

**Warning: Sonar operation**

- NEVER operate the sonar with the vessel out of the water.
- NEVER touch the transducer face when the sonar is powered on.
- SWITCH OFF the sonar if divers are likely to be within 7.6 m (25 ft) of the transducer.

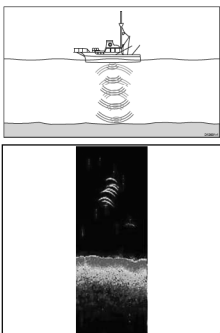
### Sonar overview

Various sonar technologies are available, all of which work on the same basic principles. The sonar transducer sends pulses of sound waves into the water and measures the time it takes for the sound waves to travel to the bottom and back. The returning echoes are affected by bottom structure and by any other objects in their path, for example reefs, wrecks, shoals or fish. The Sonar module interprets these signals and builds up a detailed underwater view which is displayed in the Fishfinder application.

### CHIRP technology

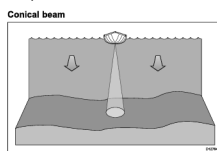
CHIRP covers a wide frequency CHIRP signal which can distinguish between multiple close targets, this enables the sonar to display multiple targets instead of large combined targets that you would see when using traditional non-CHIRP sonar.

- Target resolution.
- Bottom detection even through ball balls and thermoclines.
- Detection sensitivity.



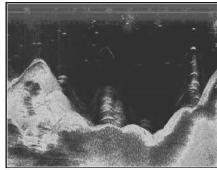
### CHIRP Sonar overview

CHIRP sonar produces a 25° conical shaped beam, the coverage of the conical beam is the water column directly beneath the vessel



Sonar is effective at a range of speeds. In deeper waters the CHIRP bandwidth is automatically restricted to improve bottom lock and the detection of moving objects (e.g. fish) in the wider water column.

### CHIRP sonar screen example



### Fishfinder display modes

#### Selecting a fishfinder display mode

1. Select Menu.
2. Select Display Mode.
3. With a split screen view displayed, select Adjust.
4. Select Sonar, DownVision or sonar.
5. Select the Select Mode menu item.
6. Select the required display mode:
  - None
  - Zoom
  - A-Scope (Not available in DownVision views)
  - Bottom Lock

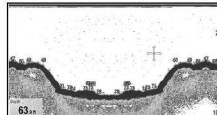
### Fishfinder zoom mode

The zoom display mode magnifies a region of the fishfinder screen to display more detail. This zoom option enables you to:

- Replace the standard fishfinder image with the zoomed image, or display the zoomed image alongside the standard fishfinder image.
- Set the zoom factor to a predefined level, or adjust it manually.
- Reposition the zoomed portion of the image to a different point in the display.

When the range increases, the area shown in the zoom window also increases.

**Zoom split**  
With the zoom display mode you can split the screen and display the zoomed image alongside the standard fishfinder image (ZOOM SPLIT). The zoomed section is indicated on the standard fishfinder screen by a zoom box.



### Water depth

As water depth increases signal strength decreases, resulting in a lighter onscreen image of the bottom.

### Size of the target

The larger the target, the larger the return on the fishfinder display. The size of a fish target is also dependent upon the size of the fish's swim bladder rather than its overall size. The swim bladder varies in size between different breeds of fish.

### Clutter / Background noise

The fishfinder picture may be impaired by echoes received from floating or submerged debris, air bubbles or even the vessel's movement. This is known as Noise or Clutter and is controlled by the Sensitivity Settings. The system can automatically control some settings according to depth and water conditions. You can also adjust the settings manually if required.

### Recovering lost bottom

If the seabed floor (bottom) is lost then follow the steps below to recover the bottom depth.

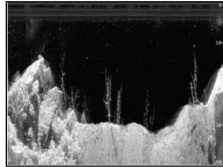
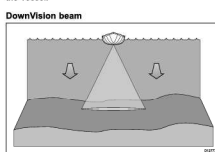
From the fishfinder application:

1. Ensure your vessel is in clear undisturbed water.
2. If range is set to Manual, adjust the range to the known, charted depth of your location, or
3. If range is set to Auto then switch the range to manual and adjust the range to the known, charted depth of your location.
4. Once bottom has been regained you can switch range mode back to Auto.

Fishfinder application with DownVision™

### CHIRP DownVision overview

DownVision produces a 60° side to side and 1.4° fore to aft beam. The coverage of the DownVision beam is a water column directly beneath and to the sides of the vessel.



