Reference manual

Simrad PI50

Catch monitoring system

www.simrad.com

TECHNOLOGY FOR SUSTAINABLE FISHERIES

SIMRAD

KONGSBERG

Simrad PI50
Catch monitoring system

Reference manual

Release 1.0.0

The purpose of this reference manual is to provide the descriptions, procedures and detailed parameter explanations required to allow for safe and efficient use of the Simrad PI50 Catch monitoring system, as well as a thorough understanding of the system parameters and adjustments.

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Warning

The equipment to which this manual applies must only be used for the purpose for which it was designed. Improper use or maintenance may cause damage to the equipment and/or injury to personnel. The user must be familiar with the contents of the appropriate manuals before attempting to install, operate or work on the equipment.
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DBS Depth below surface 203
GLL Geographical position latitude/longitude 204

GGA Global positioning system fix data 205
HDG Heading, deviation and variation 205
HDM Heading, magnetic 206
HDT Heading, true 206
RMC Recommended minimum specific GNSS data 206
VHW Water speed and heading 207
VTG Course over ground & ground speed 207
VLW Dual ground/water distance 208
Proprietary telegrams and formats 209
DBS Depth of trawl below surface 209
HFB Trawl headrope to footrope and bottom 209
PSIMP-D1 PI Sensor data 209

About this manual

Purpose

The purpose of this reference manual is to provide the descriptions, procedures and detailed parameter explanations required to allow for safe and efficient use of the Simrad PI50, as well as a thorough understanding of the system parameters and adjustments.

A good understanding of system functions and controls is essential to fully take advantage of the functionality provided. Sea conditions vary, sometimes drastically, and it is not possible to identify settings that will provide the best data at all times. Careful study of the information in this manual is highly recommended, preferably while exploring the system's functionality.

Click "Help"!

Installed on your Simrad PI50 you will find a comprehensive on-line help system. You may not find it in your language, but everything you can read in the *Simrad PI50 Reference manual* can also be found in the context sensitive on-line help.

To access this information click **[?]** on the **Title Bar** menu, or the **[?]** button in one of the dialogs.

Note that when you open the help system it will place itself on the top of the display presentation!

Software version

This manual complies to software version 1.0.0.

Note

Windows, Windows XP, and Windows 7 are either registered trademarks, or trademarks of Microsoft Corporation in the United States and/or other countries.

References

The following user manuals have been provided for the Simrad PI50. English manuals are provided with the PI50 when it is shipped. Manuals in other languages may be downloaded from http://www.simrad.com.

- Simrad PI50 Operator Manual, English [328457 / ISBN 978-82-8066-121-2]
- Simrad PI50 Reference Manual, English [328458 / ISBN 978-82-8066-120-3]
- Simrad PI50 Installation Manual, English [328459 / ISBN 978-82-8066-122-7]

Simrad PI50

Study this chapter to familiarize yourself with the Simrad PI50.

Topics

- *Important* on page 11
- *System description* on page 12
- *System diagram* on page 13
- *System units* on page 14

Important

As with all other advanced instruments, there are a few important things that you must be aware of.

When the PI50 is not used

When you do not use the PI50, switch off the display and the computer.

You may switch of the Receiver Unit too.

If something breaks down

If you believe that something has broken down, contact your local dealer. He will be able to assist.

When you switch off the PI50

You must NEVER switch off the PI50 by means of the on/off switch on the computer.

You must ALWAYS exit the PI50 application by clicking the **Exit** button on the **Title Bar**.

If you power down the PI50 by means of the computer switch you may damage the software application and the interface parameters to external devices.

System description

The Simrad PI50 is designed for the professional fishery community implementing the latest innovations. The catch monitoring system allows you to stay in full control of the gear and its behaviour. The system is designed to be equally useful for all fishing types. Bottom trawlers, pelagic trawlers, purse or danish seiners - whatever kind of gear you use, all vessels can take advantage of the functionality provided by the PI50

The Simrad PI50 comprises the following units:

- Colour display
- Processor Unit
- Receiver Unit
- Hydrophone

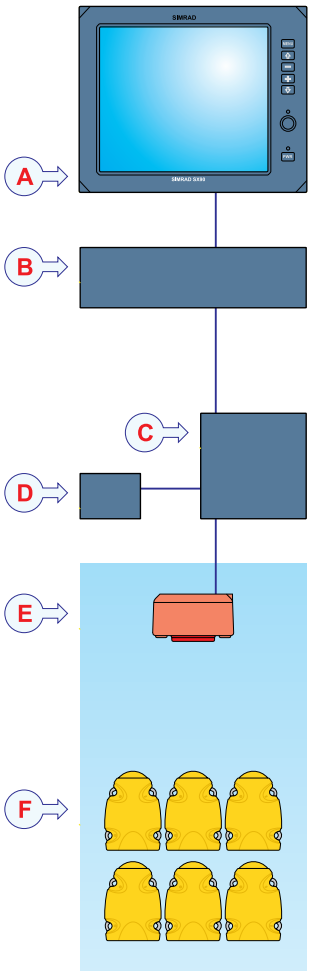
The hydrophone is mounted under the vessel's hull.

The system further comprises a number of small and robust sensors measuring the conditions on your fishing gear. The Simrad PI50 Catch monitoring system can receive information from six sensors simultaneously.

The sensors are powered by built-in rechargeable batteries. They are housed in titanium casings, and designed using advanced shock absorbing materials. The information collected by the sensors are sent through the water to the hydrophone by means of coded sound waves. The Receiver Unit amplifies and decodes the information, converts it to digital format, and sends it to the Processor Unit (computer). The computer interprets the information, and finally presents it to you.

System diagram

Figure 1 System diagram



A basic system diagram is provided. Interface capabilities and power cables are not shown.

A *Display Unit*

B *Processor Unit*

C *Receiver Unit*

D *Power Supply*

E *Hydrophone*

F *Catch Monitoring Sensors*

System units

Each system unit is described in more detail.

Topics

- *Colour display* on page 14
- *Processor Unit* on page 14
- *Receiver Unit* on page 16
- *Hydrophones* on page 17
- *Catch monitoring sensors* on page 18

Colour display

Any commercial colour display can be used with the Simrad PI50 Catch monitoring system provided that the display meets the basic specifications.

These specifications are:

- **Minimum screen resolution**: 1280 x 1024

Processor Unit

A dedicated maritime computer may be provided with the Simrad PI50 system.

Figure 2 PI50 Marine Computer

When this computer is supplied, it is readily set up with all necessary software. The computer is customized by Simrad to contain no moving parts.

The computer is normally mounted in the wheelhouse. If you wish to take advantage of the audible alarms offered, the computer must be installed in such manner that the built-in loudspeaker can be heard. As an alternative, an external powered loudspeaker can be connected.

Note

The PI50 Marine Computer will be very warm during operation.

Any commercial computer can also be used with the Simrad system provided that the computer meets the basic minimum specifications.

Minimum computer requirements

Observe the following minimum computer requirements.

- **Operating system:** Microsoft® Windows® XP® (32–bit) or Microsoft® Windows® 7 (32–bit) [1]

  On new installations, we recommend that Microsoft® Windows® 7 is used.
- **Processor speed:** 2 GHz Dual core
- **Memory:** 2.0 Gb
- **Free hard disk space:** 30 Gb
- **Chipset:** Intel
- **Graphic adapter:** DirectX9.0c compatible with Direct3d and OpenGL[2]
- **Interfaces:**
  - One serial (RS-232) interface to communicate with the Receiver Unit

    Note that “PCI Express” serial interface boards are not supported.
  - One Ethernet interface to communicate with ship’s local area network (if required)
  - One or more serial line interfaces (depends on how many interfaces that are required for the specific integration)

  Note

  USB to Serial adapter are not supported under Windows XP.
- **Display resolution:** 1280 x 1024[3]

1. The PI50 software does not support Microsoft© Windows© NT or older operating systems.
2. A large number of commercial graphic adapters are available, and Simrad has not tested all of them. Even adapters meeting the minimum specifications may in some cases prove to fail with the PI50 software. We welcome any feedback with comments or experiences with graphic adapters.
3. This is the minimum resolution. As with all other Windows applications, the PI50 software will work with higher resolutions, provided that it is supported by the graphic adapter in the computer and the display connected.

Receiver Unit

The Simrad PI50 Catch monitoring system uses a custom built receiver.

Figure 3 PI50 Receiver Unit

The PI50 receiver Unit is housed in a small cabinet. All necessary input and output sockets easily available. The unit is powered by a small external power supply.

The Receiver Unit provides the following interfaces:

- Serial line cable to the Processor Unit.
- One hydrophone
- External power supply

The Receiver Unit is normally located in a compartment directly above the hydrophone. The maximum length of the serial line cable to the Processor Unit is 50 meters.

Hydrophones

Two hull mounted hydrophones are available, one for purse seining operations, and one for trawl operations. You can install both, and then select active hydrophone by means of a selector box on the bulkhead.

Purse seine hydrophone

Figure 4 Purse seine hydrophone

The hull mounted hydrophone for purse seining operations has a 90 degrees horizontal beam and a 30 degrees vertical beam to provide the PI50 with optimal reception from the sensors on a purse seine.

This specific beam pattern is especially suited for purse seining and the wide coverage area reduces the need for careful alignment.

Trawl hydrophone

The hull mounted hydrophone for trawling operations has a 50 degrees horizontal beam and a 30 degrees vertical beam to provide the PI50 with optimal reception from the sensors on a bottom or pelagic trawl.

This specific beam pattern is especially suited for trawling and the wide coverage area reduces the need for careful alignment.

Portable hydrophone

Figure 5 Portable hydrophone

A portable hydrophone is also available. It is designed as a temporary measure until a fixed hydrophone can be installed at the vessel's next planned dry docking. It has an omnidirectional beam and a 50 meter integrated cable.

The cable is sheathed in polyurethane providing robust external protection to compliment its 150 kg tensile strength.

The cable is supplied on a reel for convenient retrieval and stowage, and is equipped with a plug for easy attachment to the Receiver Unit.

Catch monitoring sensors

A large selection of sensors can be used with the PI50 system.

