# NAVMAN

# NAVMAN FISHFINDER F400/F440

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# Introduction

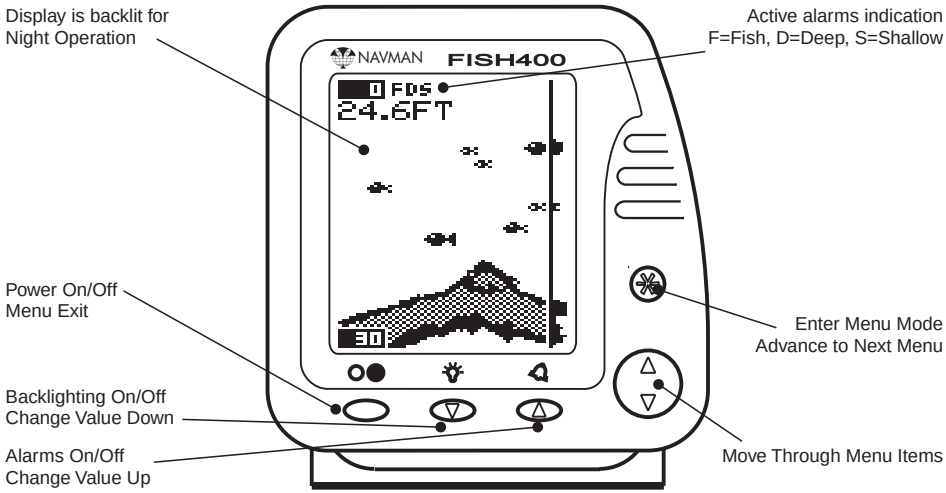
Thank you for purchasing a NAVMAN 400 series fishfinder. The 400 series is a powerful, yet easy to use sonar fish and bottom depth detector. Please read this manual carefully before installing and using your fishfinder. This manual deals with both the FISH400 and FISH440. The more you know and understand about the capabilities of the unit, the better it will perform for you.

## Specifications for 400 Series

- **Dimensions**
  132 mm W(max) x 133 mm H x 46 mm D
- **Depth Capability**
  180 metres, 600 feet
- **Transducer Type**
  Aquatic transom-mount single beam. Thru hull transducer options are also available.
- **Operating Frequency**
  200 KHz
- **Transducer Angle**
  15 degrees
- **Receiver Sensitivity**
  30 micro volts RMS
- **Power Output**
  400 watts RMS (3200 watts peak-to-peak) maintained within 10% down to 10.5 volts.
- **Display Size**
  100mm (4¼") Diagonal. 82 mm x 76 mm (3¼" x 3")
- **Display Type**
  STN temperature compensated
- **Display Matrix**
  100 x 64 pixels
- **Input Voltage**
  10 to 18 volts DC @ 150 mA max. (lights on)
- **Backlighting**
  Even illumination. Seven levels plus off.
- **Operation Temperature**
  0°C to 40°C ambient ( 32°F to 104°F )

## Additional FISH440 Specifications

- **Boat Speed**
  0.0–50.0 kts, mph, kph user selectable
- **Water Temperature**
  0.0–40.0°C (32.0–99.0°F) user selectable
- **Log**
  Records up to 9999.9 nm, km, stored in memory, resetable.
- **Power Output**
  440 watts RMS (3500 watts peak to peak) maintained within 10% down to 10.5 volts.



# Installation

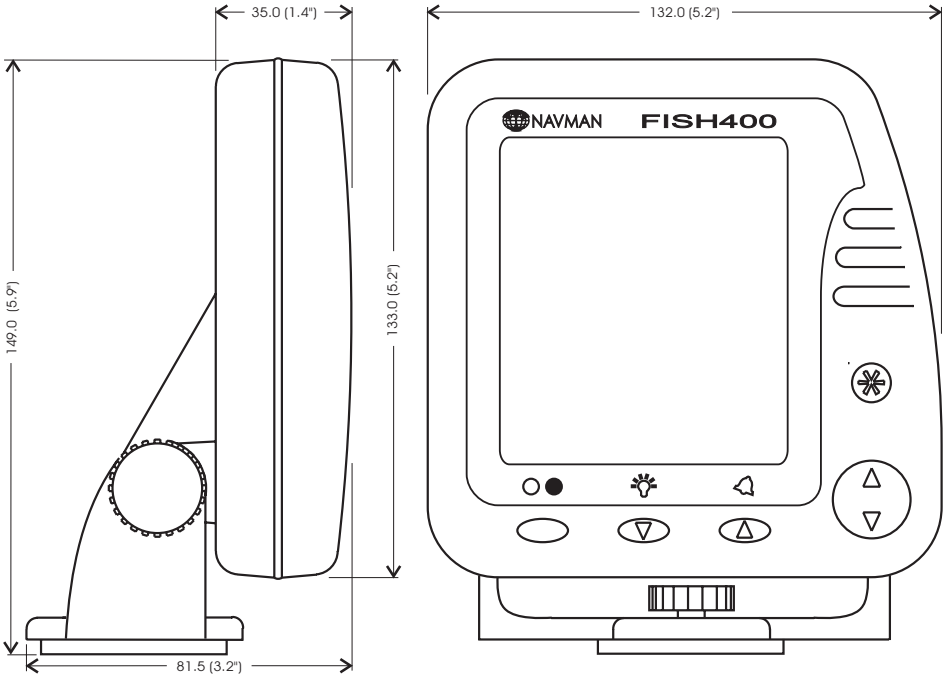
## Location

The FISH400 and FISH440 are water resistant and may be mounted and operated in many positions thanks to its compact and robust bracket, associated with a swivel support.

***Note***
***It may be advisable to install the transducer and wiring before finalising the location of the display head and bracket.***

When installing the display head, select a position where it will be:

- at least 300 mm ( 12" ) away from the compass.
- at least 300 mm ( 12" ) away from any radio transmitter, such as the VHF.
- easy to read by the helmsman and crew while under way.
- protected from physical damage during rough sea passages.
- have easy access to the 12 volt power source.
- convenient to route the transducer cables.



# Installation – The Transducer

Read this section carefully before attempting the transducer installation. **Remember, the transducer location is the most critical part of the installation.** If this is not done properly, the transducer can't perform at its designed potential. Therefore the performance of the fishfinder, especially at higher speeds, will not be satisfactory.

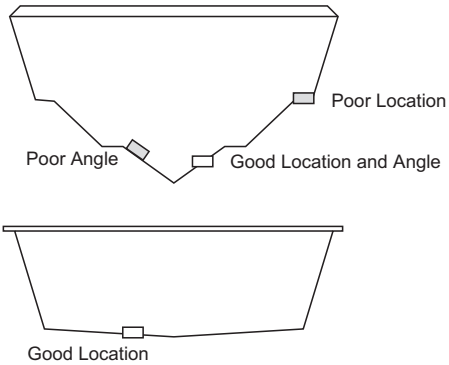
## • Transom Mount Transducer

### Location

The transducer can be installed on any outboard or sterndrive powered boat. The transom mount transducer has a safety "kick up" mounting bracket to help minimise damage to the transducer should it impact the bottom or floating debris in the water.

Select a position for the transducer that will:

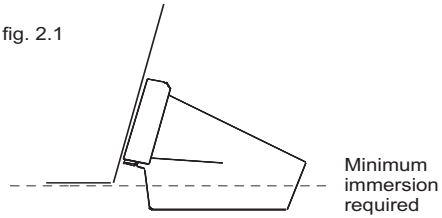
- allow the transducer a smooth flow of water over its surface at all times.
- ensure a mount as deep in the water as possible.
- be clear of any interference from the trailer when launching or retrieving the boat.
- be away from planing strakes or other projections from the hull that may cause aerated water to flow over the face of the transducer.
- be away from the propeller
- be at least 150 mm ( 6" ) away from the keel of the boat.