### Raymarine sonar modules

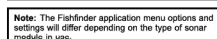
The table below lists Raymarine's sonar modules and the technology used.

Model	Technology
CPM50C	CHIRP — ClearPulse™
CP100	CHIRP — DownVision™
Dragonfly (internal sonar)	CHIRP — DownVision™
#681 #78 (internal sonar)	CHIRP — DownVision™
CP300	ClearPulse™
#671 #672 #771 #772 #773 #774 (internal sonar)	ClearPulse™
#671 #672 #771 #772 (internal sonar)	ClearPulse™

**Note:** The Fishfinder application menu options and settings will differ depending on the type of sonar module in use.

DownVision is effective at lower vessel speeds. In deeper waters the CHIRP bandwidth is automatically restricted to improve bottom lock and the detection of moving objects (e.g. fish) in the wider water column. The wide, thin beam produces clear target returns. The use of CHIRP processing and a higher operating frequency provides a more detailed image, making it easier to identify bottom structures around which fish may reside.

**CHIRP DownVision screen example**



### Switching between internal and external sonar modules

If you want to switch your active sonar module between internal and external follow the steps below.

1. Power off the active sonar module.
  - Internal sonar module is turned off from the Fishfinder application menu: Menu — Set-up — Sounder Set-up — Internal Sounder.
  - External sonar modules should be turned off by disconnecting the network connection.
2. Wait for the No Sounder/Source Available message to be displayed in the Fishfinder application.
3. Power on the new sonar module.

### Fishfinder with DownVision™ features

The Fishfinder application includes various features to help you interpret what is beneath your vessel.

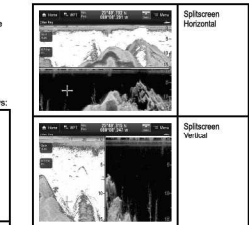
The Fishfinder application features include:

- Dual channel CHIRP sonar (Combining High resolution CHIRP Sonar and Ultra high resolution DownVision™ sonar).
- Display modes (Zoom, A-Scope or Bottom Lock).
- Adjustable range and zoom.
- Noise and gain filters to simplify the image.
- Pausing and adjusting the speed of the scrolling image.
- Using waypoints to mark a position.
- Determining depths and distances of targets.
- Fishfinder alarms (fish, depth or water temperature).

### Fishfinder views

On multifunction displays with DownVision™ capability you can select which view you want to see or choose a split screen view displaying both Sonar and DownVision™ sonar at the same time.

The Fishfinder screen displays:



### Selecting a Fishfinder application view

You can change the Fishfinder application's view to switch between viewing Sonar, DownVision or both. From the Fishfinder application:

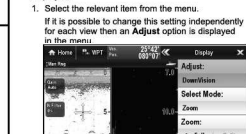
1. Select Menu.
2. Select View Type.

The View Type menu is displayed:



- a scrolling image of the water column and bottom beneath your vessel including any bottom structure such as reefs and shipwrecks etc.
- target images indicating fish.
- a status bar displaying setting information.
- bottom depth.

The Fishfinder application includes the following views:

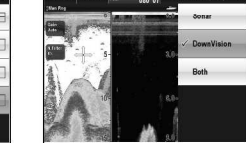


### Selecting a Fishfinder application view

You can change the Fishfinder application's view to switch between viewing Sonar, DownVision or both. From the Fishfinder application:

1. Select Menu.
2. Select View Type.

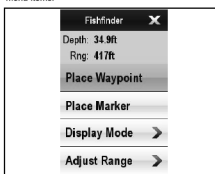
The View Type menu is displayed:



3. Select the view you want to make the changes to.

### Fishfinder context menu

The fishfinder application includes a context menu which provides fishfinder information and shortcuts to menu items.



The context menu provides the data for the position of the cursor:

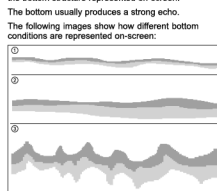
- Depth
- Range

The context menu also provide the following menu items:

- Place Waypoint
- Display Marker
- Move Marker — (only available if a marker has been placed.)
- Erase Marker — (only available if a marker has been placed.)
- Display mode — (opens the display mode menu.)
- Adjust Range — (opens the Range mode menu.)

### The sonar image

It is important to understand how to correctly interpret the bottom structure represented on-screen. The bottom usually produces a strong echo. The following images show how different bottom conditions are represented on-screen:



Item	Description
1	A hard bottom (sand) produces a thin line.
2	A soft bottom (mud or seaweed cover) produces a wide line.
3	A rocky or uneven bottom or a wreck produces an irregular image with peaks and troughs.