The current software version supports the following sensors:

- Bottom Contact
- Catch
- Depth
- Spread
- Temperature
- Height
- Temperature/Depth
- Spread/Depth
- Twin Spread
- Height/Depth
- SeineSounder
- Geometry

Related topics

- *Sensor views* on page 39
- *Trend views* on page 57
- *How to select and set up the sensors* on page 72
- *Sensors overview* on page 174
- *Sensor configuration* on page 190
- *Charging procedures* on page 193

Support information

If you need additional technical support for your Simrad PI50 you must contact your local dealer, or one of our support departments.

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- **Website**: http://www.simrad.com

Getting started

Topics

- *Power On/Off procedures* on page 20
- *Using the trackball* on page 21
- *Sensor presentations* on page 22
- *Starting normal operation* on page 23
- *Title Bar* on page 28
- *The menu system* on page 30

Power On/Off procedures

Observe these procedures to switch the Simrad PI50 on and off.

Power on

1 Power up the Receiver Unit.

2 Power up the PI50 computer and the display.

3 If necessary, double-click the PI50 icon on the desktop to start the program.

4 Wait while the PI50 program starts on the computer.

- During the program initialisation, a dialog appears to let you choose from the current user settings available on the PI50. The dialog is only visible a few seconds. You do not need to make a choice here. You can select user setting at any time by means of the **User Settings** dialog on the **Main** menu.

  → *User Settings* on page 121

5 Observe that the PI50 starts.

- The PI50 starts up using the same operational parameters as the last time you used it. If these parameters are acceptable, continue operation. If you wish to alter basic operational parameters, see the dedicated procedures.

  → *Starting normal operation* on page 23

Power off

Note

You must never switch off the PI50 only by means of the on/off switch on the computer. This may damage the software or the interface parameters for external devices. You must ALWAYS use this procedure.

1 Click the **Exit** button on the **Title Bar** in the top right corner of the PI50 presentation.

2 Observe that the PI50 application closes down.

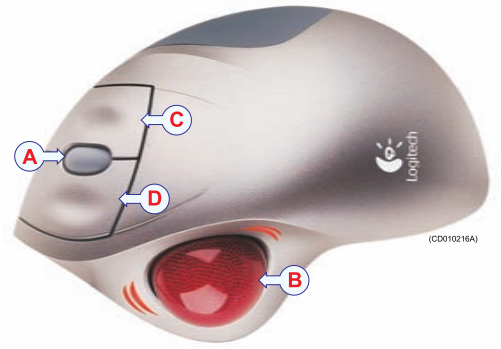
3 If the computer does not switch itself off automatically, use the functionality provided by the operating system to switch it off manually.

4 Switch off the display.

5 Switch off the Receiver Unit.

Using the trackball

Figure 6 Trackball



All PI50 functions are controlled with the trackball.

A *Control wheel*

B *Trackball*

C *Right mouse button*

D *Left mouse button*

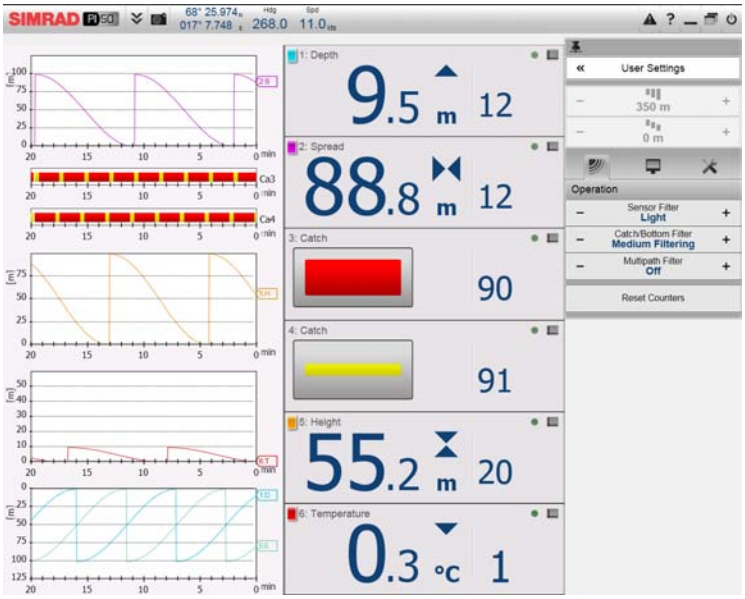
This trackball is connected to the computer, and by means of the buttons and the wheel you can control all the dialogs and parameter settings.

A standard computer mouse can also be used. If you wish to use a mouse, we recommend that you find one equipped with a control wheel.

Sensor presentations

The PI50 can be used with several different sensors, but only six sensors simultaneously.

Figure 7 Sensor presentation example with sensor views and trend views shown [4]



When sensors are selected, the presentation of these are made automatically. The following views are available:

- **Sensor views**: The information from each sensor is presented in a rectangle. "Dual" sensors use two channels, and they use two rectangles for presentation. The rectangle holds the key information provided by sensor, as well as a trend view. This is a small rectangle within the sensor view. It offers the changes in the sensor data for the last 20 minutes.
- **Trend views**: For each sensor, you can also retrieve a trend view. This is a graph providing the historic values from the sensor. Both the vertical and horizontal resolutions of the graph can be adjusted.
  - The **Range** and **Range Start** buttons on the **Main** menu controls the vertical resolution.
  - The **Trend History Length** button on the **Display** menu controls the horizontal resolution (5 to 1440 minutes).

The presentation of the various views are made automatically, and the size of each view depends on the space available. When no trend views are open, the sensor views will stretch from the left to the right edge of the presentation. When a trend view is opened, it will position itself on the left side, and the size of the sensor views will be reduced. If additional trend views are opened, they will be positioned on top of each other, and the vertical size of each view is adjusted automatically.

The order of the sensor views is defined by the setting made in the **Select Sensors** dialog. The location of the trend views do not follow his order. The first trend view fills the entire vertical space, the next are placed on top of the first in the same order they are opened.

4. The sensor data are taken from the built-in simulator.

Starting normal operation

Once you have powered up the complete PI50 system, you are ready to start the actual operation. When started up, the PI50 will automatically apply its previous setup parameters.

If these parameters are acceptable you do not need to carry out the remaining procedures in this section.

Once you have powered up the PI50 and the display, you are ready to start the actual operation. When started up, the PI50 will automatically apply its previous setup parameters.

If these parameters are acceptable you do not need to carry out the remaining procedures in this section.

Topics

- *How to select menu language* on page 23
- *How to reset the PI50 to factory default parameters* on page 23
- *How to select and set up the sensors* on page 24
- *How to save the current user settings* on page 27
- *How to calibrate the depth sensors* on page 27

How to select menu language

The menu buttons – as well as other text – in the PI50 presentation are available in several languages.

1 Click the **Display** icon under the **Main** menu to open the **Display** sub-menu.

→ *Display menu* on page 118

2 Click the middle of the **Language** button to open the list of available languages.

→ *Language* on page 132

3 Click once on the language you wish to use.

4 Observe that the sub-menu is closed, and that all text in the menu buttons changes to the selected language.

How to reset the PI50 to factory default parameters

If the current settings are unreliable, or you simply wish to reset the PI50 to a known set of parameters, choose the factory setting provided.

1 Observe the **Main** menu on the right hand side of the PI50 presentation.

2 Click the **User Settings** button to open the **User Settings** dialog.

→ *User Settings* on page 121

3 In the **User Settings** dialog, click one of the factory settings in the top text field:

- **Simrad Factory Default**
- **Simrad Purse Setup**
- **Simrad Trawl Setup**

4 Click the **Activate Selected Setting**, then click **Close**.

How to select and set up the sensors

The PI50 allows you to put the entire PI sensor range to use. However, you must select the sensors that you wish to use, set them up in the order you wish to see them on the screen, and select the operational parameters. Both the sensor selection and the parameter setup are done in the **Select Sensors** dialog.

→ *Select Sensors* on page 142

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click the **Select Sensors** button to open the **Select Sensors** dialog.

→ *Select Sensors* on page 142

3 Observe the **Available Sensors** field on the upper left side of the dialog. It lists all the sensor types supported by the PI50.

4 Click once a sensor type to select it.

5 Click the [►] button to copy the chosen sensor to the **Selected Sensors** list.

6 Repeat to select all requested sensors.

The PI50 system will keep track of the quantity of sensors you are adding to the **Selected Sensors** list. If you try to add too many sensors, a message will let you know.

If you need to delete a sensor from the **Selected Sensors** list, click on it, and then click the [◄] button.

7 In the **Select Sensors** dialog, observe the items in the **Selected Sensors** list.

Note

The order of the sensors in this list is also reflected to the order of the sensor view rectangles

→ *How to control the order of the sensor views on page 70*

8 Click once a sensor type to select it.

9 Click one of the [▲] or [▼] buttons to move the sensor up or down on the list in the **Selected Sensors** field.

The order in this list also controls the order in which the sensors are presented in the **Sensor Configuration** field, as well as the vertical order of the Sensor view rectangles in the PI50 display presentation.

→ *How to control the order of the sensor views* on page 70

10 Observe the list of sensors in the **Sensor Configuration** field at the bottom of the dialog.

11 For each sensor in the **Sensor Configuration** field:

a Choose **Label ID** (identification).

- **Label ID**: This number is used to identify the sensor.

  The ID must be unique for each sensor, and we recommend that you let it match the physical label placed on the sensor. The number you choose will be used in the Sensor view.

  → *Sensor views* on page 39

- The *order* in which the Sensor views are presented is defined by the order in the **Selected Sensors** list.

b Choose **Label Name**.

- **Label Name**: By default, the **Label Name** is the same as the sensor name listed with the **Available sensors**. If you have a keyboard connected to the PI50 computer, you can click in the field, and enter another name.

  The **Label Name** is only shown in this dialog.

c Choose **Update Rate**.

- **Update Rate**: This parameter i used to select the sensor's update rate.

  This is how often the PI50 can expect to receive information from the sensor.

  → *Changing the update rate* on page 191

  Note

  *The **Update Rate** parameter is vital. The update rate you choose here must comply to the update rate programmed into the sensor. If these do not match, the communication will not work.*

  The default update rates for the various sensors are listed in chapter *PI50 Sensors*.

  → *Default communication channels and update rates* on page 190

  To change the channel number on the sensor, use the PI Configurator utility.

→ *PI Configurator* on page 192

d Choose **Sensor Value Name**.

- **Sensor Value Name**: By default, the **Sensor Value Name** is the same as the sensor name listed in the **Available Sensors** list. If you have a keyboard connected to the PI50 computer, you can click in the field, and enter another name. You can also open the on-screen keyboard.

