection area. Therefore, the 50KHz frequency is useful for general detection and judging bottom conditions, while the 200KHz frequency is useful for detailed observation of fish schools.



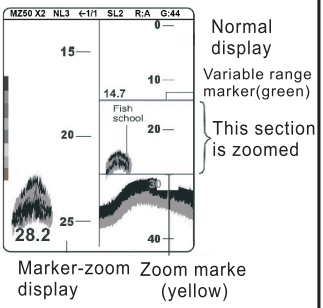
DUAL frequency mode

This mode provides the 50KHz picture on the left-half of the screen and the 200KHz on the right half, and is useful for detecting fish schools which have different reflection characteristics with frequency. For example, a school of tiny fish like minnow returns stronger echoes on a high frequency compared to a low frequency.



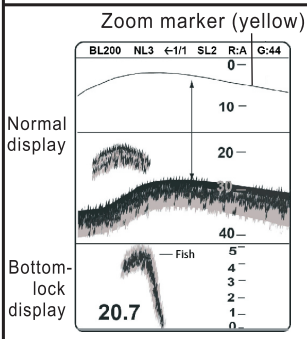
ZOOM mode (high or low frequency)

Three types of zoom displays are available: marker zoom, bottom-lock expansion, bottom zoom. The zoom mode to be used can be selected on the main menu with ZOOM MODE.



MARKER ZOOM

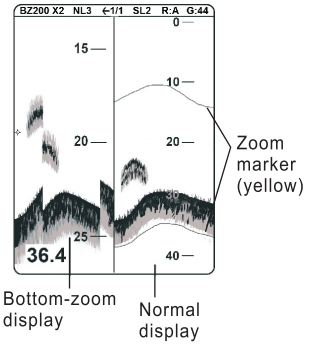
This mode expands selected area of the normal picture to full vertical size of the screen on the left-half window. You may specify the portion to expand with the VRM (Variable Range Marker), which you can shift with [▲]or [▼]. The area between the VRM and the zoom range marker is expanded. The length of the segment is equal to one division of the depth scale.



BOTTOM-LOCK

This display provides a compressed normal picture on the top 2/3 of the screen and a 5 or 10 meter (10 or 20 feet) wide layer in contact with the bottom is expanded onto the bottom 1/3 of the screen. This mode is useful for bottom discrimination. Note that the seabed should be steadily and distinctly plotted in red or reddish-brown. Adjust the gain if necessary.

Note1:The bottom-lock range can be selected on the B/L range in the system menu.
Note2:The zoom marker can be turned on/off on the Zoom marker in the system menu.



BOTTOM ZOOM

This mode expands bottom and bottom fish echoes two to five times to vertical size of the screen, and it is useful for determining bottom hardness. A bottom displayed with a short echo tail usually means it is a soft, sandy bottom. A long echo tail means a hard bottom.

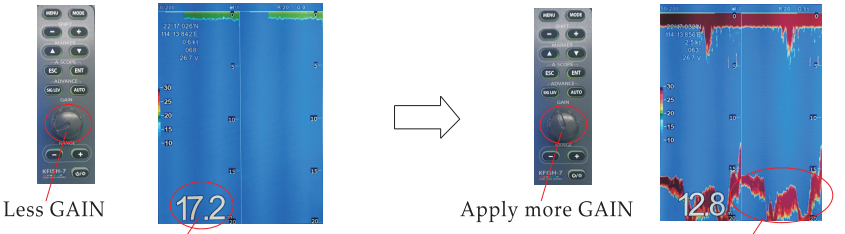
The zone automatically moves so that the bottom echoes locate on the lower half of the screen.

Note1:The amount of expansion can be selected on the Zoom range in the system menu.
Note2:The zoom marker can be turned on/off on the Zoom marker in the system menu.

2.4 Adjusting Gain

The GAIN control in digital fishfinder is used to adjust how strong you want to see the targets. All targets, no matter how weak or strong, from the water beneath your boat are received and stored in the memory of KFish-7. When you adjust the GAIN control the CPU will display different strength of targets on the LCD depending on the GAIN control position you adjusted. No matter how much you adjust the GAIN control you will never lose the depth figure on the displayeven if no bottom line can be seen on the display.

We will discuss more about GAIN control with the Fish Mark function.



You can still see the depth figure even if there are no bottom line on the display

Bottom line comes out

2.5 Automatic Operation

Automatic operation is useful when you are preoccupied with other tasks and do not have time to adjust the display.

2.5.1 How it works

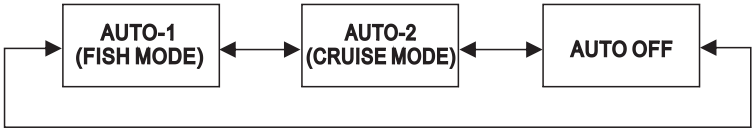
The automatic function automatically selects the proper gain and range scale according to depth. It works as follows:

- The range changes automatically to locate the bottom on the lower half of the screen. It jumps to one step shallower range when bottom echoes reach halfway of the full scale from the top and to one step deeper range when they come to the lower edge of the scale.
- The gain is automatically adjusted to display the bottom echo in reddish-brown (default color arrangement).