The dark layers indicate a good echo; the lighter areas indicate weaker echoes. This could mean that the upper layer is soft and therefore allowing sound waves to pass to the more solid layer below.

It is also possible that the sound waves are making two complete trips — hitting the bottom, bouncing off the vessel, then reflecting off the bottom again. This can happen if the water is shallow or the bottom is hard.

### Factors influencing the sonar display

The quality and accuracy of the display can be influenced by a number of factors including vessel speed, depth, object size, background noise and transducer frequency.

### Vessel speed

The shape of the target changes along with your speed. Slower speeds return flatter, more horizontal marks. Higher speeds cause the target to flatten and arch slightly, until at fast speeds the mark resembles a distinct vertical line.

### Target depth

The closer the target to the surface, the larger the mark on screen.

The depth of individual targets can be displayed by switching on the Target Depth ID in the fishfinder menu Menu — Presentation. The number of target depths displayed is influenced by the fish alarm sensitivity level.

### Fishfinder sensitivity settings

The Sensitivity settings menu provides access to features and functions which enhance what is displayed on screen.

- Gain
- Color Gain
- Noise Filter
- Color Threshold

Sensitivity settings for Sonar and DownVision™ can be changed independently or both at the same time.

### Gain

The gain settings alter the way the sonar module processes background noise (also called clutter). Adjusting the gain settings can improve the sonar image, however for optimum performance in most conditions, we recommend that you use the auto settings.

The gain adjusts the return threshold (echo strength) above which the fishfinder will show an object on the screen.

There are two gain modes:

- Auto
- Manual

### Auto

In Auto mode, the sonar module automatically adjusts the gain setting to suit current conditions.

### Manual

If necessary you can set the gain controls manually, between a value of 0% to 100%. This value should be set high enough to see fish and bottom detail but without too much background noise. Generally a high gain is used in deep and/or clear water, a low gain in shallow and/or murky water.

The new values remain set even when you switch off the display.

### Changing the depth range

You can choose from either:

- automatic adjustment whereby the display automatically shows the shallowest required range.
- manual adjustment of the depth range, up to the maximum depth.

From the application menu:

1. Select Range.
2. Select Range: to switch between Auto and Man.
3. With manual mode selected you can now adjust the depth range.

When viewing a split screen view the range will change for both views at the same time.

### Range in and out

The method of ranging in and out of the fishfinder application is dependent upon your multifunction display variant.

The table below shows the Range controls available for each display variant.

Control	Rotary Control	New c Series
Range in and Range out buttons	Rotary Control	• New c Series • New e Series (excluding #7 and #77) • RMK-9 keypad
Slide the screen Up or Down	Rotary Control	• New a Series • New e Series • gS Series

From the application menu, with Range set to Manual:

1. Select Range.
2. Select Range Shift.

The range shift dialog is displayed.

3. Adjust the setting to the required value.
4. Select Back or use the Ok button to confirm the setting and close the range shift dialog.



Fishfinder application with DownVision™

### Using range shift

The default setting adjusts the display to keep the bottom in the lower half of the display window. Alternatively you can shift the image within the current range. Changes to the range shift are reflected in all windows.

From the application menu, with Range set to Manual:

1. Select Range.
2. Select Range Shift.

The range shift dialog is displayed.

3. Adjust the setting to the required value.
4. Select Back or use the Ok button to confirm the setting and close the range shift dialog.

From the application menu, with Range set to Manual:

1. Select Range.
2. Select Range Shift.

The range shift dialog is displayed.

3. Adjust the setting to the required value.
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The range shift dialog is displayed.

3. Adjust the setting to the required value.
4. Select Back or use the Ok button to confirm the setting and close the range shift dialog.

From the application menu, with Range set to Manual:

1. Select Range.
2. Select Range Shift.

The range shift dialog is displayed.

3. Adjust the setting to the required value.
4. Select Back or use the Ok button to confirm the setting and close the range shift dialog.

From the application menu, with Range set to Manual:

1. Select Range.
2. Select Range Shift.

The range shift dialog is displayed.

### Enabling and disabling on-screen gain controls

You can enable and disable the on-screen gain controls by following the steps below.

From the fishfinder application:

1. Select Menu.
2. Select Sensitivity Settings.
3. Select Gain.
4. Select Adjust.
5. Select Sonar, DownVision or Both.

Adjusting fishfinder gain using the menu

The fishfinder gain setting can be accessed from the fishfinder menu.