  The **Sensor Value Name** is used in the Sensor views. If you are setting up a dual sensor, you can enter two different names.

  → *Sensor views* on page 39

  Example: If you have three PI Catch sensors on your trawl, you can name them “Catch Rear”, “Catch Middle” and “Catch Forward”.

e Choose **Channel Number**.

- **Channel Number**: This is the communication channel used between the sensor and the PI50 system.

  Note

  *The **Channel Number** parameter is vital. The communication channel number you choose here must comply to the channel number programmed into the sensor. If these do not match, the communication will not work. By default, the channel number will match the factory setting.*

  If you use more than one sensors of the same type, the channel number of one of the sensors must be changed to make it unique for the sensor. This must be changed both in the actual sensor, and in the **Select Sensors** dialog during configuration.

  The default communication channels for the various sensors are listed in chapter *PI50 Sensors*.

  To change the channel number on the sensor, use the PI Configurator utility.

  → *Default communication channels and update rates* on page 190

  → *Changing a communication channel* on page 191

  → *PI Configurator* on page 192

f Observe the **Offset** value.

- **Offset**: Each sensor measuring spread and depth will have an offset value.

  The offset value for the depth sensors are determined during calibration.

  → *How to calibrate the depth sensors* on page 27

  → *Calibration* on page 149

  The offset value for the spread sensor must be entered manually based on your knowledge about the physical locations of the sensors and the properties of the gear.

12 Click **Apply** to save the sensor configuration.

13 Check that all sensors are shown in the PI50 presentation.

14 Click **OK** to save the current settings and close the dialog.

Tip

If you have several sensor configurations dedicated for different gears or different tasks, we strongly recommend that you save these for future use.

→ *How to save the current user settings* on page 67

→ *User Settings* on page 121

How to save the current user settings

If you have several user with favourite configurations, work with different gears, or with different transducers, depth or bottom conditions, we recommend that you save the parameters for future use.

If you have several sensor configurations dedicated for different gears or different tasks, we also strongly recommend that you save these.

The settings saved using the **User Settings** functionality includes all receiver settings, interface parameters, as well as the currently selected sensors and their communication parameters. This is useful if you operate a combined trawler and seiner using different sensor setup on the different gears.

1 Observe the **Main** menu on the right hand side of the PI50 presentation.

2 Click the **User Settings** button to open the **User Settings** dialog.

→ *User Settings* on page 121

3 In the **User Setting** dialog, click the **Save Current Setting** button.

4 In the **Setting** dialog, click **OK** to accept the suggested name.

5 To choose a different name:

- If you have a keyboard connected to the PI50 computer, you can click in the text field, remove the suggestion, and enter any name.
- If a keyboard is not connected, click the **Keyboard** button to use the on-screen keyboard.

6 Observe that the name you have chosen appears on the **Saved Settings** list.

7 Click **OK** to save the current settings and close the dialog.

How to calibrate the depth sensors

Only depth sensors can be calibrated. The purpose is to make sure that the depth reported by the sensor is as accurate as possible. This procedure is carried out on board the vessel.

Note

In order to calibrate the sensor, it must be submerged in salt water.

The software provided for calibration assumes that the sensor is lowered to 1 meter deep. If you need to lower it even deeper, you will need to add this additional depth to the **Offset** value when you select and set up the sensor in the **Select Sensors** dialog.

Example: If you lower your sensor to 5 meters depth for calibration, you must enter 4 (meters) into the **Offset** for the sensor.

→ *Select Sensors* on page 142

1. Mount a rope to the top fastening lugs on the sensor.
2. Tighten the rope, and measure one meter from the bottom of the sensor to a spot on the rope. Place a visual marker on the rope at that location.
3. Lower the sensor over the side of the vessel and into the water. Lower it until the visual marker on the rope is even with the surface.

   You may wish to use a different depth reference than the sea surface. If this is the case, change the marking on the rope to fit you preference, for example the depth of the keel or the depth of an echo sounder transducer.
4. Observe the numerical presentation of the sensor depth, and allow the reading to stabilize itself.
5. Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

   → *Setup menu* on page 119
6. Click **Calibration**.

   → *Calibration* on page 149
7. In the **Calibration** dialog, click **Start Calibration**.
8. Wait for the PI50 system to do the calibration. Read a book, or call your mother.

   When the **Calibration** dialog closes, the calibration has finished. Click **Close** to close the dialog.
9. Observe the numerical presentation of the sensor depth, and verify that it reads 1 m.
10. Retrieve the sensor from the water.

Title Bar

The PI50 **Title Bar** is located on the top of the display presentation, and it is stretched from the far left to the far right side.

The **Title Bar** provides buttons to hide or show the menu, to make a screen capture, to open the **Messages** dialog, and to open the context sensitive on-line help. It also provides navigational information, as well as a few buttons related to operating system features.

Figure 8 Title Bar

Title Bar elements

- **Brand and product name**: This element identifies the manufacturer and the product.

  → *Logo and product name* on page 35

- **Operation**: These buttons are used to control basic operational functions.

  → *Operation buttons* on page 35

- **Navigation**: These are not buttons, but information fields providing current data related to the vessel movements.

  → *Navigational information* on page 36

- **Function**: These buttons are used to control basic functions such as screen captures, help, menu appearance

  → *Function buttons* on page 37

For more detailed information about the **Title Bar**, see *Title bar* on page 35.

The menu system

This section provides a short introduction to the menu system, and explains the basic use of the PI50 menu buttons.

For more information about the menu system, see the dedicated chapter.

→ *The menu system* on page 113

The menu hierarchy

Figure 9 The Main menu (top) with the Display sub-menu below

The menu system on the PI50 is by default placed on the right hand side of the display presentation. You can however easily move the menu to the left side using the **Display Options** dialog, or hide it from view with the **Menu** button on the **Title Bar**.

The main menu is short, and the three sub-menus are opened by clicking on the three icons.

Menu hierarchy

1. The **Main** menu provides the parameters most frequently used during normal operation.
2. The **Operation** menu controls the main operational parameters.
3. The **Display** menu controls the visual aspects of the system, such as parameters related to the display presentation.
4. The **Setup** menu allows you to control the configuration of the signal processing, as well as system installation and maintenance, and the interfaces to peripheral devices.

Menu buttons

Each menu contains several command buttons. Each button shows the function of the button, some of them also displays the current parameter setting. The majority of the buttons in each menu field have these functions:

- You can increase and decrease parameter values by clicking the button.
- You can change parameter values by moving the cursor sideways.
- You can change parameter values by means of the scroll wheel on the mouse or trackball.
- You can enter parameter values from the keyboard (if you have one).
- You can select parameter value from the button's sub-menu.
- You can open a dedicated dialog.

How to select a numerical parameter using the +/- buttons

1 Move the cursor to either side of the button, and observe that the background colour changes.

   a Click on the left side of the button to decrease the numerical value.

   b Click on the right side of the button to increase the numerical value.

How to select a numerical parameter by moving the cursor horizontally

1 Place the cursor on the middle of the button.

2 Click and hold the left mouse button depressed.

3 Move the cursor horizontally: left to decrease the parameter value, or right to increase it.

4 Release the mouse button when the requested value is shown.

How to select a numerical parameter by means of the scroll wheel

1 Place the cursor on the middle of the button.

2 Spin the scroll wheel in either direction to increase or decrease the parameter value.

3 Release the scroll wheel when the requested value is shown.

How to select a numerical parameter using the keyboard

1 Click the middle section of the button to open a text field.

2 Enter the numerical value into the text field.

   If the numerical value exceeds the permitted range for the parameter, the frame in the text field will be red. You will then not be able to enter the value.

3 Press the **Enter** key.

How to select a parameter using a sub-menu

1 Click the middle section of the button to open a sub-menu, then click the requested parameter value.

The chosen value is applied, and the sub-menu is automatically closed.

2 Whenever applicable, you can also access the sub-menu by clicking the left and right side of the button, but this method will not show you the menu choices.

a Click on the left side of the button to select a lower sub-menu choice.

b Click on the right side of the button to select a higher sub-menu choice.

How to select parameters using a dialog

1 Click anywhere on the button to open a separate dialog.

Display views

The display views provided by the Simrad PI50 is based on an award winning design. The menu system, presentation of data in the operational modes, and the user interface elements have been created in close cooperation with designers and users.

This chapter provides a brief overview of the information displayed by the Simrad PI50, and how it is organised.

Topics

- *Display organisation* on page 33
- *Title bar* on page 35
- *Menu system* on page 38
- *Sensor views* on page 39
- *Trend views* on page 57
- *Screen captures* on page 64

Display organisation

A typical PI50 Catch monitoring system display presentation is shown.

A Title Bar

The **Title Bar** identifies the logo, and provides several cons and buttons. These are used to hide or retrieve the menu system, and to enable basic system functions.

→ *Title bar* on page 35

B Sensor views

The sensor views are automatically placed on top of each other. They reflect the sensors you have chosen in the **Select Sensors** dialog, and the order you have given the sensors when you defined them.

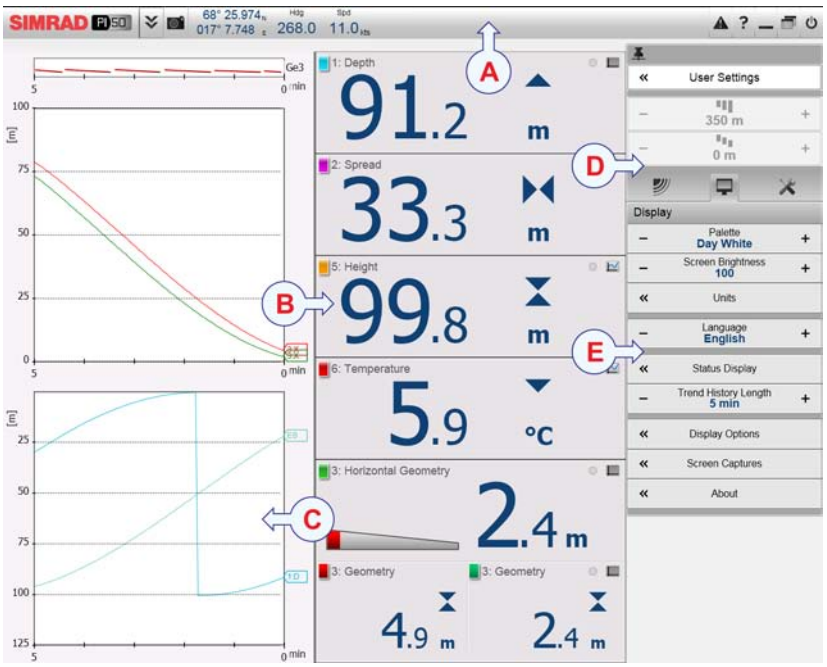
If you have opened one or more trend views, the sensor view rectangles are automatically reduced in size. If you hide the menu, they will enlarge and fill the vacant space left by the menu system.