### Mounting

Once the best location of the transducer is determined, hold the transducer and bracket against the transom. The bottom surface of the transducer needs to sit parallel to the surface of the water for the best signal return. The lower face of the transducer should extend down below the bottom of the hull so that it will be below the surface of the water at high speeds. (See fig. 2.1)

fig. 2.1




Mark the transom through the bracket slots to correctly place the two outer screws. Now drill the two holes in the centre of the slots. This will allow you to adjust the transducer position later on if required. Use two of the three stainless screws supplied to attach the bracket to the transom. Ensure the lower face of the transducer is parallel with the ground (see fig. 3.1 and 3.2). Tighten the two screws.

fig. 3.1

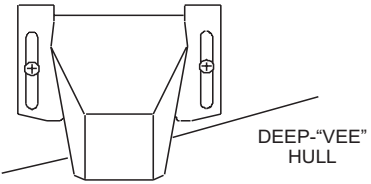
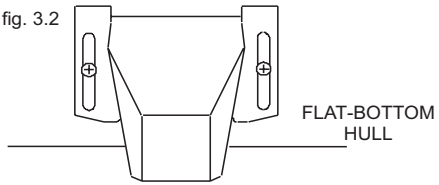
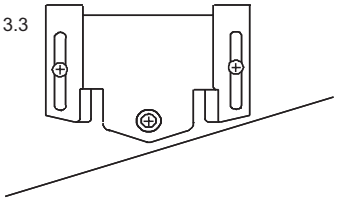



fig. 3.2



Finally, drill a hole and insert the third screw in the middle of the bracket. It is advisable to fill holes with a sealing compound before inserting screws (see fig. 3.3).

fig. 3.3



## • Other Types of Transducers

It is possible to use your NAVMAN Fish Finder with all the NAVMAN Transducers Range (including thru-hull mounting). For this purpose you need to purchase the Y adaptors for the FISH400 and FISH440, which will allow you to separate the power cable from the transducer's cable.

# Wiring connection

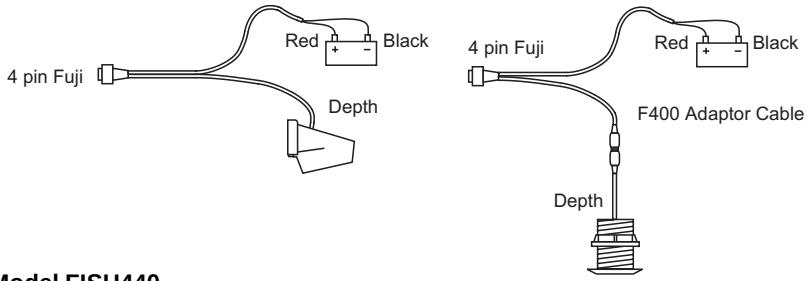
### Electrical protection

- Your fishfinder has an internal electrical protection system for over voltage and short circuit situations. It is not necessary to use a fuse or a circuit breaker.

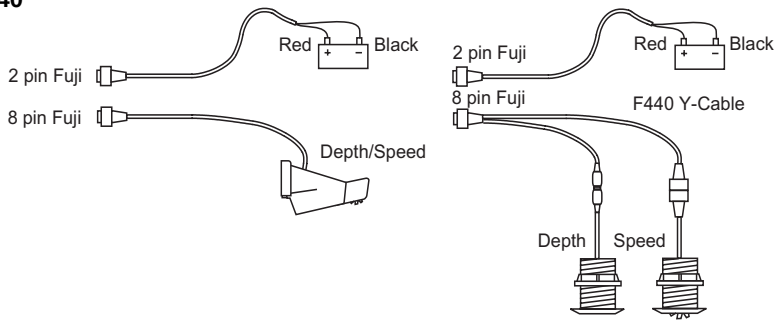
If possible, route the transducer cable away from other wiring on the boat. Electrical noise from engine wiring, bilge pumps, and other equipment can affect the display.

- Both the power and depth transducer cables lead into one four pin connector on the FISH400 or the eight pin connector on the FISH440. This plugs into a single socket in the rear of the instrument. Connect the red wire of the two-core power cable to the positive supply and the black wire to the electrical ground. The shortest and most direct connection to the boat's battery will help to eliminate any problems due to voltage drop or electrical interference.

### Model FISH400




### Model FISH440



# Operation

## Introduction

The FISH400 and FISH440 use sonar technology to display lake or seabed contours and to detect fish. The system consists of an LCD display unit and a depth transducer positioned in the water. The model FISH440 is also supplied with integrated boat speed and water temperature sensors.

## Primary functions and quick operation introduction

| | |
|---|---|
| ○● | Turns the power ON and OFF<br>• Press for one second to turn the power ON<br>• Press and hold for three seconds to turn the power OFF<br>Selects digital information to be displayed in the top left corner of the Fish Finder screen.<br>Returns the unit to operating mode from any menu. |
| ☼ ⌄ | Turns the backlighting ON or OFF<br>• Press once to turn the backlights ON<br>• Press again to turn the backlights OFF<br>Decreases setting values in menus. |
| 🔔 ⌃ | Turns the alarms ON or OFF<br>• Press once to turn the alarm ON<br>• Press again to turn the alarm OFF<br>Increases setting values in menus. |
| ✻ | Enters menu mode<br>Advances to the next menu |
| ▲ ▼ | Moves through the list of items in each menu |

The LCD screen is menu driven for ease of use. The automatic detection can locate and display the position of fish with three different size fish symbols. This feature can be disabled so that the LCD will display only the raw electronic signals. Experienced users can use this mode to extract even more information about the water and seabed conditions.

***Note***
***Momentarily pressing the ○● key removes or displays depth, speed and temperature data (depth only in the FISH400) from the upper left corner of the display. The format chosen is retained in memory when the power is switched off.***

## Menu selection system

Your fishfinder has many features that may be selected for adjustment. Each of these features have a menu screen. You may access all the menu screens by repeatedly pressing the ✻ key.

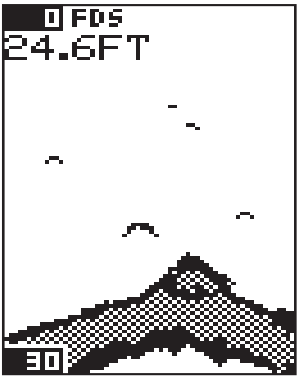
Menus such as the manual gain control, shallow and deep water alarms have additional numerical control windows. The number in this window is changed by using the ⌄ and ⌃ keys. Any changes made are recorded in memory as soon as you exit the menu screen. **All changes are stored in memory when the power is switched off.**

***Note***
***To exit or clear any menu from the screen, press the ○● key.***

# Display and Operating Modes

The FISH400 has five modes of operation. These are Echo, Echo + Analogue Scope, AutoFish, AutoFish + Analogue Scope and Navigate.

## Echo mode

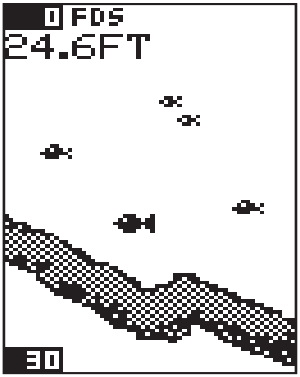



The Echo mode displays the return signals as they are received from the transducer. Fish appear as arches and not as fish symbols. The length of the arch will indicate the relative size of the return echo and size of the fish.

The Echo mode enables the unit to display echoes caused by surface turbulence, thermal layers, plankton or transducer noise when the boat is moving. This mode is very useful for the experienced user.