From the fishfinder application:

1. Select Menu.
2. Select Sensitivity Settings.
3. Select Gain.
4. Select Adjust.
5. Select Auto.

A tick is displayed in the Auto box to signify automatic gain is enabled.

From the fishfinder application:

1. Select Menu.
2. Select Sensitivity Settings.
3. Select Gain.
4. Select Adjust.
5. Select Auto.

The gain adjust dialog is displayed.

Adjust the gain control to the required setting, or

Slide the screen Up or Down

A tick is displayed in the Auto box to signify automatic gain is enabled.

From the fishfinder application:

1. Select Menu.
2. Select Sensitivity Settings.
3. Select Gain.
4. Select Adjust.
5. Select Auto.

The gain adjust dialog is displayed.

Adjust the gain control to the required setting, or

Slide the screen Up or Down

A tick is displayed in the Auto box to signify automatic gain is enabled.

From the fishfinder application:

1. Select Menu.
2. Select Sensitivity Settings.
3. Select Gain.
4. Select Adjust.
5. Select Auto.

The gain adjust dialog is displayed.

Adjust the gain control to the required setting, or

Slide the screen Up or Down

A tick is displayed in the Auto box to signify automatic gain is enabled.

From the fishfinder application:

1. Select Menu.
2. Select Sensitivity Settings.
3. Select Gain.
4. Select Adjust.
5. Select Auto.

The gain adjust dialog is displayed.

Adjust the gain control to the required setting, or

Slide the screen Up or Down

A tick is displayed in the Auto box to signify automatic gain is enabled.

From the fishfinder application:

1. Select Menu.
2. Select Sensitivity Settings.
3. Select Gain.
4. Select Adjust.
5. Select Auto.

The gain adjust dialog is displayed.

**DownVision™**  
Color gain sets the lower limit for the strongest echo shade. All echoes with a signal strength above this value are displayed in the lightest shade. Those with a weaker value are divided equally between the remaining shades.

- Setting a low value produces a wide band for the darkest shade, but a small signal band for the other shades.
- Setting a high value gives a wide band for the lightest shade, but a small signal band for the other shades.

**Color gain modes**  
There are two color gain modes:

- Auto** — In Auto mode the color gain setting is automatically adjusted to suit current conditions. Any adjustments made apply to all fishfinder windows.
- Manual** — You can set the color gain manually, between a value of 0% to 100%.

**Selecting the view for color gain adjustments**  
To select a view to apply color gain adjustments to follow the steps below.

- From the fishfinder application:
- Select **Menu**.
  - Select **Sensitivity Settings**.
  - Select **Color Gain**.
  - Select **Adjust**.
  - Select **Sonar, DownVision or Both**.

**Adjusting the fishfinder color gain**  
From the fishfinder application:

- Select **Menu**.
- Select **Sensitivity settings**.
- Select **Color Gain**.  
The color gain slider bar control is displayed.
- Adjust the slider to the required value.
- Select **Back** to confirm setting and close slider bar, or

Fishfinder application with DownVision™

6. Select **Auto** to enable automatic color gain. The new values remain set even when you switch off the display and are applied to all fishfinder windows.

**Noise Filter**  
The Noise Filter reduces the amount of clutter displayed onscreen by varying the gain throughout the column of water. This feature is useful for reducing the appearance of 'noise'.

The Noise Filter can be set to automatic or adjusted manually:

- Automatic** — In Auto mode the Noise Filter is set to 20%.
- Manual** — You can adjust the Noise Filter manually, between a value of 0% to 100%.  
— A low value decreases the depth at which the filter is applied.  
— A high value increases the depth at which the filter is applied.

The new values remain set even when you switch off the display.

**Adjusting the Noise Filter**  
From the fishfinder application:

- Select **Menu**.
- Select **Sensitivity Settings**.
- Select **Noise Filter**.
- With a split-screen view displayed, select **Adjust**.
- Select **Sonar, DownVision or Both**.
- Select **Noise Filter**.  
The Noise Filter slider bar control is displayed.
- Adjust the Noise Filter to the required value, or
- Select the **Auto** check box to switch to Auto mode. A tick is displayed in the **Auto** check box to signify auto is enabled.

**Note:** The Noise Filter can also be adjusted by selecting the onscreen Noise Filter control.

**Fishfinder color threshold**  
The color threshold setting determines the signal strength below which targets are not shown. Sonar uses different colors to determine signal strengths whilst DownVision uses monochrome shading. For example a low setting would result in only the strongest colors (Sonar) or lightest shades (DownVision™) targets being displayed.