2.5.2 Enabling automatic operation

Two types of automatic modes are available:AUTO1,for fishing, and AUTO2,for cruising. Since cruising uses a higher clutter rejection setting than fishing, it is not recommended for detection of fish because weak fish echoes may be deleted by clutter rejection.Note that the [SHIFT] keys ([+],[-]) control are inoperative in the auto mode.

Press the [AUTO] key. Each press of the key turns the auto function on or off in the sequence shown below

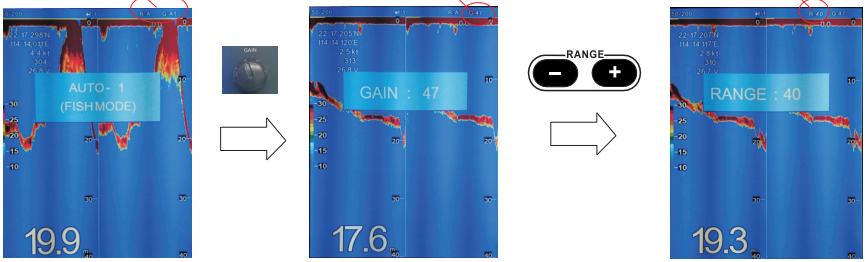


After Selecting the type of AUTO mode (AUTO-1 or AUTO-2), you can easily switch GAIN and RANGE back to manual mode by adjusting GAIN and RANGE control.

Both GAIN & RANGE are in AUTO mode

GAIN returns to manual mode once you adjust GAIN control

RANGE returns to manual once you press RANGE + or -



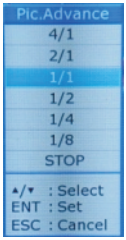
AUTO-1 MANUAL GAIN MANUAL RANGE

2.6 Selecting Picture Advance Speed

The picture advance speed determines how quickly the vertical scan lines run across the screen. When selecting a picture advance speed, keep in mind that a fast advance speed will expand the size of the fish school horizontally on the screen and a slow advance speed will contract it.

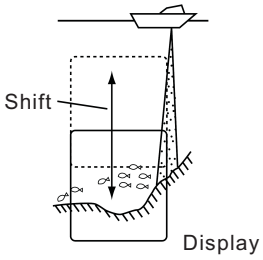
1.Press the [SIG LEV] and [AUTO] keys together. The display should look something like the one below. The fraction shown on the display denotes number of scan lines produced per transmission. For example, 1/8 means one scan line is produced every eight transmissions. “0” freezes the display and it is convenient for observing an echo.

2.Press MARKER ▲ ▼ to select the desired picture advance speed and press [ENT] key to confirm or press [ESC] key to cancel the selection.



2.7 Display Range Selection

The basic range and range shifting functions are used together to give you the means to select the depth you can see on the screen. The basic range can be thought of as providing a “window” into the water column and range shifting as moving the “Window” to the desired depth.



2.7.1 Basic range selection

The basic range may be selected with the [RANGE+/-] from the nine ranges shown in the table below.

Table 1-1 Basic ranges(default settings)

Range No	1	2	3	4	5	6	7	8	9
Meters	5	10	20	40	80	150	300	600	1000
Feet	15	30	60	120	200	400	1000	2000	3000
Fathoms	3	5	10	20	40	80	150	300	600
Passi/Braza(P/B)	3	5	10	30	50	100	200	350	600

Operate the [RANGE+/-] and the display below appears. Adjust the [RANGE+/-] control again to select a basic range.

2.7.2 Range shifting

The basic range may be shifted up or down with the [SHIFT] keys ([+],[-]). Press a [SHIFT] key and the display below appears. Press a [SHIFT] key again to select the amount of shift.

Note 1: The maximum shift range is 3000 feet (1000 m). However, actual range will depend on underwater conditions. In the worst case scenario, echoes will not appear

Note 2: Basic ranges can be changed on the system menu.

Note 3: The unit of depth may be selected on the system menu.

Note 4: The range cannot be shifted when the auto function is active.

2.8 Erasing Weak Echoes

Dirty water or reflections from plankton may be displayed on the display in green or light-blue. These weak echoes may be erased as follows:

1.Press the [SIG LEV] key. The following display appears.

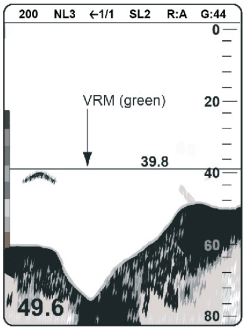
2.Press the [SIG LEV] key again to select signal level (echo color) to erase. Every press deletes the weakest color echoes on the screen, up to the light-blue echoes. You may identify the deleted colors on the color bar; deleted colors disappear from the color bar. The selected level is shown as SL1, SL2.....SL6 on the message bar at the screen. Signal level “0” disables this function.

2.9 Measuring Depth to a Fish School

The VRM (Variable Range Marker) functions to measure the depth to fish schools or other echo.