The digital display in this sample window is indicating the depth of the bottom. The display units are also user selectable

## Autofish mode

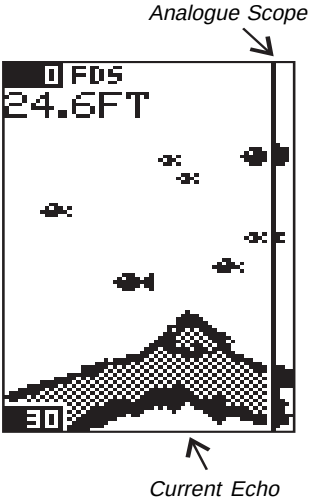



The Autofish mode automatically analyses the return echoes and displays echoes with fish icons (the bigger the echoes, the bigger the icon!).

The return echo is caused when the sonar beam strikes the air stored in the fishes swim bladder. Certain types of fish have larger swim bladders than normal so the size of the icon is not always a reliable way to indicate the relative size of the fish.

In the Autofish mode, unnecessary surface noise is reduced from the top of the screen. This mode is recommended when your boat is moving along at higher speeds.

## Analogue-scope function




The Analogue-scope function is available in either the Echo or Autofish modes. This feature displays an intensity graph of the current echoes down the right hand side of the screen.

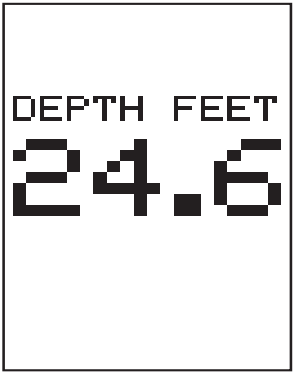
The information can be used to help determine the type of bottom structure and the size of fish. The strength of the echo is proportional to size or number of pixels visible in the analogue section of the screen. This feature will help to determine the strength of the return echo from the bottom and therefore how hard or soft the bottom may be.

## Navigate Mode NAV

In this mode the depth, speed and temperature are displayed in large easily readable digits. This is useful when navigating to your favourite fishing location.

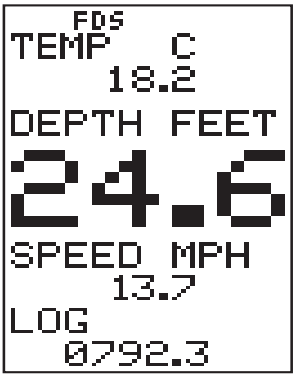
To increase precision, the values are displayed in 0.1 increments.

## Model FISH400




*Displays depth only*

## Model FISH440

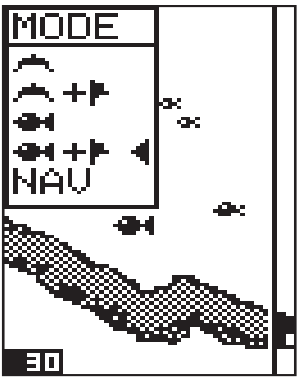



You may display water temperature in degrees °C or °F. The depth of the bottom in feet, metres or fathoms. The speed of the boat in mph, knots or kph.

The log will display the total distance in the speed unit you have selected. The log total is automatically stored in memory when the power is switched off or removed but this value can be reset to zero (see SETUP menu).

When either or all of the Fish (F), Shallow (S) or Deep (D) alarms are active they are displayed at the top left corner of the screen.

## Changing the mode of operation




- Press the ✻ key to activate the **mode** menu
- Press either the ▲ key or the ▼ key to move the pointer to the desired mode of operation
- Press the ○● key to accept the choice and return to normal display mode

The symbols in the display box are as follows

| | |
|---|---|
| | Echo mode |
| | Echo mode + analogue scope |
| | Autofish mode |
| | Autofish + analogue scope mode |
| NAV | Navigate data mode |

# Range function

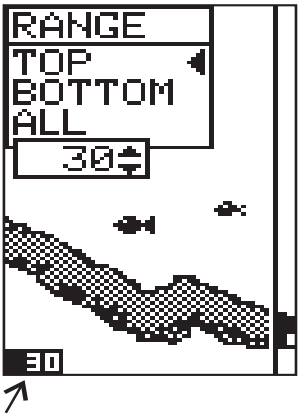
The range function allows you to control the depth range that is displayed on the LCD. There are three different range modes; **Top**, **Bottom**, and **All**.

If **Top** is selected then a lower depth limit value must also be selected. This mode locks the display to show only echoes from the surface of the water down to the lower depth limit you have selected. This means that the sea bed may not be shown if the water is deeper than the selected lower depth limit.

If **Bottom** is selected then an upper depth limit must also be entered. This mode locks the display to show only echoes between the sea bed and the upper depth limit you have selected. The top of the water may not be shown if the water is deeper than the upper depth limit. This feature is like a ZOOM function, as it allows you to see the bottom contour and fish echoes above the bottom in greater detail.

If **All** is selected then the unit will automatically adjust the display range to show both the top of the water and the sea bed no matter what the depth of the water is.

## Setting the display range




*Depth Range Limit*

- Press the ✻ key until the **range** menu is displayed.
- Press either the ▲ key or the ▼ key to move the pointer to the desired mode of operation

- If the desired mode is **Top** or **Bottom** then use the ⌄ or the ⌃ key to adjust the limit value to the desired level
- Press the ○● key to accept the choice and return to normal display

# Gain function

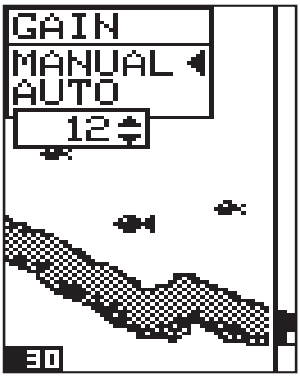
The gain is a measure of ability to receive weak signals. The higher the gain setting, the better the unit is able to pick up weak return signals. Deep water operation requires the gain to be set to a higher value due to loss of signal in the water.

There are two gain modes that can be selected, **Manual** and **Auto**.

If **Manual** is selected then a gain setting from 0 to 15 must also be entered. This will be the value of gain that is always used when displaying information on the screen. A low gain number may be suitable in shallow water but will need to be increased for deep water operation

If **Auto** is selected then the gain will automatically vary as the water depth changes. This feature is particularly useful if you are fishing areas where the depth changes suddenly. In Auto mode, you can set the auto-gain value to provide a consistent image of the bottom, regardless of the bottom type. A low auto-gain setting will cause a thin bottom image to be displayed. A high auto-gain setting will result in a thick bottom image. This adjustment is particularly useful with a weak return signal from a muddy or silty bottom. Normally, in these conditions the auto-gain will increase the gain to a level that may make the display appear too cluttered, making it difficult to distinguish fish. In this situation the auto-gain can be reduced to display a weak bottom image but with improved fish images.

### Setting the gain

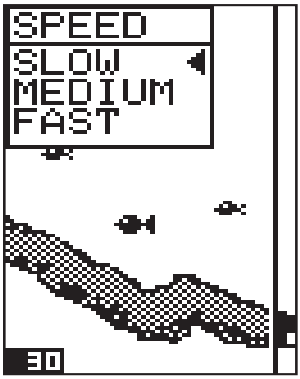



- Press the ✻ key until the **gain** menu is displayed
- Press either the ▲ key or the ▼ key to move the pointer to the desired mode of operation
- If the desired mode is **Manual** then use the ⌄ or the ⌃ key to adjust the value to the desired level
- Press the ○● key to accept the choice and return to normal display mode
- If the desired mode is **Auto** then use the ⌄ or the ⌃ key to adjust the value to the desired level. In **Auto** mode the gain will be controlled to show the same bottom detail irregardless of depth

# Display scroll speed

The scroll speed is the speed that the picture moves across the screen. It is adjustable in three distinct steps, **slow**, **medium** and **fast**. In general the faster scroll speed will work better with higher boat speeds. The slower scroll speeds are more suitable for slow speed trolling and slower vessels. The most suitable scroll speed is determined by experimentation

## Setting the scroll speed




- Press the ✻ key until the **speed** menu is displayed
- Press either the ▲ key or the ▼ key to move the pointer to the desired scroll speed
- Press the ○● key to accept the choice and return to normal display mode

# Alarms

There are three different types of alarms, **Fish**, **Shallow**, and **Deep**. All the alarms activate the internal buzzer if their alarm condition is met. The buzzer will provide three different alarm signals. A short alarm signal for a mid water echo, such as a fish, a long continuous signal for a shallow water alarm and a series of short signals for a deep alarm. Each alarm can be individually enabled or disabled. All enabled alarms can be simultaneously disabled with a single key press.