**Adjusting the fishfinder color threshold**  
From the fishfinder application:

- Select **Menu**.
- Select **Sensitivity Settings**.
- Select **Color Threshold**.  
Selecting color threshold displays the numeric adjust control.
- Adjust the color threshold to the required setting.
- Select **OK** to confirm setting and close the numeric adjust control.

**Fishfinder presentation options**  
The Presentation menu gives you access to features and functions which provide additional on-screen functionality.  
Presentation options include:

Menu Item	Description	Options
<b>Target Depth ID</b>	Controls whether the depth of identified targets are displayed. The level of target displayed is directly linked to the level of Fish Alarm sensitivity. <b>Note:</b> Target depth IDs are not shown in the DownVision view.	<ul style="list-style-type: none"> <li>On</li> <li>Off</li> </ul>
<b>Depth Lines</b>	Controls whether horizontal lines indicating depth are displayed.	<ul style="list-style-type: none"> <li>On</li> <li>Off</li> </ul>
<b>White Line</b>	When set to On, this option displays a white line along the contour of the seabed. This helps to distinguish objects close to the bottom. <b>Note:</b> The White Line is not shown in the DownVision view.	<ul style="list-style-type: none"> <li>On</li> <li>Off</li> </ul>

Menu Item	Description	Options
<b>Bottom Fill</b>	When set to On, this option displays a solid color fill for the seabed. <b>Note:</b> Bottom fill is not shown in the DownVision view.	<ul style="list-style-type: none"> <li>On</li> <li>Off</li> </ul>
<b>Sonar colors</b>	Various color palettes are available to suit different conditions and your personal preference.	<ul style="list-style-type: none"> <li>Classic Blue</li> <li>Classic Black</li> <li>Classic White</li> <li>Sunburst</li> <li>Grayscale</li> <li>Inverse Grayscale</li> <li>Copper</li> <li>Night vision</li> </ul>
<b>Division Colors</b>	Various color palettes are available to suit different conditions and your personal preference.	<ul style="list-style-type: none"> <li>Copper</li> <li>Inv. Copper</li> <li>Slate Grey</li> <li>Inv. Slate Grey</li> </ul>
<b>Scroll Speed</b>	Spooky the fishfinder scroll speed.	<ul style="list-style-type: none"> <li>10% — 100%</li> </ul>

Menu Item	Description	Options
<b>Gain controls</b>	Controls whether or not the onscreen Gain and Noise Filter controls are displayed.	<ul style="list-style-type: none"> <li>Show (default)</li> <li>Hide</li> </ul>
<b>Databases Set-up</b>	Allows you to set up and display/hide up to 2 databases in the bottom left corner of the screen.	<b>Database 1</b> <ul style="list-style-type: none"> <li>On</li> <li>Off</li> </ul> <b>Select Data</b> Allows selection of a data type by category. <b>Database 2</b> <ul style="list-style-type: none"> <li>On</li> <li>Off</li> </ul> <b>Select Data</b> Allows selection of a data type by category.

**Depth and distance with the fishfinder**  
The fishfinder display provides a number of features to help you determine depths and distances. These features are illustrated and described in more detail below:

**Sounder set-up menu options**

This section describes the settings you can change using the sounder set-up menu: (**Menu** → **Set-up** → **Sounder Set-up**). The set-up menu contains settings that are likely to be changed infrequently.

Menu Item	Description	Options
<b>Internal Sounder</b>	Switch the built in sonar on and off, for use when you have more than one multifunction display with internal sonar. <b>Note:</b> This option is only available on multifunction displays that have a built-in sonar module. <b>Note:</b> Must be set to Off if an external sonar is connected.	<ul style="list-style-type: none"> <li>On</li> <li>Off</li> </ul>
<b>Ping Rate Limit</b>	Provides a speed limiter; it is useful to adjust the ping rate to suit local conditions. For example, the ping rate may be too fast when there is a hard bottom in shallow water. The internal sonar reverts to 20 pings per second when the sonar module is powered off. <b>Note:</b> Ping rate limit is disabled if Ping rate is set to hyper in the presentation menu.	<ul style="list-style-type: none"> <li>Internal sonar: 5 — 50 pings per second</li> <li>CHRP Sonar: 5 — 80 pings per second</li> </ul>
<b>Ping Enable</b>	The sonar-ping is normally enabled; it can be disabled. This is useful when other equipment is being tested, or if someone is diving beneath the boat. This setting reverts to Enabled when the sonar module is powered off.	<ul style="list-style-type: none"> <li>On</li> <li>Off</li> </ul>
<b>Interference rejection</b>	Removes spikes caused by other fishfinder-equipped vessels. <b>Note:</b> Interference rejection will be disabled in Hyper Ping mode.	<ul style="list-style-type: none"> <li>Auto</li> <li>Low</li> <li>Medium</li> <li>High</li> </ul>
<b>2nd Echo IR</b>	Adjusts the ping rate in small increments, according to the 2nd echo level. This results in better sensitivity of the image. <b>Note:</b> 2nd Echo IR will be disabled in Hyper Ping mode.	<ul style="list-style-type: none"> <li>Off</li> <li>Low</li> <li>High</li> </ul>