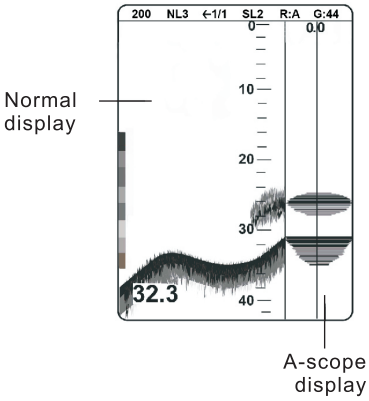
1.Press Marker [▲]or[▼]to place the VRM on an echo.

2.Read the VRM range just above the VRM.



2.10 A-scope Display

This display shows echoes at each transmission with amplitudes and tone proportional to their intensities, on the right 1/4 of the screen. It is useful for estimating the kind of fish school and bottom composition. To turn the A-scope display on or off press the [ESC] and [ENT] keys together.

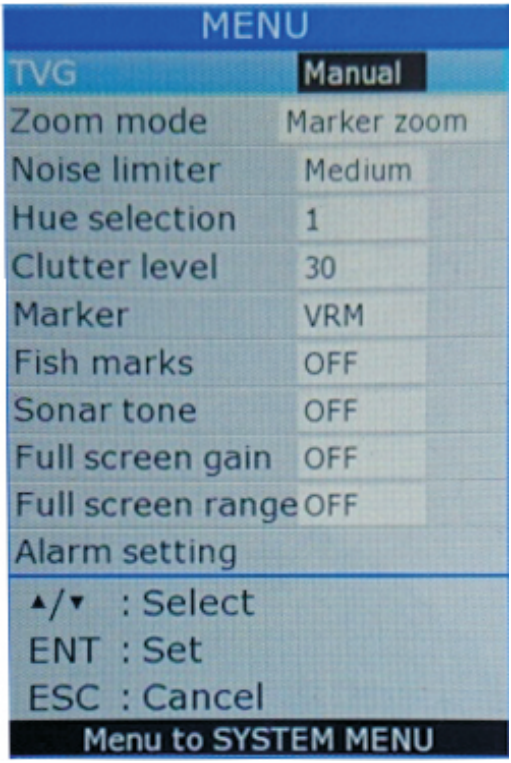


2.11 Menu Operation

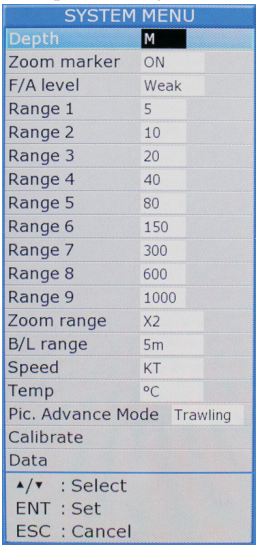
The menu, consisting of the main menu and system menus, contains less often used functions which do not require frequent adjustment.

2.11.1 Menu selection

1.Press [MENU] key to open the menu window.



2.Pressing [MENU] key twice opens the system menu window.



4.Press[▲]or[▼]to select menu item.

5.Press[ENT]key to set condition.

6.Press the [ESC] key to change to another selection or cancel the last selection and close the menu.

2.11.2 Main menu description

Menu item	Descriptions
TVG	Time Variable Gain, to compensate for the propagation loss of sound wave from deeper water against shallow water.
ZOOM MODE	Selects the type of zoom display. B/L, Bottom-Lock;B/Z, Bottom Zoom, and M/Z, Marker Zoom.
NOISE LIMITER	Eliminates noise from other echo sounders and electrical interference.
HUE SELECTION	Selects colors for echoes and background.
CLUTTER LEVEL	Eliminates blue dots which are mainly caused by unclean water, from the screen.
MARKER	Selects the marker to select VRM or white marker.
FISH MARKS	Selects the type of fish mark and enable fish size measurer function.
SONAR TONE	Turn on/off sonar tone and adjust sonar tone volume.
ALARM SETTING	Selects the Bottom, Fish, and Temperatrue alarm function.

2.11.3 System menu description

Menu item	Description
DEPTH	Selects unit of depth measurement; meters, feet, fathoms, passi/braza.
ZOOM MARK	Turns zoom markers on/off.
F/A LEVEL Weak Medium Strong	Sets fish alarm level. Alarm against weak to strong echoes. Alarm against medium to strong echoes. Alarm against strong echoes only.
RANGE 1-9	Sets basic range. Change when default range are not satisfactory.
ZOOM RANGE	Selects range scale for bottom zoom and marker zoom displays. For example, If you choose , X2, the echoes doubles in size relative to the normal display.
B/L RANGE	Selects range for bottom-lock expansion display.
SPEED UNIT	Selects unit of speed measurement; knots, miles per hour, kilometers per hour.
TEMPERATURE UNIT	Selects unit of temperature measurement; Celsius and Fahrenheit.
PIC.ADVANCE MODE	Select the echo propagation mode.
CALIBRATE	Selects the calibration parameters.
DATA	Record and playback data in SD card (reserve for future use).