The alarm indicator bar on the top left of the display shows which alarms have been selected. They are fish 'F', shallow 'S', and deep 'D'.

**Fish Alarm** Alerts you with a single short signal when an object that could be a fish is detected. The alarm for a small fish is shorter than the alarm for a bigger fish.

**Shallow Alarm** Alerts you when the water depth is shallower than the shallow alarm setting, i.e., the water becomes too shallow.

**Deep Alarm** Alerts you when the water depth is deeper the deep alarm setting, i.e., the water becomes to deep.

## Alarms on the FISH440

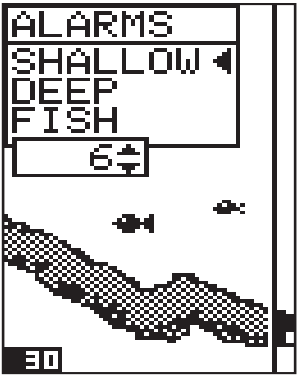
When either or all of the Fish, Shallow or Deep alarms are active they are displayed on the screen. When an alarm is triggered there is a beep and the corresponding alarm's figure flashes on and off.

## Anchor Drag Alarm

The Shallow and Deep Alarms can be set just above and below your anchored depth. An alarm will sound if your anchor drags and you drift into deeper or shallower water.

Be sure to disable the fish alarms in this mode to prevent false anchor drag alarms due to fish.

## Setting the alarms




- Press the ✻ key until the **alarms** menu is displayed
- Press either the ▲ key or the ▼ key to move the pointer to the required alarm
- Use the ⌄ or the ⌃ key to adjust the alarm setting to the desired depth level. OFF is shown if shallow alarm value is 0 or deep alarm value of 600 feet is selected
- Press the ○● key to accept the choice and return to normal display mode

# Setup Menu

The setup menu enables you to customise the 'look and feel' of the instrument. There are six parameters that can be adjusted. Lamp intensity, units of measure, keel offset, training mode, LCD contrast and white line operation.

**Lamp Intensity** The intensity of the night vision lights can be adjusted from 1 to 7 and OFF.

**Units Of Measure** Depth can be displayed in either feet (FT), meters (M), or fathoms (FA).

**Keel Offset** The depth of water is normally measured from the face of the transducer to the bottom. You can enter an offset which will be added or subtracted from the calculated depth before it is displayed on the LCD. Entering a negative offset can be used to display the depth of water below the keel. Entering a positive offset can be used to show depth from the surface to the bottom. When entering zero as an offset, the fishfinder will display depth of water below the transducer.

**Training Mode** This setting will enable a simulation mode which allows you to learn to use all the different features in this instrument.

**LCD Contrast** You can adjust contrast level from 0 to 7 to match your preference. Special circuitry will also automatically adjust the contrast for changes due to temperature.

**White Line** This feature displays the bottom signal as a thin line, with a variable width band beneath it. This indicates the bottom hardness and also allows you to separate targets near the bottom of the sea bed. This function will also remove most surface echo signals from the top of the screen.

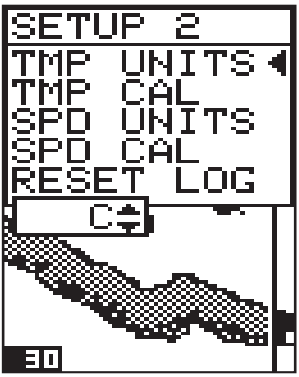
## Changing the setup functions

- Press the ✻ key until the **setup** menu is displayed
- Press either the ▲ key or the ▼ key to move the pointer to the required setup item
- Use the ⌄ or the ⌃ key to adjust the setting to the desired value
- Press the ○● key to accept the choice and return to normal display mode

# Setup Menu – Speed & Temperature (FISH440 only)

## Changing the speed & temperature setup

The model FISH440 fishfinder is able to display boat speed, water temperature, and water depth. This menu enables you to customise the display of speed and temperature and to change the calibration setting of these features.




**Temperature units** Temperature can be displayed in either °C or °F.

**Temperature calibration** If the displayed temperature is known to be wrong then it can be adjusted using this function. The calibration value is saved in memory automatically.

**Speed units of measure** Speed can be displayed in either knots (KTS) miles per hour (MPH) or kilometres per hour (KPH).

**Speed calibration** If the displayed speed is known to be wrong then it can be adjusted using this function. The calibration value is saved in memory automatically.

**Reset log** The distance log can be reset by changing this option from 'NO' to 'YES'. If the selection is YES, the log will be reset when you exit this menu.

- Press the ✻ key until the **setup 2** menu is displayed
- Press either the ▲ key or the ▼ key to move the pointer to the required setup item
- Use the ⌄ or the ⌃ key to adjust the setting to the desired value
- Press the ○● key to accept the choice and return to normal display mode

# Troubleshooting

### The Fishfinder won't turn on:

1. Check the power cable socket at the back of the Fishfinder.
2. Make certain the power cable's red wire connects to the positive battery terminal and the black wire to negative or ground.
3. Measure the voltage at the unit's power terminals. It should be at least 10 volts. If it isn't:
   - the battery terminals or wiring on the terminals are corroded
   - the battery needs charging.
   - the wiring to the unit is defective
4. Check any fuses you may have placed in the line.

### The Fishfinder freezes, locks up, or operates erratically:

1. Electrical noise from the boat's engine or an accessory may be interfering with the sonar unit.

   To stop this, try:
   - re-routing the power and transducer cables away from the other electrical wiring on the boat
   - routing the unit's power cable directly to the battery instead of through a fuse block or ignition switch
2. Inspect the transducer cable for damage or pinched wires.
3. Check the transducer and power connector. Make certain it is securely plugged into the unit.

### Weak bottom echo, digital readings erratic, or no fish signals:

1. Make certain the transducer is pointing straight down.
2. Electrical noise from the boat's motor can interfere with the Fishfinder. This causes the Fishfinder to automatically decrease the gain level unless the gain control has been set manually. The Fishfinder thus eliminates weaker signals such as fish or even the sea bed from the display.
3. Manual gain may be set too low, if you have the instrument set in manual mode.
4. The water may be deeper than the Fishfinder's ability to find the bottom. If it cannot find the bottom return signal while it is in the automatic mode, the display will flash continuously. It may change the range to a realistic one, and increase the sensitivity. As you move into shallower water, a bottom signal should appear.
5. Check the battery voltage. If it is too low, the unit's transmitter power is also low, reducing its ability to find the bottom or targets.

### Bottom echo disappears or erratic digital reading while your boat is moving:

1. The transducer may be in turbulent water. Air bubbles in the water disrupt the Fishfinder signals, interfering with its ability to find the bottom or other targets. This often happens when you reverse the boat. The transducer must be mounted in a smooth flow of water in order for the Fishfinder to work at all boat speeds.
2. Again, electrical noise from the boat's motor can interfere with the Fishfinder.