C Trend views

Each sensor presentation can be expanded into a trend view to show the historic development of the information provided by the sensor.

Each trend view comprises a graph. These are placed on the left side of the screen, on top of each other, in the order you open them.

Figure 10 Sensor presentation example with sensor views and trend views shown[5]



D Main menu

The **Main** menu is by default located on the right hand side of the echo sounder presentation. To open any of the sub-menus, click the icons. To hide or retrieve the **Main** menu, click the **Menu** button on the **Title Bar**.

→ *Menu system* on page 38

E Sub-menus

Three sub-menus may be opened from the icons at the bottom of the **Main** menu.

→ *Menu system* on page 38

5. The sensor data are taken from the built-in simulator.

Title bar

The PI50 **Title Bar** is located on the top of the display presentation, and it is stretched from the far left to the far right side.

The **Title Bar** provides buttons to hide or show the menu, to make a screen capture, to open the **Messages** dialog, and to open the context sensitive on-line help. It also provides navigational information, as well as a few buttons related to operating system features.

Figure 11 Title Bar

Title Bar elements

- **Brand and product name**: This element identifies the manufacturer and the product.

  → *Logo and product name* on page 35

- **Operation**: These buttons are used to control basic operational functions.

  → *Operation buttons* on page 35

- **Navigation**: These are not buttons, but information fields providing current data related to the vessel movements.

  → *Navigational information* on page 36

- **Function**: These buttons are used to control basic functions such as screen captures, help, menu appearance

  → *Function buttons* on page 37

Logo and product name

The Simrad logo and the product name (PI50) is shown.

Double-click the Simrad logo to reduce the size of the PI50 presentation. Double-click one more time to restore the original size.

Operation buttons

Menu button

Click once on the **Menu** button to hide the menu, and one more time to bring it back again. When the menu is hidden, it will temporarily be shown on the left and right hand side of the display if you move the cursor to that position.

→ *The menu system* on page 113

Screen capture button

Click this button once to create a screen capture of the current echogram presentation. To view the recorded image, click **Screen Capture** on the **Taskbar** to open the image browser.

→ *Screen captures* on page 64

Navigational information

These are not buttons, but fields providing useful information related to the vessel movements. You can choose which information to be displayed if you open the **Display Options** dialog from the **Display** sub-menu.

Note

*This navigational information on the **Title Bar** must not be used for navigation!*

→ *Display Options* on page 137

Geographical location

Provided that a GPS system is connected to the PI50, this field on the **Title Bar** will display the vessel's geographical position in longitude and latitude.

The communication with the external GPS system is set up using the **Navigation** button on the **Setup** menu.

→ *Navigation; Position tab* on page 154

Vessel heading

Provided that a GPS or compass system is connected to the PI50, this field on the **Title Bar** will display the vessel's current heading.

The communication with the external GPS system, heading sensor or gyro compass is set up using the **Navigation** button on the **Setup** menu.

→ *Navigation; Heading tab* on page 157

Vessel speed

Provided that a GPS or speed log system is connected to the PI50, this field on the **Title Bar** will display the vessel's current speed.

The communication with the external GPS system or speed sensor is set up using the **Navigation** button on the **Setup** menu.

→ *Navigation; Speed tab* on page 155

Water temperature

Provided that a temperature sensor is connected to the PI50, this field on the **Title Bar** will display the water temperature.

Note

This functionality is not implemented in SW version 1.0.0.

Depth

Provided that an external echo sounder is connected to the PI50 to provide the information, the current bottom depth can be shown.

Function buttons

The five function buttons are located on the far right side of the **Title Bar**.

Message button

This **Message** button will indicate when the PI50 system has issued a message. Click the button to open the **Message** dialog. If you hold the mouse cursor over the button, a tooltip rectangle will provide a list of the messages that you have not acknowledged.

→ *How to read and acknowledge alarms and messages* on page 101

→ *Messages* on page 171

Help button

Click this button to open the PI50 context sensitive on-line help. The button opens the help system on its start page.

Minimize button

Click this button to minimize the PI50 display presentation. This is an operating system function.

Resize button

Click this button to change the size of the PI50 display presentation. This is an operating system function.

Exit button

Click this button to close the PI50 program.

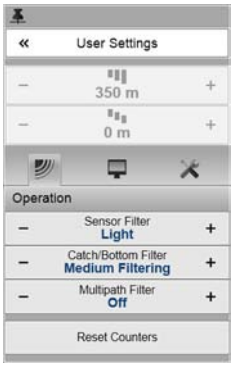
→ *Power off* on page 21

Menu system

The PI50 menu is located at the right side of the display. A detailed breakdown of the commands and parameters available from the menu system is given in the *Menu system* chapter.

→ *The menu system* on page 113

Figure 12 The Main menu (top) with the Operation sub-menu below



You can place the menu on the left side of the PI50 presentation by means of the **Menu on the right side** option in the **Display Options** dialog.

→ *Display Options* on page 137

You can also hide the menu from view if you do not need it. Use the **Menu** button on the **Title Bar**. Click once to hide the menu, click one more time to retrieve it.

Menu hierarchy

1 The **Main** menu provides the parameters most frequently used during normal operation.

2 The **Operation** menu controls the main operational parameters.

3 The **Display** menu controls the visual aspects of the system, such as parameters related to the display presentation.

4 The **Setup** menu allows you to control the configuration of the signal processing, as well as system installation and maintenance, and the interfaces to peripheral devices.

For more information about the menu system, see the *Menu System* chapter.

→ *The menu system* on page 113

Sensor views

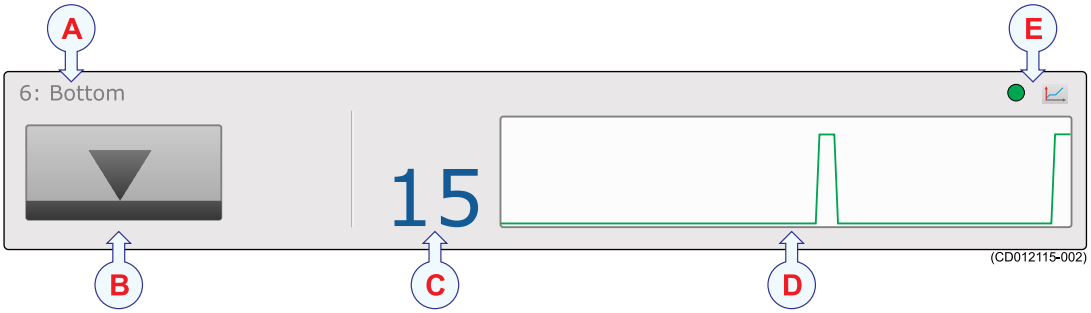
Each sensor providing information to the PI50 system uses a dedicated rectangle – a **Sensor view** – to display this information.

These rectangles are dynamic. This means that you can change their size. The text font and the amount of information in the rectangle will change as the rectangle is made larger or smaller.

Topics

- *PI Bottom Contact sensor view* on page 40
- *PI Catch sensor view* on page 41
- *PI Depth sensor view* on page 42
- *PI Height sensor view* on page 43
- *PI Spread sensor view* on page 44
- *PI Temperature sensor view* on page 45
- *PI Temperature/Depth sensor view* on page 46
- *PI Geometry sensor view* on page 47
- *PI Height/Depth sensor view* on page 49
- *PI Spread/Depth sensor view* on page 50
- *PI Twin Spread sensor view* on page 52
- *PI SeineSounder sensor view* on page 54
- *PI Remote/Depth sensor view* on page 55
- *PI Rip sensor view* on page 55
- *Vertical geometry view* on page 56

PI Bottom Contact sensor view



A **Sensor colour code, identifier and name**: The identifier is the **Label ID** parameter, the sensor name is the **Sensor Value Name** parameter. You can control these parameters in the **Select Sensors** dialog.

The colour code is issued automatically by the PI50 system. The same colour is used in the **Trend view** and in the **History field**.

B **Bottom contact status icon**: The arrow displays "bottom contact".

This is graphically represented by making contact with the horizontal black line (seabed). When bottom contact is lost, the arrow will rise from the seabed and change appearance.

- Left icon: The sensor has lifted off the seabed.
- Right icon: The sensor is in physical contact with the seabed.

C **Timer**: This timer records how many minutes that have elapsed since the sensor lost bottom contact. If the bottom contact is regained, the timer stops. It is then restarted once the status changes again. The timer can be manually reset by clicking the **Reset Counters** button on the **Operation** menu.

→ *Reset Counters* on page 129

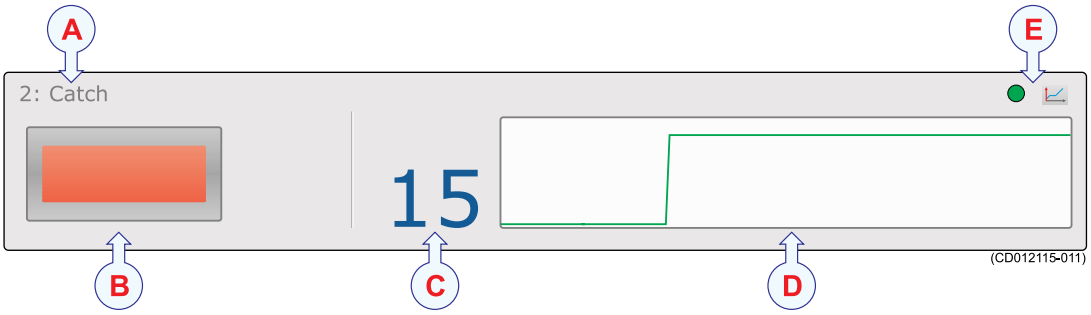
D **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

E **Pulse lamp and Trend view icons**: The green **Pulse lamp** icon flashes every time a signal is received from the corresponding sensor. The **Trend view** icon opens (and closes) the **Trend view** for the corresponding sensor.