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Menu Item	Description	Options
<b>Target Depth ID</b>	Controls whether the depth of identified targets are displayed. The level of target displayed is directly linked to the level of Fish Alarm sensitivity. <b>Note:</b> Target depth IDs are not shown in the DownVision view.	<ul style="list-style-type: none"> <li>On</li> <li>Off</li> </ul>
<b>Depth Lines</b>	Controls whether horizontal lines indicating depth are displayed.	<ul style="list-style-type: none"> <li>On</li> <li>Off</li> </ul>
<b>White Line</b>	When set to On, this option displays a white line along the contour of the seabed. This helps to distinguish objects close to the bottom. <b>Note:</b> The White Line is not shown in the DownVision view.	<ul style="list-style-type: none"> <li>On</li> <li>Off</li> </ul>

Menu Item	Description	Options
<b>Bottom Fill</b>	When set to On, this option displays a solid color fill for the seabed. <b>Note:</b> Bottom fill is not shown in the DownVision view.	<ul style="list-style-type: none"> <li>On</li> <li>Off</li> </ul>
<b>Sonar colors</b>	Various color palettes are available to suit different conditions and your personal preference.	<ul style="list-style-type: none"> <li>Classic Blue</li> <li>Classic Black</li> <li>Classic White</li> <li>Sunburst</li> <li>Grayscale</li> <li>Inverse Grayscale</li> <li>Copper</li> <li>Night vision</li> </ul>
<b>Division Colors</b>	Various color palettes are available to suit different conditions and your personal preference.	<ul style="list-style-type: none"> <li>Copper</li> <li>Inv. Copper</li> <li>Slate Grey</li> <li>Inv. Slate Grey</li> </ul>
<b>Scroll Speed</b>	Spooky the fishfinder scroll speed.	<ul style="list-style-type: none"> <li>10% — 100%</li> </ul>

Menu Item	Description	Options
<b>Gain controls</b>	Controls whether or not the onscreen Gain and Noise Filter controls are displayed.	<ul style="list-style-type: none"> <li>Show (default)</li> <li>Hide</li> </ul>
<b>Databases Set-up</b>	Allows you to set up and display/hide up to 2 databases in the bottom left corner of the screen.	<b>Database 1</b> <ul style="list-style-type: none"> <li>On</li> <li>Off</li> </ul> <b>Select Data</b> Allows selection of a data type by category. <b>Database 2</b> <ul style="list-style-type: none"> <li>On</li> <li>Off</li> </ul> <b>Select Data</b> Allows selection of a data type by category.

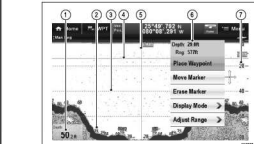
**Depth and distance with the fishfinder**  
The fishfinder display provides a number of features to help you determine depths and distances. These features are illustrated and described in more detail below:

Menu Item	Description	Options
<b>Sonar reset</b>	Restores all settings on the sonar module to factory default. When performing a sonar Reset, it is normal to briefly lose connection with the sonar module.	<ul style="list-style-type: none"> <li>Yes</li> <li>No</li> </ul>
<b>Trip Counter Reset</b>	Resets the Trip Counter of the sonar module	<ul style="list-style-type: none"> <li>Yes</li> <li>No</li> </ul>

**Transducer set-up menu options**

The **Transducer Set-up** menu should be used when setting up your multifunction display for the first time or when installing a depth transducer.