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# 介绍

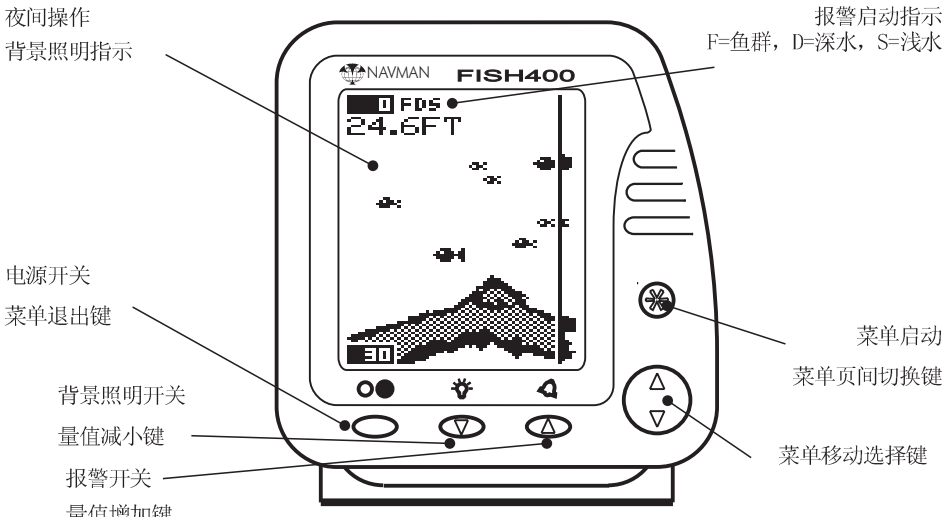
感谢阁下购买使用 NAVMAN/Fish400 系列渔探仪。NAVMAN/Fish400 系列渔探仪是一种有效易用的声纳型鱼群及水下深度探测仪器。在安装使用本设备之前，请先仔细阅读本使用手册。阁下对本设备的功能和操作了解的越详细，将会更加有助于阁下对本设备得心应手的使用。

## FISH400性能指标

- 尺寸
  132mm宽(最大)x133mm高x46mm深
- 探测深度
  180米,600英尺
- 换能器类型
  单桁船肋固定，也可选用船舶透体感探器。
- 工作频率
  200KHz
- 换能器角度
  15度
- 接收灵敏度
  30微伏 RMS
- 输出功率
  400瓦 RMS(3200瓦 峰-峰功率)
  电压在10.5V的10%以下可维持。
- 显示屏尺寸
  对角线长度100mm (4″);82mm x 76mm(3″ x 3″)
- 显示屏类型
  STN温度补偿
- 显示屏点阵
  100 x 64 像素
- 输入电压
  10 to 18VDC @ 150 mA 最大. (照明开)
- 背景光
  七级步进变化和关
- 工作温度
  0°C ~ 40°C ( 32°F ~ 104°F )

## FISH440 型补充技术指标

- 船速
  0.0–50.0 kts, mph, kph用户可选
- 水温
  0.0~40.0C (32.0~99.0F)用户可选
- 航程记录
  内存可记录高达9999.9 nm，km；可复位清零。
- 输出功率
  440瓦RMS (3500瓦峰-峰功率)电压在10.5伏的10%以下可维持。



# 安装

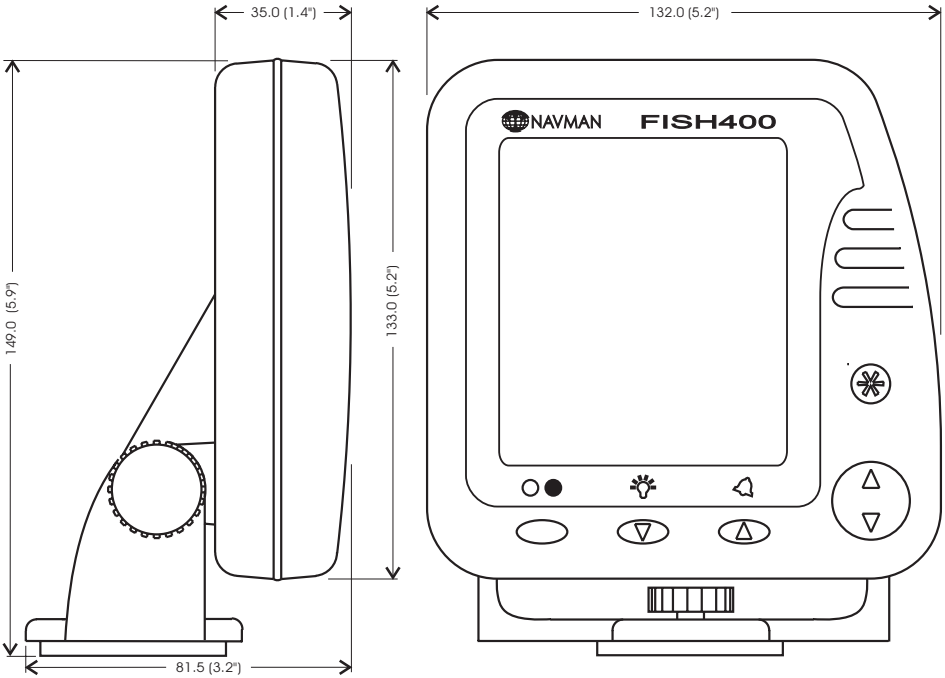
## 显示单元的定位

由于FISH400与FISH440的显示单元是防水设计，所以在船舶上有许多位置可以选择并进行安装。

注意
在最后确定主机显示单元的安装位置之前，请先预量一下换能器及电源电缆的长度。

当安装显示单元时，可以按以下要求选择安装位置：

- 距离罗更至少300mm（12英寸）以上。
- 距离VHF等无线电收发讯设备至少300 mm（12英寸）以上。
- 易于船上使用人员阅读显示的数据。
- 能够避免出海远航期间可能产生的意外损坏。
- 接近船电的12V电源。
- 方便敷设换能器电缆。



# 换能器的安装

在安装换能器之前，请仔细阅读本节内容。**请注意，换能器的安装位置和安装技巧是非常苛刻而严格的**。如果安装不当，换能器将无法按其设计要求进行正常的工作。特别是在船舶高速航行时,渔探仪将更无法工作 。

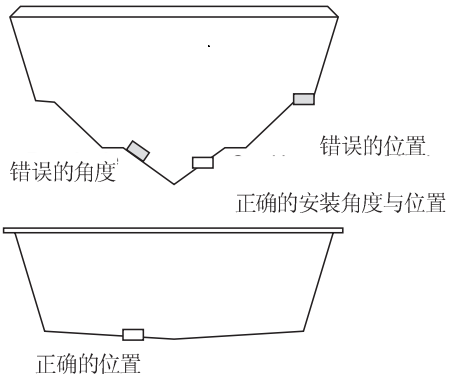
## • 船肋固定式换能器

### 定位

换能器可以安装在任何形状的船体上。船肋支架式换能器具有安全的“卡位”安装紧固架，可以将水下冲击及漂浮碎片对换能器可能产生的损伤减低到最低程度。

换能器应按以下原则选择其安装位置:

- 任何时候都应使水流平滑地流过换能器的表面;
- 尽可能深地将换能器安装在船体底部;
- 当船舶上排时，应该清理干净船体上附着的海洋衍生物;
- 尽量远离水流流过换能器表面可能产生水泡的船体凹凸部分;
- 远离螺旋桨;
- 距离船体龙骨至少保持150mm(6英寸)以上。

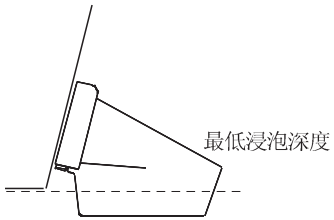



### 安装

一旦确定了换能器的最佳安装位置以后，将换能器和托架对准船尾肋板。换能器底部表面要与水面保持平行，以便能够接收最佳的回波信号。换能器的下表面应凸出船底，以使水流可以高速流过它的下表面。

(参见图2.1)