2.12 Menu operation

1. Press [Menu] to access Main menu
2. Press [Menu] twice to access System menu
3. Scroll between menu items by 

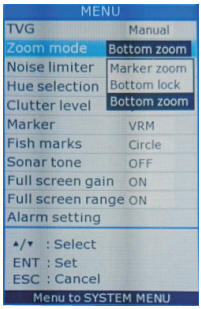
4. Press [ENT] to make changes to the menu item
5. Press [ENT] to confirm the change or press [ESC] to quit without saving the change.

Example:

If you want to change the "Zoom mode" from "Marker zoom" to "Bottom zoom" :

1. Press [Menu] once
2. Move the menu item cursor to "Zoom mode" by pressing
3. Press [ENT] to open the sub-menu 

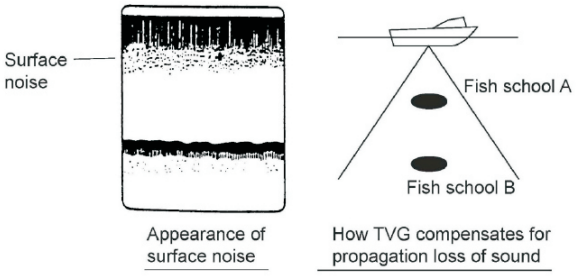
4. Move the sub-menu cursor to "Bottom zoom" by pressing
5. Press [ENT] to confirm and save the change. 



2.13 Main menu description

2.13.1 TVG (default setting: OFF)

The TVG (Time Variable Gain) compensates for propagation loss of sound so that the echoes from the same size fish schools in different depth are displayed in same color. If you are not familiar to adjust TVG, it is recommended to use "Auto" mode. Avoid excessive TVG, weak echoes may not be displayed. The TVG is also useful for reducing surface noise.



TVG OFF: Turn off TVG function (default)

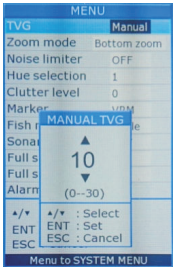
TVG Auto: Apply automatic TVG control

TVG Manual: Adjust TVG control manually

If you are not satisfied with the Auto TVG you can adjust the TVG manually. When you select TVG Manual then the following adjusting menu will appear as shown:

Select the suitable value of Manual TVG by watching the surface noise be eliminated without affecting the weak targets near the water bottom.

The function setting of TVG is between :
- 0 meter to 40 meters
- 0 feet to 120 feet
- 0 fathom to 20 fathoms



2.13.2 Zoom mode (default setting: Marker zoom)

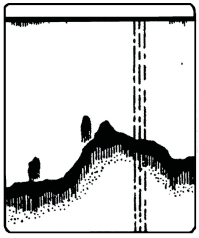
Please see detail in Zoom mode section 2.3.2

2.13.3 Noise Limiter (default setting: OFF)

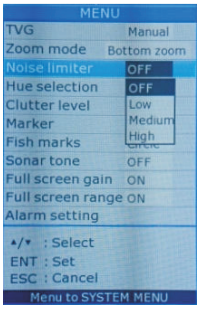
Interference from other equipment operating nearby or other electronic equipment on your boat may show itself on the display as shown below.

The user can enable Noise Limiter function to suppress the interference. There are three levels of Noise Limiter, Low, Medium and High, set to suitable level depending on the actual situation.

Interference from other sounder



Electrical interference



2.13.4 Hue selection (default setting: 1)

User can select different background and echo color combinations for different purpose and different environment.

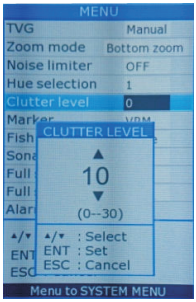
Hue options

Hue	Background color	Echo color
1	Blue	7 colors, bottom reddish-brown
2	Blue	6 colors, bottom red
3	Black	7 colors, bottom reddish-brown
4	Black	6 colors, bottom red
5	White	7 colors, bottom reddish-brown
6	White	6 colors, bottom red
7	White	Monochrome yellow, 8 intensities

2.13.5 Clutter level (default setting: OFF)

Light blue dots (weak targets or noise) may appear over most of the screen. This is mainly due to unclean water or noise. This noise can be suppressed by adjusting the Clutter level (0 to 30) on the menu.

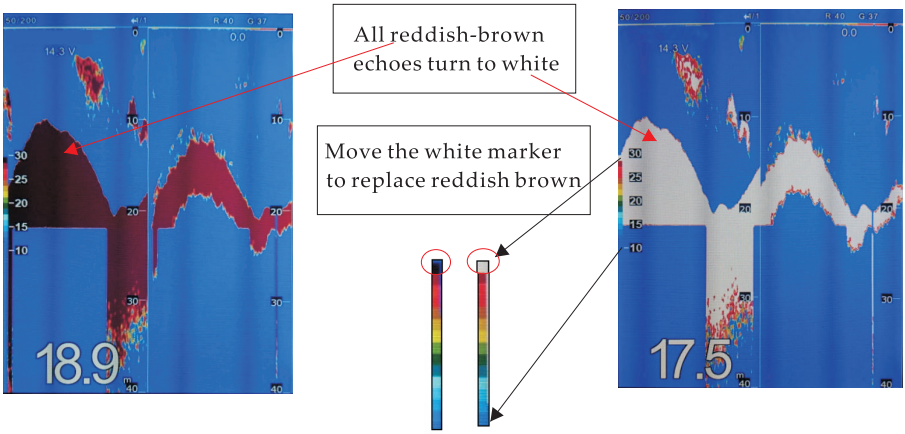
Low level noise



2.13.6 Marker (default setting: VRM)

The function of MARKER can be set as a VRM (Variable Range Marker, described in section 2.9) or White Marker.