Related topics

- *PI Bottom Contact sensor view* on page 40
- *PI Bottom Contact trend view* on page 57
- *How to set up the PI Bottom Contact sensor* on page 75
- *PI Bottom Contact purpose and application* on page 175

PI Catch sensor view



A **Sensor colour code, identifier and name**: The identifier is the **Label ID** parameter, the sensor name is the **Sensor Value Name** parameter. You can control these parameters in the **Select Sensors** dialog.

The colour code is issued automatically by the PI50 system. The same colour is used in the **Trend view** and in the **History field**.

B **Catch status icon**: Two small rectangles visualize sensor activation.

A small yellow rectangle means that the sensor has not been activated yet. A red rectangle means that the trawl has been filled with fish, and this has triggered the sensor.

- Left icon: The sensor has been activated.
- Right icon: The sensor has not been activated.

C **Timer**: This timer records how many minutes that have elapsed since the sensor was activated. The timer can be manually reset by clicking the **Reset Counters** button on the **Operation** menu.

→ *Reset Counters* on page 129

D **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

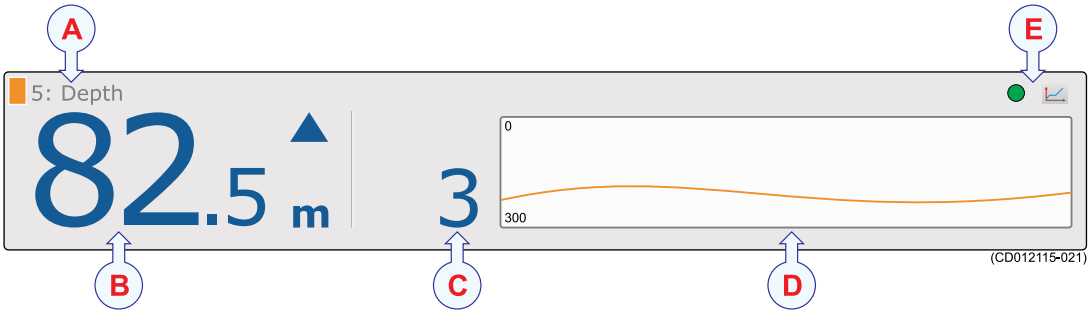
E **Pulse lamp and Trend view icons**: The green **Pulse lamp** icon flashes every time a signal is received from the corresponding sensor. The **Trend view** icon opens (and closes) the **Trend view** for the corresponding sensor.

Related topics

- *PI Catch sensor view* on page 41
- *PI Catch trend view* on page 57
- *How to set up the PI Bottom Contact sensor* on page 75
- *PI Catch purpose and application* on page 176

PI Depth sensor view

Figure 13 PI Depth numerical presentation, example



A **Sensor colour code, identifier and name**: The identifier is the **Label ID** parameter, the sensor name is the **Sensor Value Name** parameter. You can control these parameters in the **Select Sensors** dialog.

The colour code is issued automatically by the PI50 system. The same colour is used in the **Trend view** and in the **History field**.

B **Current depth**: This the current depth measured by the sensor. The current measurement unit is shown, as well as a blue triangle. The triangle indicates the current vertical movement of the sensor; up or down. In this example the sensor measures 82,5 meters from the sea surface and down to the sensor, and the sensor – and thus the gear – is slowly rising with 3 meters each minute.

C **Depth changes**: This digit shows depth changes recorded by the sensor, and thus the ascending or descending speed of the net. The value is shown in units per minute. The direction is shown with the blue triangle. If the sensor does not detect any depth changes, the arrow is removed.

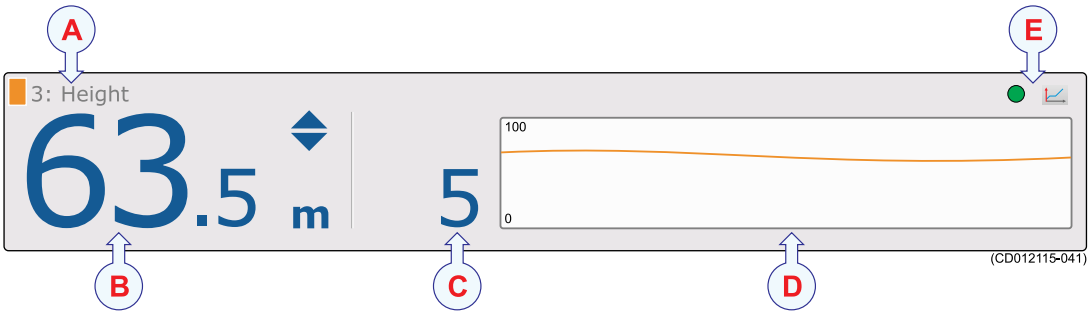
D **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

E **Pulse lamp and Trend view icons**: The green **Pulse lamp** icon flashes every time a signal is received from the corresponding sensor. The **Trend view** icon opens (and closes) the **Trend view** for the corresponding sensor.

Related topics

- *PI Depth sensor view* on page 42
- *PI Depth trend view* on page 58
- *How to set up the PI Depth sensor* on page 77
- *How to set up spread and depth sensors to measure vertical geometry* on page 96
- *How to set up depth and height sensors to measure total water depth* on page 98
- *PI Depth purpose and application* on page 177

PI Height sensor view



A **Sensor colour code, identifier and name**: The identifier is the **Label ID** parameter, the sensor name is the **Sensor Value Name** parameter. You can control these parameters in the **Select Sensors** dialog.

The colour code is issued automatically by the PI50 system. The same colour is used in the **Trend view** and in the **History field**.

B **Current height**: This is the height from the seabed and up to the position on the gear in which the sensor is mounted. The current measurement unit is shown, as well as two blue triangles.

The two triangles indicate the current vertical movement of the sensor; up or down. In this example the sensor is slowly increasing with 5 meters each minute. If the two triangles are pointing towards each other, the height is decreasing. If they are pointing away from each other, the height is increasing.

C **Height changes**: This digit shows height changes recorded by the sensor, and thus the ascending or descending speed of the net. The value is shown in units per minute. The direction is shown with the two blue triangles. If the sensor does not detect any height changes, the triangles are removed.

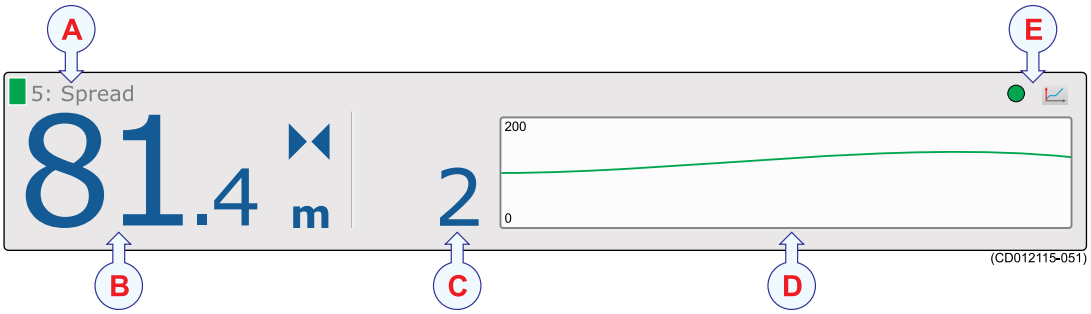
D **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

E **Pulse lamp and Trend view icons**: The green **Pulse lamp** icon flashes every time a signal is received from the corresponding sensor. The **Trend view** icon opens (and closes) the **Trend view** for the corresponding sensor.

Related topics

- *PI Height sensor view* on page 43
- *PI Height trend view* on page 59
- *How to set up the PI Height sensor* on page 79
- *How to set up depth and height sensors to measure total water depth* on page 98
- *How to set up the height sensor to show the trawl opening* on page 98
- *PI Height purpose and application* on page 178

PI Spread sensor view



A **Sensor colour code, identifier and name**: The identifier is the **Label ID** parameter, the sensor name is the **Sensor Value Name** parameter. You can control these parameters in the **Select Sensors** dialog.

The colour code is issued automatically by the PI50 system. The same colour is used in the **Trend view** and in the **History field**.

B **Current spread**: This the current distance between the trawl doors as measured by the sensor. The current measurement unit is shown, as well as two blue triangles.

The triangles indicate the current changes in the spread distance; increasing or decreasing. In this example the spread distance is slowly decreasing with 2 meters each minute. If the two triangles are pointing towards each other, the spread distance is decreasing. If they are pointing away from each other, the spread distance is increasing.

C **Spread changes**: This digit shows the spread distance changes recorded by the sensor, and thus the increasing or decreasing distance between the two trawl doors. The value is shown in units per minute. The direction is shown with the blue triangles. If the sensor does not detect any spread changes, the arrows are removed.

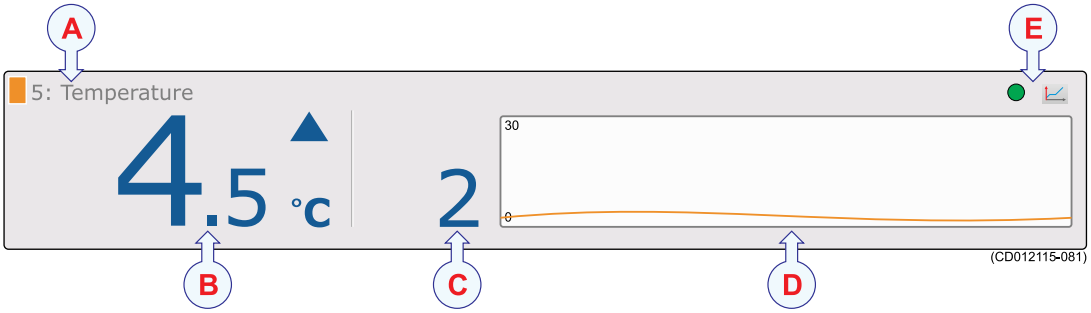
D **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

E **Pulse lamp and Trend view icons**: The green **Pulse lamp** icon flashes every time a signal is received from the corresponding sensor. The **Trend view** icon opens (and closes) the **Trend view** for the corresponding sensor.