图 2.1




在船体龙骨上准确标注紧固架的两个固定螺丝位外围长槽。接着在槽中央钻两个螺丝孔，这样就可以使你在稍后的安装中能根据需要适当调整换能器的位置。用随机附送的三个不锈钢螺丝中的两个将紧固架固定安装在船体龙骨上。参见图3．1和图3．2所示，确保换能器的底面与地面平行，然后拧紧这两颗螺丝。

图 3.1

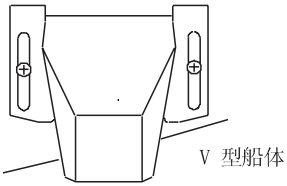
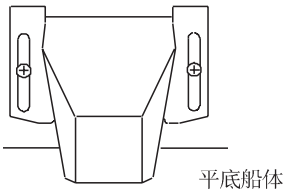
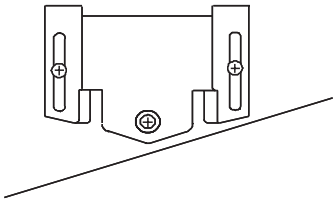



图 3.2




最后，在紧固架的中间钻一个孔并用第三颗螺丝拧紧它。在塞入螺丝拧紧之前，应适当用一些防水密封剂填充螺丝孔。(参见图 3.3所示).

图 3.3



## • 其它型号的换能器

你可以选择使用NAVMAN其它型号的换能器，其中包括透体式感探器〉。但是你需要购买FISH400或FISH440的Y形适配电缆，以便将电源电缆从换能器电缆中分离开来。

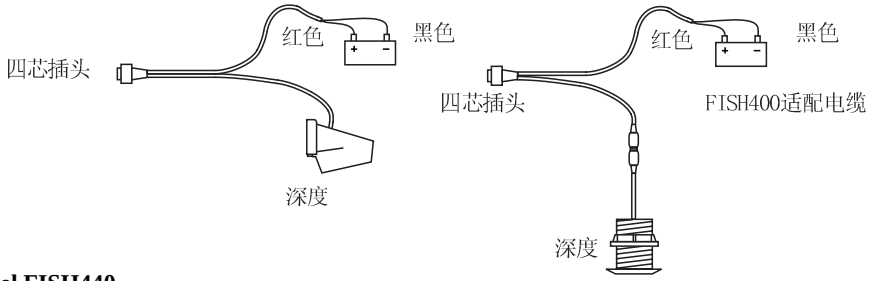
### 电气保护

• 本渔探仪内部已设有过流与过压保护电路。阁下已经没有必要再另外为其加装保险丝或放电装置。

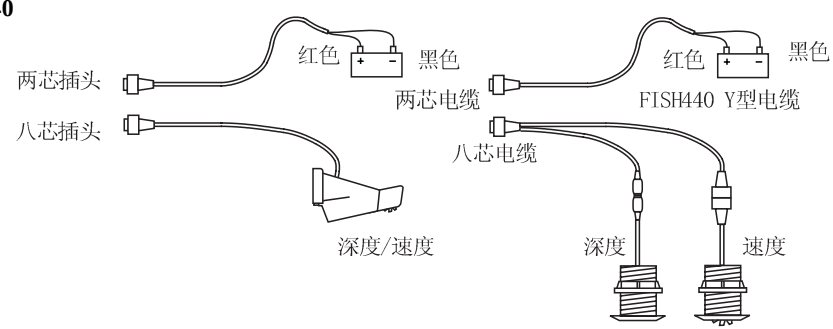
如果有可能，应尽量将换能器的电缆远离船舶上的其它电缆。因为来自船舶内燃机、输油管泵及其它设备的电气噪声有可能干扰渔探仪的显示。

• 对于FISH400型渔探仪，它的电源电缆和换能器电缆合用一个四芯电缆插头；而FISH440型渔探仪，它的电源电缆和换能器电缆则是分用一个双芯和一个八芯电缆插头。电缆插头是插在渔探仪机身背后的单独插座上。将双芯电源电缆的红色线接直流电源的正极，将黑色线接直流电源的负极。直接接至直流电源的连线越短越直就越好，这样将有助于减小线间电压降和消除可能存在的电磁干扰。

**Model FISH400**




**Model FISH440**



# 操作

## 操作介绍

FISH400和FISH440均是使用声纳技术来显示水下地形轮廓和探测鱼群的。该系统包括了一个LCD液晶显示单元和一个水下探测换能器。其中FISH440另外还多了一个船速与水温感应器。

LCD液晶显示单元是菜单驱动，使用容易。其自动检测功能可以以三种不同大小的鱼群符号确定并显示鱼群的位置。当然也可以用原始的电子字符来代替图形表示。有经验的使用者可以利用该模式获悉更详细的有关水下及河床状况。

附注

**短促地按下电源键○●可清除或显示屏幕左上角处的深度、速度以及温度数据。(FISH400仅能显示深度一项指标)所作之选择当关机后仍然存储在内存中。**

## 基本功能与快速操作介绍

| | |
|---|---|
| ○● | 开启与关闭渔探仪<br>• 按住该键一秒钟，开启电源。<br>• 按住该键三秒钟，关闭电源。<br>选择显示渔探仪左上角的数字信息；从任意菜单返回工作模式。 |
| ∨ | 开关液晶屏的背景照明灯。<br>• 按一下该键开启背景照明。<br>• 再按一下该键关闭背景照明。<br>降低菜单中的设置值。 |
| ∧ | 开关报警功能。<br>• 按一下开启报警。<br>• 再按一下关闭报警。<br>增加菜单中的设置值。 |
| ✻ | 进入菜单模式。<br>切换入下一层菜单。 |
| ▲ ▼ | 在显示菜单的各个项目之间进行切换。 |

## 菜单选择系统

您的渔探仪具有许多功能可供阁下进行选择和调节。每一个功能都会有一个菜单屏幕。您可以反复按 ✻ 键进入所有的菜单屏幕。

一些菜单，例如“手动增益控制”和“浅滩与深水提醒”都具有附加数字窗口。其窗内数字可以由∨和∧键进行改变。任何数据的改变都会在退出菜单屏幕时被存入存储器。**当关闭渔探仪电源的同时，所有设置数据的改变均会被立即存入存储器。**