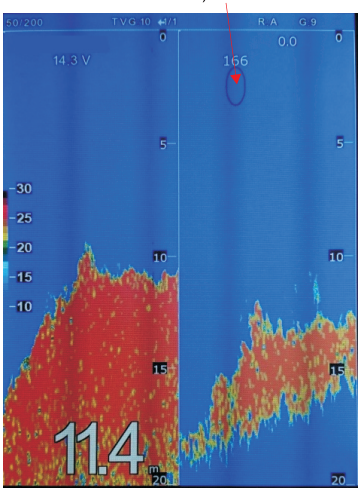
The white marker functions to display a particular echo color in white. For example, you may want to display the bottom echo (reddish-brown) in white to discriminate fish echoes near the bottom. Note that the bottom must be displayed in reddish-brown for the white marker to function.



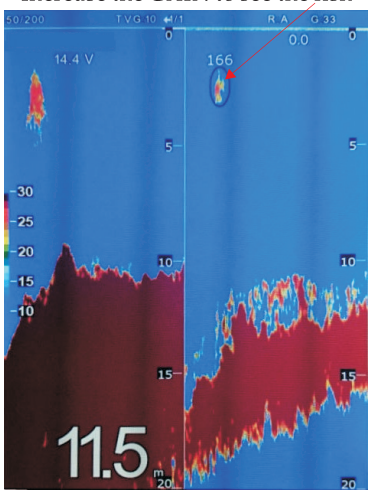
2.13.7 Fish Marks (default setting:OFF)

Sometimes you might miss a fish or school of fishes if you wrongly adjusted the GAIN. By enabling the "Fish marks" function, fish or school of fishes will be displayed as a fish or a circle even if you wrongly adjusted the GAIN or GAIN setting is set too low. The size of the fish or school of fishes will also be displayed besides the Fish marks.

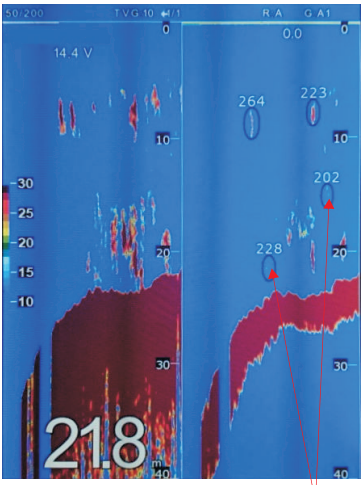
GAIN is set too low, no fish is seen



Increase the GAIN to see the fish

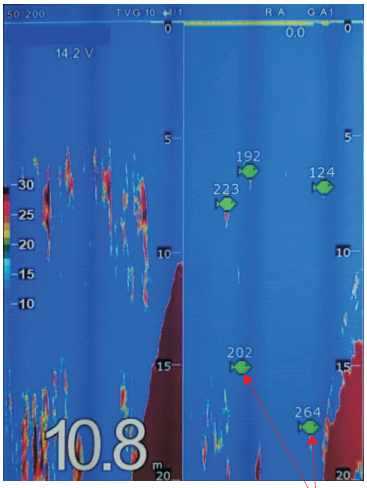


GAIN is set too low



Fishes or school of fishes are represented by circles

Correct GAIN

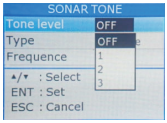


Fishes or school of fishes are represented with Fish mark

2.13.8 Sonar sound (default setting: OFF)

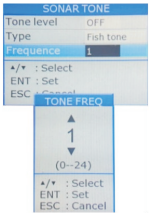
Sometimes the user might miss a fish or school of fishes if he/she is preoccupied with other tasks and cannot fully focus on the screen of the fishfinder. The "Sonar tone" function would help in such case. Turn on the "Sonar tone" function; the user can hear a regular sonar tone from the speaker below the Power switch. In case a fish or school of fishes comes beneath your boat the sonar tone will change depending on the size of the fish. Therefore, the user can check the depth and size of the fish (if Fish marks function is turned on) by looking in the screen.

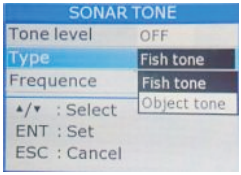
There are four volume levels (including OFF) and can be set in the Sonar tone menu. The volume is from 1-3, wherein 3 is the maximum volume.