Related topics

- *PI Spread sensor view* on page 44
- *PI Spread trend view* on page 59
- *How to set up the PI Spread sensor* on page 80
- *How to set up spread and depth sensors to measure vertical geometry* on page 96
- *PI Spread purpose and application* on page 179

PI Temperature sensor view



A **Sensor colour code, identifier and name**: The identifier is the **Label ID** parameter, the sensor name is the **Sensor Value Name** parameter. You can control these parameters in the **Select Sensors** dialog.

The colour code is issued automatically by the PI50 system. The same colour is used in the **Trend view** and in the **History field**.

B **Current temperature**: This the current temperature measured by the sensor. The current measurement unit is shown, as well as a blue triangle. The triangle indicates if the temperature is increasing or decreasing. In this example the temperature is measured to 4,5°C, and it is rapidly increasing with 2°C each minute.

C **Temperature changes**: This digit shows temperature changes recorded by the sensor. The value is shown in units per minute. The direction of the temperature change is shown with the blue triangle. If the sensor does not detect any temperature changes, the arrow is removed.

D **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

E **Pulse lamp and Trend view icons**: The green **Pulse lamp** icon flashes every time a signal is received from the corresponding sensor. The **Trend view** icon opens (and closes) the **Trend view** for the corresponding sensor.

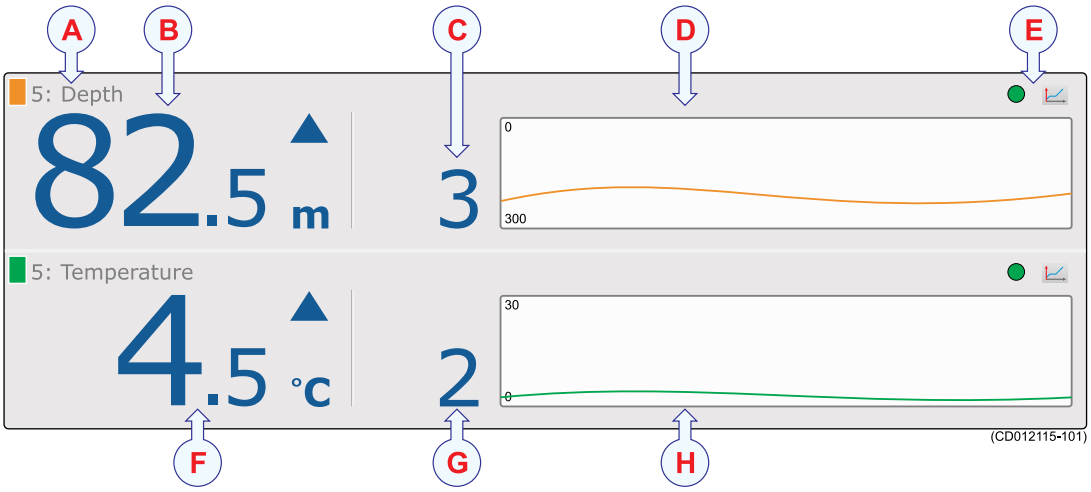
Related topics

- *PI Temperature sensor view* on page 45
- *PI Temperature trend view* on page 60
- *How to set up the PI Temperature sensor* on page 82
- *PI Temperature purpose and application* on page 180

PI Temperature/Depth sensor view

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.



A **Sensor colour code, identifier and name**: The identifier is the **Label ID** parameter, the sensor name is the **Sensor Value Name** parameter. You can control these parameters in the **Select Sensors** dialog.

The colour code is issued automatically by the PI50 system. The same colour is used in the **Trend view** and in the **History field**.

B **Current depth**: This the current depth measured by the sensor. The current measurement unit is shown, as well as a blue triangle. The triangle indicates the current vertical movement of the sensor; up or down. In this example the sensor measures 82,5 meters from the sea surface and down to the sensor, and the sensor – and thus the gear – is slowly rising with 3 meters each minute.

C **Depth changes**: This digit shows depth changes recorded by the sensor, and thus the ascending or descending speed of the net. The value is shown in units per minute. The direction is shown with the blue triangle. If the sensor does not detect any depth changes, the arrow is removed.

D **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

E **Pulse lamp and Trend view icons**: The green **Pulse lamp** icon flashes every time a signal is received from the corresponding sensor. The **Trend view** icon opens (and closes) the **Trend view** for the corresponding sensor.

F **Current temperature**: This the current temperature measured by the sensor. The current measurement unit is shown, as well as a blue triangle. The triangle indicates if the temperature is increasing or decreasing. In this example the temperature is measured to 4,5°C, and it is rapidly increasing with 2°C each minute.

G **Temperature changes**: This digit shows temperature changes recorded by the sensor. The value is shown in units per minute. The direction of the temperature change is shown with the blue triangle. If the sensor does not detect any temperature changes, the arrow is removed.

H **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

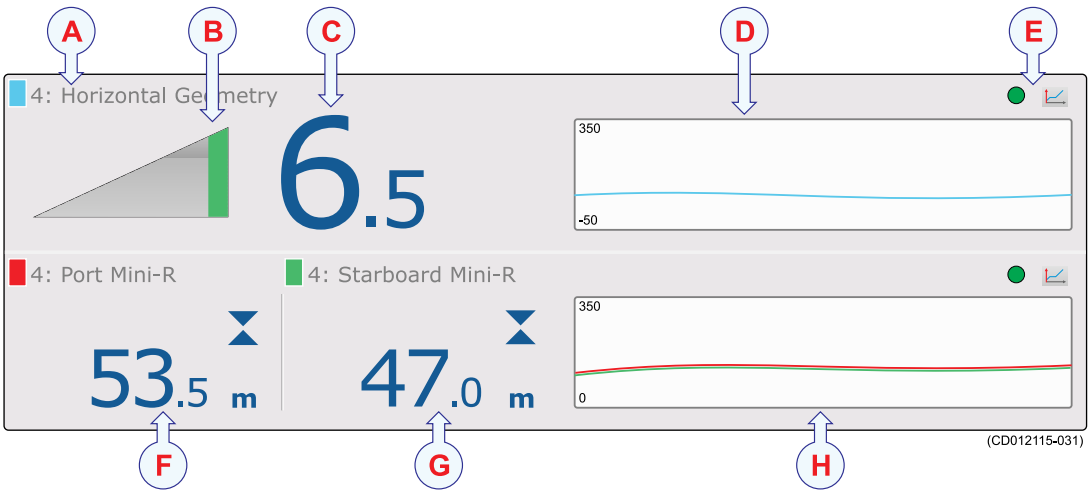
Related topics

- *PI Temperature/Depth sensor view* on page 46
- *PI Temperature/Depth trend view* on page 60
- *How to set up the PI Temperature/Depth sensor* on page 83
- *PI Temperature/Depth purpose and application* on page 181

PI Geometry sensor view

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.



A **Sensor colour code, identifier and name**: The identifier is the **Label ID** parameter, the sensor name is the **Sensor Value Name** parameter. You can control these parameters in the **Select Sensors** dialog.

The colour code is issued automatically by the PI50 system. The same colour is used in the **Trend view** and in the **History field**.

B **Geometry icon**: This icons indicates with your trawl geometry is correct.

The sensor system makes accurate measurements of the distances between the centre of the headrope above the trawl opening (or the footrope at the bottom), and each of the trawl doors or wing

ends. If these distances are not identical the trawl (or danish seine) is skewed and unbalanced.

- Left icon: The wire on the port trawl door is longer than the wire on the starboard door. The length difference is shown on the right side of the icon.
- Left icon: The wire on the starboard trawl door is longer than the wire on the port door. The length difference is shown on the right side of the icon.

C **Length difference**: This is the length difference between the port and starboard wires.

D **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

E **Pulse lamp and Trend view icons**: The green **Pulse lamp** icon flashes every time a signal is received from the corresponding sensor. The **Trend view** icon opens (and closes) the **Trend view** for the corresponding sensor.

F **Port length**: This is the length of the port wire. The current measurement unit is shown, as well as two blue rectangles. These rectangles indicate the current horizontal length changes. If the two rectangles are pointing towards each other, the distance is decreasing.

G **Starboard length**: This is the length of the starboard wire. The current measurement unit is shown, as well as two blue rectangles. These rectangles indicate the current horizontal length changes. If the two rectangles are pointing towards each other, the distance is decreasing.

H **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

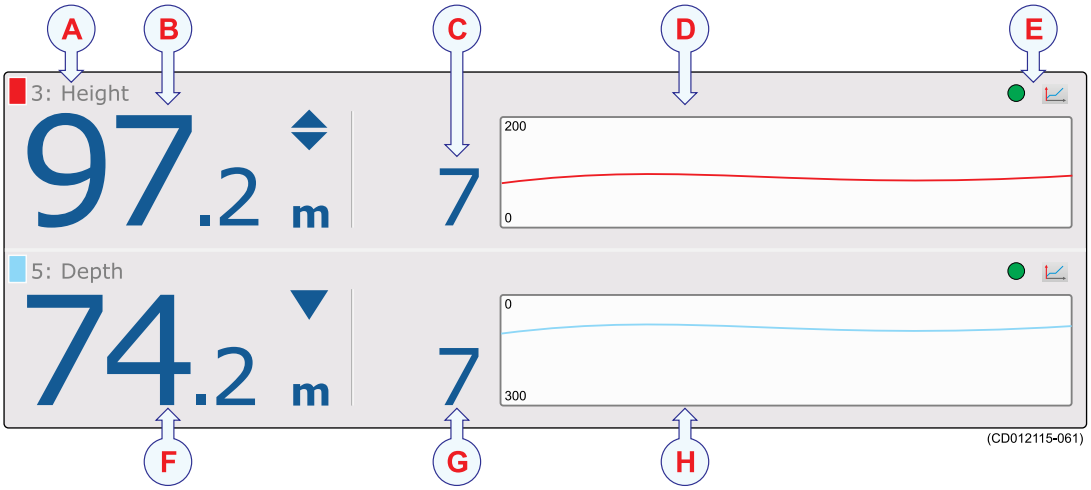
Related topics

- *PI Geometry sensor view* on page 47
- *PI Geometry trend view* on page 61
- *How to set up the PI Geometry sensor* on page 85
- *PI Geometry purpose and application* on page 182

PI Height/Depth sensor view

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.



The PI Height/Depth sensor presentation comprises one **Height view** and one **Depth view** together.