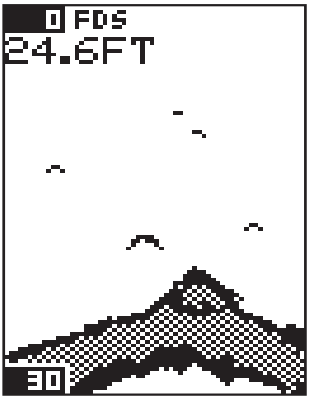
附注

要从屏幕上清除或退出任意菜单，可按○●键。

# 显示与工作模式

FISH400具有五种工作模式。它们是：回 波，回波+模拟区域显示， 自动探渔，自动探渔+模拟区域显示和航行。

## 回波模式

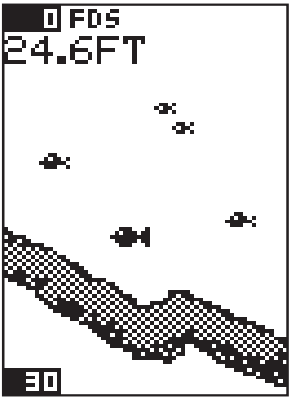



回波模式是显示从换能器上接收到的回波信号。这时探测到的鱼群不是以鱼的符号显示，而是一个个弓形符号。弓形符号的长度代表相应的回波强度和鱼群的尺寸。

回波模式可以将船身湍流、船艉、温度层及换能器噪声产生的回波单位显示出来。这种模式对于有经验的用户是非常有用的。

本示范窗口所显示的数字指示出了水下深度。而显示单位则可由用户自由选择。

## 自动探渔模式



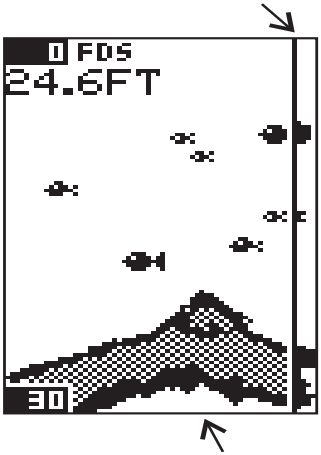

自动探渔模式可将反射回波自动地模拟并以鱼的符号显示出来。（ 回波越强，显示出来的符号也就越大。）

当声纳波束在水中传播，碰到鱼鳃吐出的气泡后便会产生回波。由于某些鱼的鱼鳃要比一般的鱼要大，所以不能仅凭图标符号的大小来确定鱼的相应大小。

在自动探渔模式中，多余的表面噪声被屏幕的顶部消除了。所以，当你的船舶一直是以高速航行时，建议你使用这个模式。

## 模拟区域显示功能

模拟分析区域




现时回波

模拟区域显示功能可用于回波模式或自动探渔模式。这一功能可在屏幕的右侧底部显示强化了的现时回波的图形。

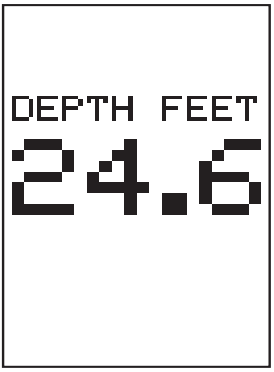
这些资料可用于帮助确定水底的地形结构和鱼群的大小。回波强度是与屏幕可视模拟区域内的图标大小和数量成正比的。该功能有助于根据水底回波的强度估计河床或海床的软硬程度。

## 航行模式 NAV

在该模式下，深度、航速和温度是以较大而且易读的数字进行显示的。这对于在喜好鱼群区域的航行是非常有用的。

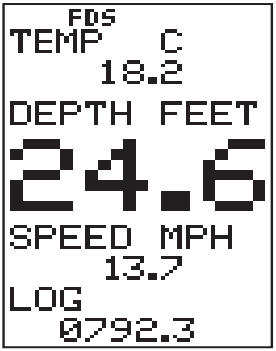
要增加精确度，其显示值是以0 . 1 为单位提升的。

型号：FISH400




仅显示深度数据

型号： FISH440



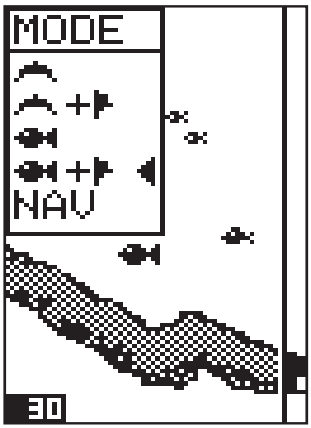

你可以以摄氏度或华氏度为单位显示水温；深度单位则可以选择英尺、米或英寻；航速单位可以选择mph(每小时英里)、knot(节)或 kph(每小时公里)。

航程是以你所选航速单位的总航行距离表示的。当关闭电源时，总航程将自动存入存储器中；或者清零复位便可清除该数据。(参见SETUP菜单).

当其中一个或全部鱼群(F)、浅水(S)、或深水(D)报警启动后，它们将会在屏幕的左上角显示出来。

# 量程

## 工作模式的更改




- 按 ✳ 键启动模式(mode) 菜单。
- 按 ▲ 键或 ▼ 键将游标指向菜单模式准备使用的功能项。
- 按○●键确认所作选择并返回普通显示模式。

以下位于显示框内的符号代表:

| | |
|---|---|
| | 回波模式 |
| +▶ | 回波模式 + 模拟区域 |
| | 自动探渔模式 |
| +▶ | 自动探渔模式 + 模拟区域 |
| NAV | 航行数据模式 |

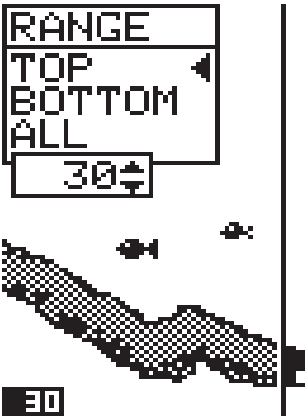
量程功能可以允许你对LCD液晶显示屏上的深度进行控制。这里有三种不同的深度量程模式可供选择：顶层,底层和全部。

如果选择了顶层，则下部深度限制必须进行设置。该模式将锁定显示位于水面与选定深度限制之间的回波。也就是意味着如果水深超过限制将会看不到海底。

如果选择了底层，则上部深度限制必须进行设置。该模式将锁定显示位于水底海床与选定深度限制之间的回波。也就意味着如果水深不足选定深度则看不到这个顶层区域的情况。这一功能使你可以在海床以上的较大区域看得到海底轮廓和鱼群回波的情况。

如果选择了全部，本机将无论水深如何均自动调整显示水面与水底之间的显示区域范围。

## 设置显示量程




深度限制范围

- 按住 ✳ 键直至range(量程)菜单出现。
- 按下 ▲ 键或 ▼ 键至准备选取的功能模式。
- 如果准备选取的模式位于菜单的 顶层或底层，可利用∨或∧键对限定值进行调整。
- 按○●键确认所作选择，并返回普通显示模式。

# 增益

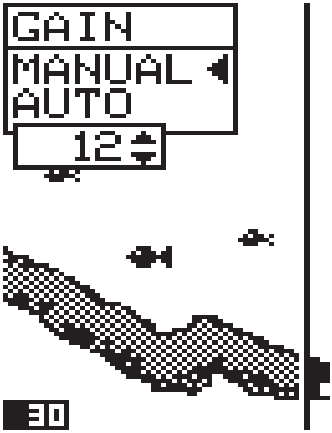
增益是衡量接收弱信号能力的标准。提高增益的设置，可以满意地拾取较弱的回波信号。在深水区域工作，建议将增益值调高一些，以补偿信号在水中传播过程中的衰减。

增益模式有两档可以设置。它们是Manual(手动)和 Auto(自动)。

如果选择 Manual ，增益设置值为0~15。该增益值将会作为数据资料显示在屏幕上。设置低增益值有利于在浅水区域工作；但如果到了深水区域就应该将增益值调大一些。

如果选择 Auto ，增益将会随水深变化而变化。这个功能对于你经常航行的区域水深突然发生变化时是非常有用的。在自动模式下，你可以设置自动增益以满足你的习惯。自动增益电路将会自动调整增益以保持水下回波强度的稳定。

## 设置增益

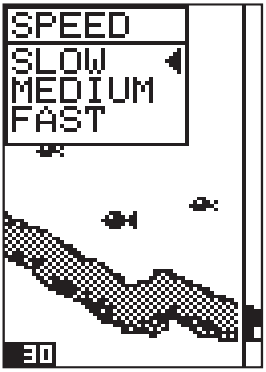



- 按住 ＊ 键直至 gain(增益) 菜单出现。
- 按 ▲ 或 ▼ 键选取准备进行的模式。
- 如果准备选择的模式是 Manual ，利用∨或 ∧ 键调整设置适当的数值。
- 按 ○● 键确认所作选择，并返回普通显示模式。
- 如果所选择的模式是 Auto ，利用∨或∧键设置一个适当的数值。在 Auto 模式下，增益可以被控制显示相同的底层而不管深度如何。

# 翻转速度的显示

翻转速度是屏幕画面移动变化的速度。它具有三级可调。即：slow, medium 和 fast。通常快(fast)翻转速度是适合于快速航行的船舶选用的；而缓慢航行的船舶则选择慢(slow)的翻转速度。大多数合适的翻转速度要靠实践来选择确定。