Four Volume levels of Sonar tone

The user can also choose the sonar tone when hitting fish or any objects by selecting sonar tone type to either "Fish tone" or "Object tone" as shown. When "Fish tone" is selected, the sonar tone changes when there are fishes under your boat. When "Object tone" is selected then the sonar tone changes when there are any objects, even garbage, under your boat.

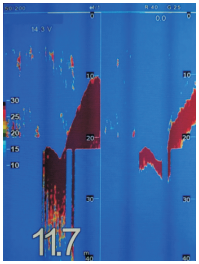




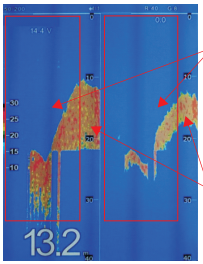
If the user doesn`t like the tone of the sonar sound he can adjust the tone in the Frequency menu. there are 24 tone frequencies that can be selected.

2.13.9 Full screen gain (default setting: ON)

By turning ON "Full screen gain" the previous echoes will change color with the new echoes when adjusting the [GAIN]. If the "Full screen gain" is turned OFF, then only the new echoes would change color according to the adjustment of the [GAIN] while the previous echoes remain unchanged.



After adjusting the GAIN

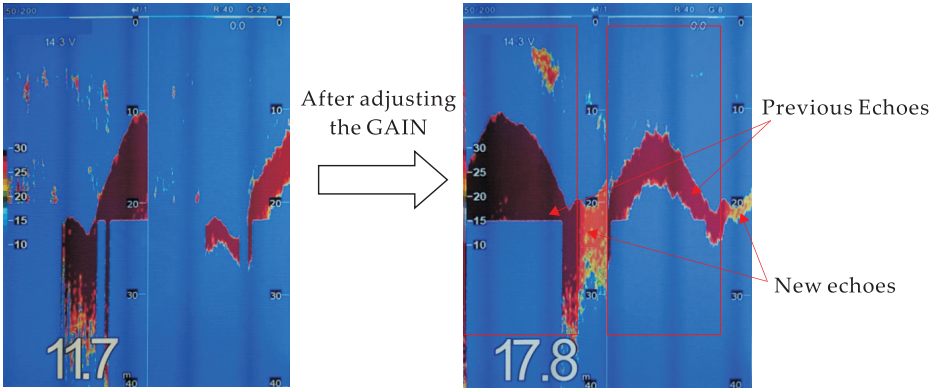


Previous Echoes

New echoes

"Full screen gain" turned ON, the previous echoes would change color with new echoes

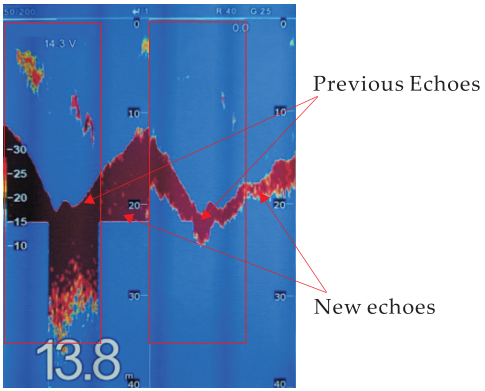
2.13.9 Full screen gain (continue...)



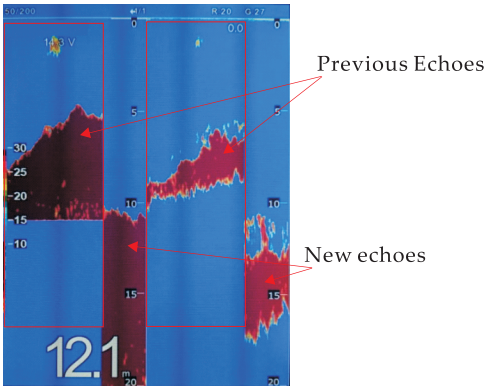
"Full screen gain"is set to OFF, the previous echoes would not change color with new echoes

2.13.10 Full screen range (default setting: ON)

The function of "Full screen range" is similar to"Full screen gain". By turning on the "Full screen range", the previous echoes will change in range with the new echoes when [RANGE] is adjusted. If the"Full screen range" is turned off, then only the new echoes would change in range according to the adjustment of the [RANGE] while range setting of the previous echoes remain unchanged.



"Full screen range" turned ON, the previous echoes will change in range with the new echoes



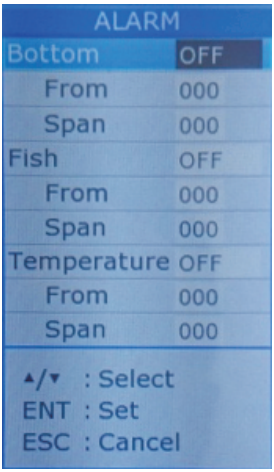
"Full screen range" turned OFF, the previous echoes stay on the previous range setting while the new echoes change in range according to the adjustment of [RANGE]

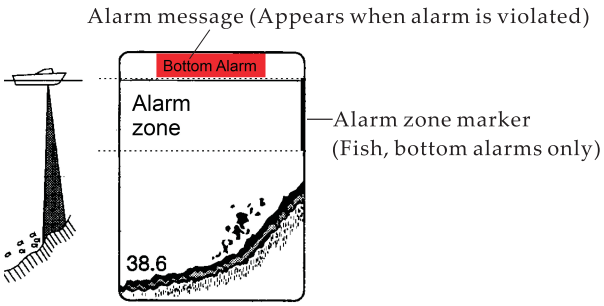
2.13.11 Alarm setting

There are three types of alarm settings in KFish-7: Bottom, Fish and Temperature.