A **Sensor colour code, identifier and name**: The identifier is the **Label ID** parameter, the sensor name is the **Sensor Value Name** parameter. You can control these parameters in the **Select Sensors** dialog.

The colour code is issued automatically by the PI50 system. The same colour is used in the **Trend view** and in the **History field**.

B **Current height**: This is the height from the seabed and up to the position on the gear in which the sensor is mounted. The current measurement unit is shown, as well as two blue triangles.

The two triangles indicate the current vertical movement of the sensor; up or down. In this example the sensor is slowly increasing with 5 meters each minute. If the two triangles are pointing towards each other, the height is decreasing. If they are pointing away from each other, the height is increasing.

C **Height changes**: This digit shows height changes recorded by the sensor, and thus the ascending or descending speed of the net. The value is shown in units per minute. The direction is shown with the two blue triangles. If the sensor does not detect any height changes, the triangles are removed.

D **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

E **Pulse lamp and Trend view icons**: The green **Pulse lamp** icon flashes every time a signal is received from the corresponding sensor. The **Trend view** icon opens (and closes) the **Trend view** for the corresponding sensor.

F **Current depth**: This the current depth measured by the sensor. The current measurement unit is shown, as well as a blue triangle. The triangle indicates the current vertical movement of the sensor; up or down. In this example the sensor measures 82,5 meters from the sea surface and down to the sensor, and the sensor – and thus the gear – is slowly rising with 3 meters each minute.

G **Depth changes**: This digit shows depth changes recorded by the sensor, and thus the ascending or descending speed of the net. The value is shown in units per minute. The direction is shown with the blue triangle. If the sensor does not detect any depth changes, the arrow is removed.

H **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

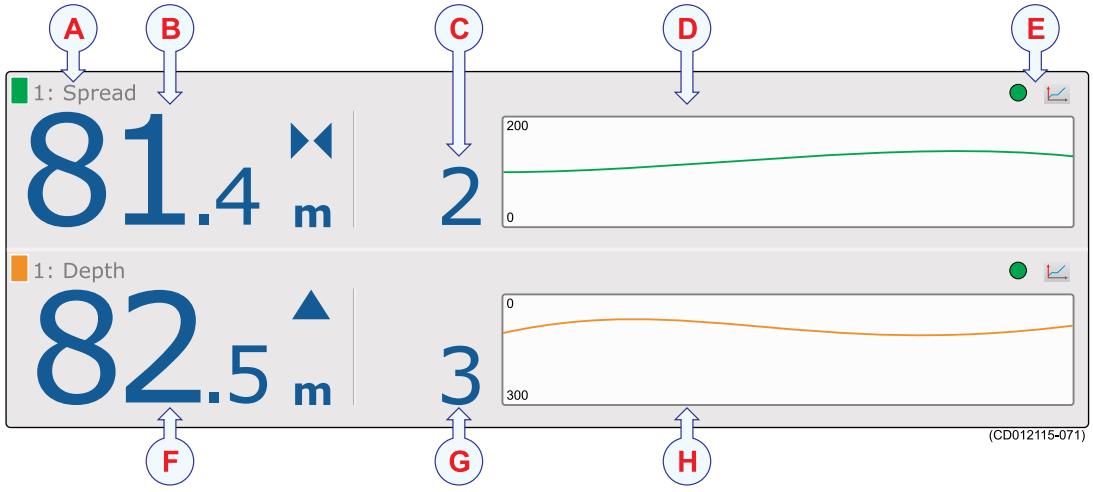
Related topics

- *PI Height/Depth sensor view* on page 49
- *PI Height/Depth trend view* on page 62
- *How to set up the PI Height/Depth sensor* on page 86
- *PI Height/Depth purpose and application* on page 184

PI Spread/Depth sensor view

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.



A **Sensor colour code, identifier and name**: The identifier is the **Label ID** parameter, the sensor name is the **Sensor Value Name** parameter. You can control these parameters in the **Select Sensors** dialog.

The colour code is issued automatically by the PI50 system. The same colour is used in the **Trend view** and in the **History field**.

B **Current spread**: This the current distance between the trawl doors as measured by the sensor. The current measurement unit is shown, as well as two blue triangles.

The triangles indicate the current changes in the spread distance; increasing or decreasing. In this example the spread distance is slowly decreasing with 2 meters each minute. If the two triangles are pointing towards each other, the spread distance is decreasing. If they are pointing away from each other, the spread distance is increasing.

C **Spread changes**: This digit shows the spread distance changes recorded by the sensor, and thus the increasing or decreasing distance between the two trawl doors. The value is shown in units per minute. The direction is shown with the blue triangles. If the sensor does not detect any spread changes, the arrows are removed.

D **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

E **Pulse lamp and Trend view icons**: The green **Pulse lamp** icon flashes every time a signal is received from the corresponding sensor. The **Trend view** icon opens (and closes) the **Trend view** for the corresponding sensor.

F **Current depth**: This the current depth measured by the sensor. The current measurement unit is shown, as well as a blue triangle. The triangle indicates the current vertical movement of the sensor; up or down. In this example the sensor measures 82,5 meters from the sea surface and down to the sensor, and the sensor – and thus the gear – is slowly rising with 3 meters each minute.

G **Depth changes**: This digit shows depth changes recorded by the sensor, and thus the ascending or descending speed of the net. The value is shown in units per minute. The direction is shown with the blue triangle. If the sensor does not detect any depth changes, the arrow is removed.

H **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

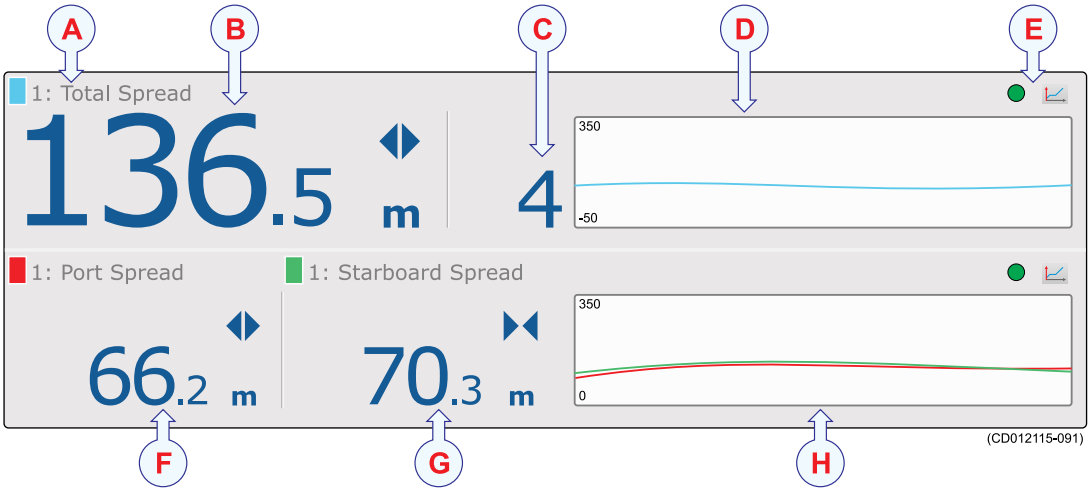
Related topics

- *PI Spread/Depth sensor view* on page 50
- *PI Spread/Depth trend view* on page 62
- *How to set up the PI Spread/Depth sensor* on page 88
- *PI Spread/Depth purpose and application* on page 185

PI Twin Spread sensor view

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.



A **Sensor colour code, identifier and name**: The identifier is the **Label ID** parameter, the sensor name is the **Sensor Value Name** parameter. You can control these parameters in the **Select Sensors** dialog.

The colour code is issued automatically by the PI50 system. The same colour is used in the **Trend view** and in the **History field**.

B **Total spread**: This the current distance between the two outer trawl doors as measured by the sensor. The current measurement unit is shown, as well as two blue triangles. The total spread is the sum of the port and starboard spread distances shown below.

The triangles indicate the current changes in the spread distance; increasing or decreasing. In this example the spread distance is slowly decreasing with 2 meters each minute. If the two triangles are pointing towards each other, the total spread distance is decreasing. If they are pointing away from each other, the total spread distance is increasing.

C **Spread changes**: This digit shows the total spread distance changes recorded by the sensor, and thus the increasing or decreasing distance between the two outer trawl doors. The value is shown in units per minute. The direction is shown with the blue triangles. If the sensor does not detect any spread changes, the arrows are removed.

D **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

E **Pulse lamp and Trend view icons**: The green **Pulse lamp** icon flashes every time a signal is received from the corresponding sensor. The **Trend view** icon opens (and closes) the **Trend view** for the corresponding sensor.

F **Port spread**: This the current distance between the port trawl door and the centre clump as measured by the sensor. The current measurement unit is shown, as well as two blue triangles to indicate if the spread distance is increasing or decreasing.

G **Starboard spread**: This the current distance between the centre clump and the starboard trawl door as measured by the sensor. The current measurement unit is shown, as well as two blue triangles to indicate if the spread distance is increasing or decreasing.

H **History field**: When the size of the presentation rectangle permits, a history field is shown. The field offers a graphical presentation of the sensor information for the last 20 minutes. The vertical range is set automatically defined by the current measurements.

Related topics

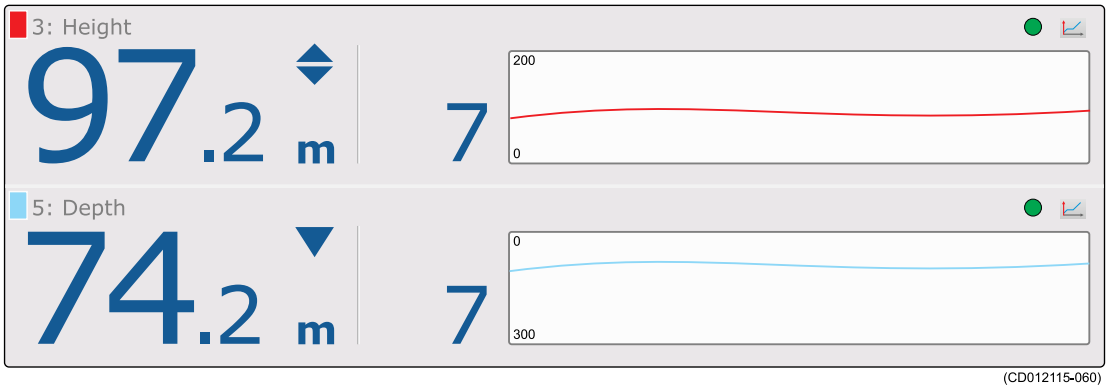
- *PI Twin Spread sensor view* on page 52
- *PI Twin Spread trend view* on page 62
- *How to set up the PI Twin Spread sensor* on page 89
- *PI Twin Spread purpose and application* on page 186

PI SeineSounder sensor view

The PI SeineSounder sensor view is shown below.