## 设置翻转速度




- 按住 ✻ 键直至 speed(速度) 菜单出现。
- 按 ▲ 或 ▼ 键选取准备选择的档次。
- 按 ○● 确认所作选择并返回普通显示模式。

# 报警

本机具有三种不同形式的报警形式，即： 鱼群(Fish)，浅水(Shallow)和 深水(Deep)。如果满足报警条件，本机内置的蜂鸣器将会执行报警。蜂鸣器具有三种不同的报警声号。短促的蜂鸣声代表中水层回波，例如鱼群；连续的长蜂鸣声用于浅水报警；一系列的短蜂鸣声用于深水报警。每一种报警均可独立地开启或关闭。所有启动了的报警都可以按一下键终止掉。

屏幕左上角的报警显示框可以显示出是哪一种报警已经启用。它们是：鱼群(F)，浅水 (S)和深水(D)。

**鱼群报警** 当可能是鱼群的水下目标被探测到以后，单一短促的蜂鸣声信号将会提醒你注意。小鱼的蜂鸣声要比大鱼的短。

**浅水报警** 当水深小于你所设定的浅水报警深度时，报警开始并提醒你的注意。例如：水下深度变得非常浅，有可能会搁浅。

**深水报警** 当水深大于你所设定的深水报警深度时，开始报警并提醒你的注意。例如：水下深度变深。

## FISH440的报警

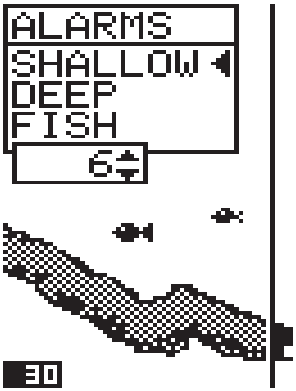
无论是鱼群、浅水还是深水，只要选择了它就会在屏幕上显示出来。当报警功能被触发，会伴有一声蜂鸣发出，相应的报警闪烁指示也会被开启或关闭。

## 移锚报警

浅水报警和深水报警的深度可以选择设置在你的锚位上下的位置。如果你的船锚移位或者拖向深水或浅水区域，本机将会发出报警。

要注意：在使用本模式时，请将鱼群报警模式关闭，以免因鱼群游过锚位附近时产生误报警。

## 报警的设置




- 按住✳键直至alarms(报警) 菜单出现。
- 按 ▲ 或 ▼ 键选取准备进行的报警模式。
- 利用∨或∧键调整设置深度的数值。如果浅水报警深度值为0，或者深水报警深度值为600，则显示OFF。
- 按○●键确认所作选择，并返回普通显示模式。

# 设置菜单

设置菜单是供用户根据个人喜好对设备进行设置的。其中一共有六个参数可以进行调整。它们分别是：背景亮度，测量单位，吃水深度，模拟演示，液晶对比度和底层分析。

**背景亮度** 背景亮度有1至7和OFF共八档可调。

**测量单位** 测量深度可用英尺(FT)，米(M)和英寻(FA)为单位进行表示。

**吃水深度** 吃水深度通常是以换能器表面至水底之间的距离计算的。你可以输入一个基准补偿值，该数值与计算出来的深度数值进行相加减，最后在液晶屏幕上显示出来。输入一个负的补偿值将显示龙骨以下的水深；输入一个正的的补偿值将显示水面至水底之间的水深；输入的补偿值为零，则显示换能器以下的水深。

**模拟演示** 该功能模式是用于辅导新用户学习掌握如何使用本设备的各项功能。

**液晶对比度** 特殊设计的电路将会根据温度的变化自动调节液晶屏幕的对比度。当然你也可以根据个人喜好在0～7档之间进行对比度的调节。

**底层分析** 当启动底层分析功能的时候，在海床与接近海底的目标(例如鱼群)之间会产生一个清晰的区分。该功能也可基本清除那些来自屏幕顶部的海面回波信号。

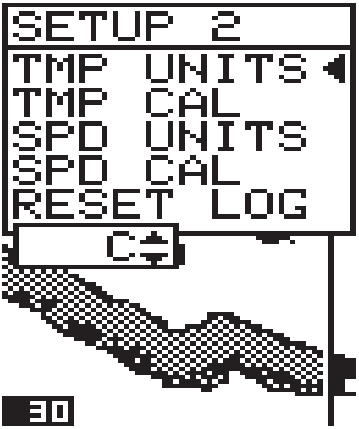
## 改变设置功能

- 按住 ✻ 键直至setup(设置)菜单出现。
- 按 ▲ 或 ▼ 键选取准备进行设置的模式。
- 利用∨或∧键调整设置合适的数值。
- 按○●键确认所作选择，并返回普通显示模式。

# 设置菜单2　速度与温度（仅适用于FISH440型号）

## 改变速度与温度的设置

FISH440型渔探仪可以显示船速、水温和水深。设置菜单可以使你灵活地设置显示速度和温度，并校准其变化。




**温度单位**　温度单位可以选择摄氏度或华氏度。

**温度校准**　如果已知显示温度有偏差，可以利用本功能对其进行调整。校准值会被自动存入存储器中。

**速度单位**　航速单位可以用节(KTS)，每小时英里(MPH)或每小时公里(KPH)为单位进行表示。

**速度校准**　如果已知显示航速有误，可利用本功能对其进行调整。校准值会被自动存入存储器中。

**航程复位**　航程可通过改变其选项的NO至YES即可对其进行复位。如果选择YES，当你退出此菜单时航程将被复位。

- 按住 ✻ 键直至 Setup 2 菜单出现。
- 按 ▲ 或 ▼ 键选取准备进行设置的模式。
- 利用∨或∧键调整设置合适的数值。
- 按○●键确认所作选择，并返回普通显示模式。

# 故障排除

## 不能开机:

1. 检查机身背后的电源电缆插座。
2. 确认电源电缆的红色线与机器的电源正极相连，黑色线与机器的电源负极或地相连。
3. 测量机器电源输入端的电压，这个电压至少应有10V。如果没有，则：
   - 电池与接线柱之间有腐蚀，存在接触不良；
   - 电池组需要进行充电；
   - 电源线内部有断线。
4. 检查电源连线的保险丝。

## 机器锁死或工作不正常:

1. 来自机舱或其它附属电器的电气噪声干扰本机的声纳装置。
   按下述办法试一下:
   - 重新敷设电源和换能器电缆，并使它们尽量远离船舶的其它电气电缆;
   - 将电源电缆直接接到电池上，以避开通过保险丝盒或开关配电箱。
2. 检查换能器电缆，看一下是否有损坏或挤压。
3. 检查换能器和电源的接头，以确保连接牢固。

## 回波弱，数字不稳定或无鱼群符号:

1. 确保换能器的安装垂直。
2. 来自船机的电气噪声有可能干扰渔探仪的正常工作。它会导致渔探仪的增益自动降低，除非采用手动模式。诸如来自鱼群或海床的弱回波信号有可能被忽略掉而无法显示出来。
3. 手动增益设置得过低。
4. 水深超过了渔探仪的测量限度。当处于自动模式还是不能接收到海底回波，并且屏幕显示不停地闪烁，可以换一个量程，并增大灵敏度。当你驶回浅水区，海底回波信号将会重新出现。
5. 检查电池电压。如果电压太低，机器的发射功率将会降低，从而降低发现海底及目标的能力。

## 海底回波消失或航行时无法读取数据:

1. 换能器可能处于湍流之中。水中的气泡会扰乱渔探仪的回波信号，干扰机器发现海底及目标的能力。这通常发生在倒车的时候。换能器必须安装固定在水流平滑流过的船底部位，以适应船舶以任何速度航行的要求。
2. 再次重申，船机的电气噪声会干扰渔探仪的正常工作。