1. Press MARKER to select an alarm (Bottom, Fish or Temperature).
2. Press [ENT] key to select ON or OFF.
3. Enter the starting point of the ALARM ZONE in the "From" item.
4. Enter the width of the ALARM ZONE in the "Span" Item.

Note: For Temperature Alarm, instead of ON the available selection are "Inside" and "Outside". Select "Inside" to get an alarm when the water temperature is within the alarm zone range, or "Outside" to get an alarm when the water temperature is higher or lower than the alarm range.

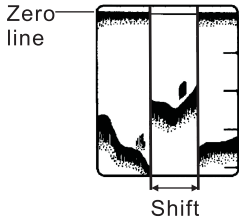




3. INTERPRETING THE DISPLAY

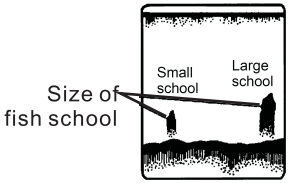
3.1 Zero Line

The zero line (sometimes referred to as the transmission line) represents the transducer`s position, and moves off the screen when a deep phased range is used.



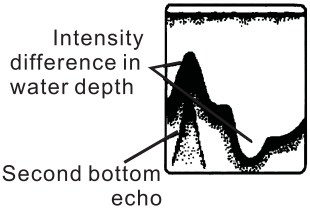
3.2 Fish School Echoes

Fish school echoes will generally be plotted between the zero line and the bottom. Usually the fish school/fish echo is weaker than the bottom echo because its reflection property is much smaller compared to the bottom. The size of the fish school can be certained from the density of the display.

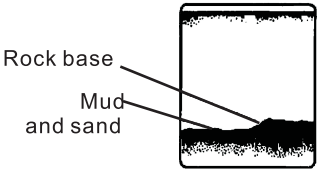


3.3 Bottom Echo

Echoes from the bottom are normally the strongest and are displayed in reddish-brown color (in default color arrangement) but the color and width will vary with bottom composition, water depth, frequency, sensitivity, etc.



In a comparatively shallow depth, a high gain setting will cause a second or sometimes a third or a fourth echo to be displayed at the same interval between them below the first echo trace. This is because the echo travels between the bottom and the surface twice or more in shallow depths.

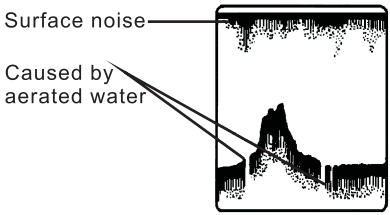


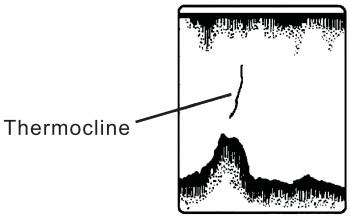
The color of the bottom echo can be used to help determine the density of the bottom materials (soft or hard). The harder the bottom, the wider the trace. If the gain is set to show only a single bottom echo on mud, a rocky bottom will show a second or third bottom return. The range should be chosen so the first and second bottom echoes are displayed when bottom hardness is being determined.

3.4 Surface Noise/Aeration

When the waters are rough or the boat passes over a wake, surface noise may appear near the zero line. As surface turbulence is acoustically equivalent to running into a brick wall, the bottom echo will be displayed intermittently. Similar noise sometimes appears when a water temperature difference (thermocline) exists. Different species of fish tend to prefer different temperature zones, so the thermocline may be useful to help identify target fish. 200KHz tends to show shallow thermoclines better than 50KHz.

In rough waters the display is occasionally interrupted due to below-the-ship air bubbles obstructing the sound path. This also occurs when the boat makes a quick turn or reverses movement. Lowering the picture advance speed may reduce the interruption. However, reconsid eration of the transducer installation may be necessary if the interruption occurs frequently.





4. MAINTENANCE,TROUBLESHOOTING

WARNING

ELECTRICAL SHOCK HAZARD
Do not open the equipment.

Only qualified personnel should work inside the equipment.

4.1 Maintenance

Regular maintenance is important for good performance. Following the recommended maintenance procedures will help keep your set in good working condition.

4.1.1 General checking

Important points to be checked from time to time are tabulated below.

Maintenance check points

Check point	Action
Transducer cable	If conductors are exposed, replace cable.
Power cable plug/transducer cable plug	If loosened, tighten.
Display unit ground	If corroded, clean
Ship's mains voltage	If out of ratings, correct problem.