Menu Item	Description	Options
<b>Transducer</b>	Select the appropriate transducer type from those displayed. Some transducers may be selected by the system automatically.	Options available are dependent on the sonar module connected.
<b>Speed Transducer</b>	Select the appropriate speed transducer from those available. This option is only available if you are not using a combined Depth/Speed or Depth/Speed/Temperature transducer.	Options available are dependent on the sonar module connected.
<b>Depth Offset</b>	Offset represents the depth of the transducer relative to: • Wateline = 0.0 ft and above. • Keel = 0.1 ft and below.	<ul style="list-style-type: none"> <li>-9.8 to +9.8 feet — or equivalent units</li> </ul>
<b>Speed Offset</b>	Offset applied to the speed log.	<ul style="list-style-type: none"> <li>0 to 100%</li> </ul>
<b>Temperature Offset</b>	Offset applied to the temperature transducer value.	<ul style="list-style-type: none"> <li>-9.9 to +9.9 °F — or equivalent units</li> </ul>

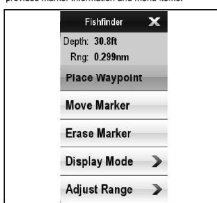


**Measuring depth and distance with VRM**  
You can use a Variable Range Marker (VRM) to determine an object's depth and distance behind your vessel. These markers consist of a horizontal (depth) line and a vertical (distance) line, each of which are labelled with the appropriate measurement.

- From the fishfinder application:
- Select **Menu**.
  - Select **Scroll** so that **Pause** is highlighted (This may make it easier to position the marker).  
Selecting **Scroll** will switch the scroll between **Pause** and **Resume**.
  - Open the fishfinder context menu.
  - Select **Place Marker**.
  - Select the location you want to place the marker.

**Note:** Once placed you can move the marker by selecting **Move Marker** from the fishfinder context menu.

**Fishfinder marker context menu**  
The fishfinder marker includes a context menu which provides marker information and menu items.



The context menu provides data for the position of the marker:

- Depth
- Range

The context menu also provides the following menu items:

- Place Waypoint**
- Move Marker**
- Erase Marker**
- Display Mode**
- Adjust Range**

**Accessing the context menu**  
You can access the context menu by following the steps below.

- Non-touchscreen and HybridTouch displays:
  - Selecting a location, object or target on-screen and pressing the **OK** button.
- HybridTouch and Touch only displays:
  - Selecting an object or target on-screen.
  - Selecting and holding on a location on-screen.

**Fishfinder scrolling**

The fishfinder image scrolls from right to left. You can pause the scrolling or adjust the scroll speed, to ease placing of waypoints or VRMs onscreen.

**Scroll speed**  
You can adjust the speed at which the fishfinder image scrolls. A faster speed provides more detail which may be useful when you are looking for fish. If you select a slower speed the information remains on the display for longer.

**Scroll pause**  
You can pause the display to see a 'snapshot' of the fishfinder image. When the image is paused scrolling stops but the depth indication continues to be updated.

Fishfinder application with DownVision™

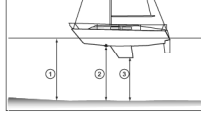
**Fishfinder Transducer Calibration**

Your fishfinder transducer must be calibrated correctly to achieve accurate depth readings.

The multifunction display receives the image from a sonar module which processes sonar signals from a transducer mounted in the water. If the transducer is equipped with a speed paddle wheel and temperature-sensing thermometer, the sonar module calculates speed and temperature. To ensure accurate readings, it may be necessary to calibrate the transducer(s) by applying offsets to depth, speed and temperature. As these settings are held in the sonar module and relate to the transducer, they are applied system-wide.

**Depth Offset**  
Depths are measured from the transducer to the sea bed, but you can apply an offset value to the depth data, so that the displayed depth reading represents the depth to the sea bed from either the keel or the wateline.

Before attempting to set a wateline or keel offset, find out the vertical separation between the transducer and either the wateline or the bottom of the keel on your vessel, as appropriate. Then set the appropriate depth offset value.



1	Wateline offset
2	Transducer / Zero offset
3	Keel offset

Fishfinder application with DownVision™

If an offset is not applied, displayed depth readings represent the distance from the transducer to the sea bed.

**Setting the depth offset**

- From the fishfinder application:
- Select **Menu**.
  - Select **Set-up**.
  - Select **Transducer Set-up**.
  - Select **Depth Offset**.  
The depth offset numeric adjust control is displayed.
  - Adjust the offset to the required value.

**Setting the speed offset**

- Depths are measured from the transducer to the sea bed, but you can apply an offset value to the depth data, so that the displayed depth reading represents the depth to the sea bed from either the keel or the wateline.
- From the fishfinder application:
- Select **Menu**.
  - Select **Set-up**.
  - Select **Transducer Set-up**.
  - Select **Speed Offset**.  
The speed offset numeric adjust control is displayed.
  - Adjust the offset to the required value.