4.1.2 Replacement of fuse

The fuse on the power cable protects the equipment against overvoltage/reverse polarity of the ship's mains or internal fault of the equipment. If the fuse blows, find the cause before replacing the fuse. If the fuse blows again after replacement, call for service. A fuse rated for more than 3A should not be used since it would damage the equipment and void the warranty.

CAUTION

Use the proper fuse.

Use of a wrong fuse can cause fire or equipment damage.

4.1.3 Cleaning

Keep the equipment clean and dry at all times. Dust or loose dirt should be wiped off with a soft, dry cloth. Do not use chemical cleaners to clean the display unit-they can remove paint or markings.

4.1.4 Maintenance of the transducer

Marine life on the transducer face will result in gradual decrease in the sensitivity. Check the transducer face for cleanliness each time the boat is hauled out of the water. Carefully remove any marine life with a piece of wood or fine sandpaper.

4.2 Basic Troubleshooting

The troubleshooting table below presents common problems and the means to restore normal operation. If normal operation cannot be restored do not attempt to check inside the equipment.

Basic troubleshooting

If ···	Then
Neither echo nor fixed range scale appears	• check battery voltage. • check fuse. • check battery terminal for corrosion. • check that the power cable is securely plugged.
No echo but range scale shows	• check if display speed is set to"0". • check if transducer plug is firmly connected.
Echo appears but no zero line	• check if range shifting is set to"0".
The equipment shows signs of low sensitivity	• check if gain setting is suitable. • check for air bubbles or marine life attached to transducer. • check if water is dirty. • bottom may be too soft to return proper echo.
No water depth readout is shown	• check if bottom echo is painted red or reddish-brown. • check if bottom is displayed.
Much noise or interference is present	• check if transducer/transducer cable is too close to engine • check unit ground. • check if there are other echo sounders of the same frequency nearby.
Water temperature indication*is absent or unrealistic	• check that the sensor plug is securely fastened.
Position indication*is absent or unrealistic	• check that the equipment plug is securely fastened. • check position-fixing equipment.

Requires external equipment

4.3 Transducer Check

A simple and reliable check of the transducer is to temporarily replace the transducer with a new one. If the sensitivity is considerably improved through this change, the transducer is probably faulty. This method is especially useful for inside-hull or through-hull installation.

Another method is to listen to the transmission sound. Haul the transducer from the water and turn on the power. Put your ear near the transducer face and carefully listen to the transmission sound. If you can hear a clicking sound, the transducer is probably normal. Next, rub the transducer face with your hand and observer whether noise appears on the screen. The appearance of noise indicates the transducer is normal. In case of neither sound nor noise, the transducer is probably faulty.

4.4 Water Temperature Sensor (optional) Check

The idea of the transducer check can apply to this case too; temporarily substitute a new sensor. If the temperature indications become normal, your sensor may be faulty.

When a new sensor is not available, the water temperature indication should change when you touch the thermosensor.

Specifications

1.GENERAL

（1）Display	7-inch TFT LCD
（2）Echo Color	16 colors (including background color) according to echo intensity. Monochrome display is also available. The background color is selectable from blue, light blue, white and black.
（3）Basic Range	Meters：5/10/20/40/80/150/300/600/1000 Feet：15/30/60/120/200/400/1000/2000/3000 Fathoms：3/5/10/20/40/80/150/300/600 Passi/Braza：3/5/10/30/50/100/200/350/600 The basic range can be changed on the system menu.
（4）Range Shift	Up to 1000 meters (3000 feet,600fathoms,600 passi/braza
（5）Zoom Range	Times 2,3,4 and 6 ranges
（6）Bottom Lock Expansion Range	5/10/20meters,10/20/40feet,2/5/10fathoms,2/5/10passi/braza
（7）Auto Mode	Automatic adjustment of range and gain
（8）Display Mode	High Frequency (200K),Low Frequency (50K), Dual (200K and 50K 1/2display on each), Zoom (200K and 50K zoom) and A-scope Display
（9）Zoom Display	Marker Zoom, Bottom Zoom and Bottom-lock Expansion
（10）Display Advance Speed	Lines/TX:Freeze,1/8,1/4,1/2,1/1,2/1,4/1
（11）TX Frequency Output power	50 and 200kHz (alternately transmitted), 600W
（12）Interference Rejecter	Rejects unwanted signals by comparing last and present echoes in strength.
（13）Alarm	Fish and Bottom alarms, Temperature alarm*
（14）Input/output data	NMEA 0183
Input	RMC, VTG
Output	SDDBT, SDDPT

*: Temperature sensor required.

2.POWER SUPPLY

（1）Display Unit　　12-24 VDC（-10%,+30%）: 1.0 - 0.6 A

3.ENVIRONMENTAL CONDITION

（1）Ambient Temperature　0℃ to +50℃

（2）Relative Humidity　　85% at 40℃

（3）Water proofing　　Display Unit:IPX7

（4）Vibration　　±1mm ±10%, 2(5) to 13.2Hz,
Maximum acceleration 7 m/s^2, 13.2 to 100Hz

4.COATING COLOR

（1）Display Unit　　Chassis: 2.5GY5/1.5
Panel: N3.0 Newtone No.5