**Setting the temperature offset**

- From the fishfinder application:
- Select **Menu**.
  - Select **Set-up**.
  - Select **Transducer Set-up**.
  - Select **Temperature Offset**.  
The temperature offset numeric adjust control is displayed.
  - Adjust the offset to the required value.

**Fishfinder alarms**

The display can be configured to provide a number of fishfinder alarms.  
The following fishfinder alarms can be set when a sonar module is detected, or when the simulator is on:

- Fish** — alarm sounds when a target meets the specified sensitivity level and, is within the depth limits (if enabled).
- Fishfinder Deep** — alarm sounds when the sonar module detects that the depth is greater than the deep limit.
- Fishfinder Shallow** — alarm sounds when the sonar module detects that the depth is less than the shallow limit.

**Setting up fish alarms**

- From the Alarms menu **homescreen** → **Set-up** → **Alarms**:
- Select **Fish**.  
The Fish alarms menu is displayed.
  - Select **Fish** so that **On** is highlighted.
  - Select **Fish Sensitivity**.  
The fish sensitivity numeric adjust control is displayed.
  - Adjust the fish sensitivity to the required value.  
The greater the fish alarm sensitivity, the greater the number of target image depths displayed.
  - Select **Fish Depth Limits** so that **On** is highlighted.  
The shallow and deep fish limit settings will be activated in the menu.
  - Select **Shallow Fish Limit**.  
The shallow fish limit numeric adjust control is displayed.
  - Adjust the value to the required setting.
  - Select **OK** to confirm the new value and close the numeric adjust control.
  - Select **Deep Fish Limit**.  
The deep fish limit numeric adjust control is displayed.
  - Adjust the value to the required setting.
  - Select **OK** to confirm the new value and close the numeric adjust control.

**Setting up fishfinder deep alarm**

From the Alarms menu **homescreen** → **Set-up** → **Alarms**:

**Adjusting the fishfinder scrolling speed**

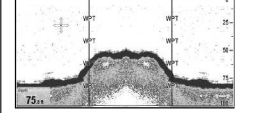
- From the fishfinder application:
- Select **Menu**.
  - Select **Presentations**.
  - Select **Scroll Speed**.  
The Scroll speed numeric adjust control is displayed.
  - Adjust the value to the required setting.
  - Select **OK** to confirm and close the numeric adjust control.

**Pausing the fishfinder scrolling image**

- From the fishfinder application:
- Select **Menu**.
  - Select **Scroll** so that **Pause** is highlighted.  
Selecting **Scroll** will switch between **Scroll** and **Resume**.

**Fishfinder waypoints**

Placing a waypoint on the fishfinder display enables you to mark a position so that you can return to it later. When a waypoint is placed, its details are added to the waypoint list and a vertical line labelled WPT is displayed on-screen. The waypoints can then be navigated to using the chart application.



**Placing a waypoint using the WPT button or icon**

From the fishfinder application:

- Select **WPT**.  
The waypoint menu is displayed.
- Whilst the waypoint menu is open:
  - Select **WPT** again to place a waypoint at your vessel's position, or
  - Select the appropriate option: **Place Waypoint At Vessel**, **Place Waypoint At Cursor** or **Place Waypoint At Lat/lon**.
- Select **OK** to confirm waypoint placement, or
- Select **Edit** to edit the new waypoints details.

- Select **Fishfinder Deep**.
- Select **Deep** so that **On** is highlighted.  
Selecting **Deep** will switch between **On** and **Off**.
- Select **Deep Limit**.  
The deep limit numeric adjust control is displayed.
- Adjust the setting to the required value.
- Select **OK** to confirm the new value and close the numeric adjust control.

**Note:** The Deep Limit cannot be set to less than the Shallow Limit.

**Setting up fishfinder shallow alarm**

From the Alarms menu **homescreen** → **Set-up** → **Alarms**:

- Select **Fishfinder Shallow**.  
Selecting **Shallow** so that **On** is highlighted.
- Select **Shallow Limit**.  
The shallow limit numeric adjust control is displayed.
- Adjust the setting to the required value.
- Select **OK** to confirm the new value and close the numeric adjust control.

**Note:** The Shallow Limit cannot be set to greater than the Deep Limit.

**Resetting the sonar**

The reset function restores the unit to its factory default values.

**Note:** Performing a factory reset will clear speed and temperature calibration settings and the depth offset.

- Using a compatible Raymarine multifunction display go to the Fishfinder application page.