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.

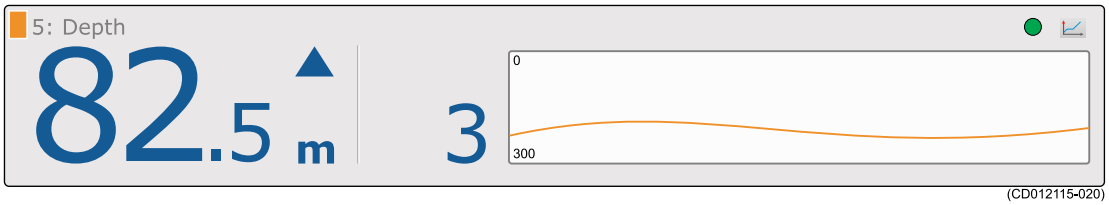


The PI SeineSounder sensor is regarded – and must be set up – as a PI Height/Depth sensor.

Related topics

- *PI SeineSounder sensor view* on page 54
- *PI SeineSounder trend view* on page 63
- *How to set up the PI SeineSounder sensor* on page 91
- *PI SeineSounder purpose and application* on page 187

PI Remote/Depth sensor view

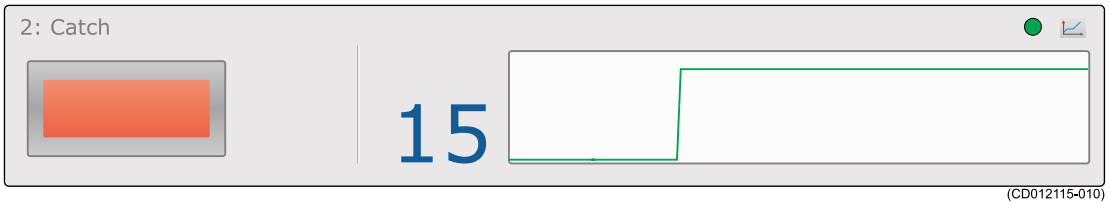


The PI Remote/Depth sensor is regarded – and must be set up – as a PI Depth sensor. The second function (Remote) provided by this sensor does not involve a dedicated presentation.

Related topics

- *PI Remote/Depth sensor view* on page 55
- *PI Remote/Depth trend view* on page 63
- *How to set up the PI Remote/Depth sensor* on page 91
- *PI Remote/Depth purpose and application* on page 188

PI Rip sensor view



The PI Rip sensor is regarded – and must be set up – as a PI Catch sensor.

For more information about the PI Rip sensor, see the documentation provided with the sensor, or the brief description in section .

Related topics

- *PI Rip sensor view* on page 55
- *PI Rip trend view* on page 63
- *How to set up the PI Rip sensor* on page 92
- *PI Rip purpose and application* on page 189

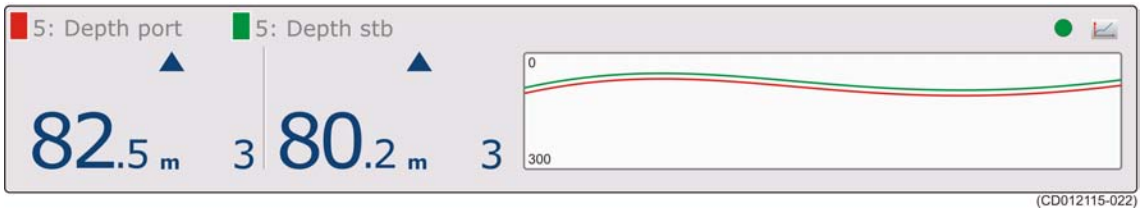
Vertical geometry view

The vertical geometry view is created if you have one Depth sensor on each trawl door. The PI50 will then calculate the difference.

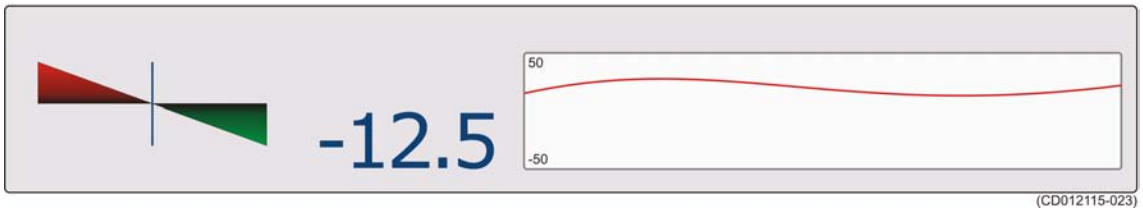
Note

This is not a dedicated sensor, but a presentation generated by the PI50 based on information from other sensors.

Two sensor view rectangles are used, one to present the information from the two depth sensors, and one to provide the geometry information.



(CD012115-022)



(CD012115-023)

To set up the two depth sensors, use the **Advanced Sensor Configuration** functionality in the **Select Sensors** dialog.

Related topics

- *Select Sensors* on page 142
- *How to set up spread and depth sensors to measure vertical geometry* on page 96

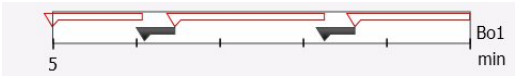
Trend views

The **Trend view** is opened by clicking the icon in the top right corner of the **Sensor view** rectangle. The view comprises a graph. The graph displays the historic development of the information provided by the sensor.

Once opened, the graph is placed on the left side of the screen. If more than one graph is opened, they are placed on top of each other, in the order you open them. The vertical size of each graph is automatically adjusted. The curve provided by the graph uses the same colour that is used to identify the sensor in the **Sensor view**. The colour is chosen automatically by the PI50.

PI Bottom Contact trend view

Figure 14 PI Bottom Contact trend view



The PI Bottom Contact trend view shows when the sensor has been activated.

- The vertical scale is fixed.
- The horizontal scale is defined by the parameter selected in the **Trend History Length** button on the **Display** menu.

  The time can be selected from 5 to 1440 minutes.

  → *Trend History Length* on page 136
- The history curve has the same colour as used to identify the sensor in the **Sensor view**. The label at the right end of the curve identifies the sensor's **Label ID** and the type of sensor.
- The curve simply shows when the sensor has been activated.

Related topics

- *PI Bottom Contact sensor view* on page 40
- *PI Bottom Contact trend view* on page 57
- *How to set up the PI Bottom Contact sensor* on page 75
- *PI Bottom Contact purpose and application* on page 175

PI Catch trend view

Figure 15 PI Catch trend view

The PI Catch trend view shows when the sensor has been activated.

- The vertical scale is fixed.
- The horizontal scale is defined by the parameter selected in the **Trend History Length** button on the **Display** menu.

  The time can be selected from 5 to 1440 minutes.

  → *Trend History Length* on page 136

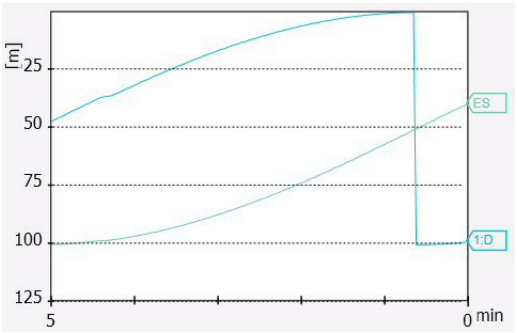
- The history curve has the same colour as used to identify the sensor in the **Sensor view**. The label at the right end of the curve identifies the sensor's **Label ID** and the type of sensor.
- The curve simply shows when the sensor has been activated.

Related topics

- *PI Catch sensor view* on page 41
- *PI Catch trend view* on page 57
- *How to set up the PI Bottom Contact sensor* on page 75
- *PI Catch purpose and application* on page 176

PI Depth trend view

Figure 16 PI Depth trend view



The PI Depth trend view shows the depth values recorded by the sensor.

- The vertical scale is defined by the settings made with the **Range** and **Start Range** buttons on the **Main** menu

  → *Range* on page 123

  → *Start Range* on page 124
- The horizontal scale is defined by the parameter selected in the **Trend History Length** button on the **Display** menu.

  The time can be selected from 5 to 1440 minutes.

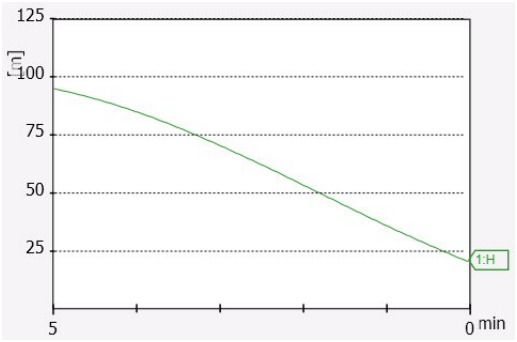
  → *Trend History Length* on page 136
- The history curve has the same colour as used to identify the sensor in the **Sensor view**. The label at the right end of the curve identifies the sensor's **Label ID** and the type of sensor.
- If an external echo sounder is connected to the PI50, the depth recorded by the sounder is also shown. The curve is identified with the label **ES** on the right side.

Related topics

- *PI Depth sensor view* on page 42
- *PI Depth trend view* on page 58
- *How to set up the PI Depth sensor* on page 77
- *How to set up spread and depth sensors to measure vertical geometry* on page 96
- *How to set up depth and height sensors to measure total water depth* on page 98
- *PI Depth purpose and application* on page 177

PI Height trend view

Figure 17 PI Height trend view



The PI Height trend view shows the height values recorded by the sensor.

- The vertical scale is defined by the settings made with the **Range** and **Start Range** buttons on the **Main** menu

  → *Range* on page 123

  → *Start Range* on page 124

- The horizontal scale is defined by the parameter selected in the **Trend History Length** button on the **Display** menu.

  The time can be selected from 5 to 1440 minutes.

  → *Trend History Length* on page 136

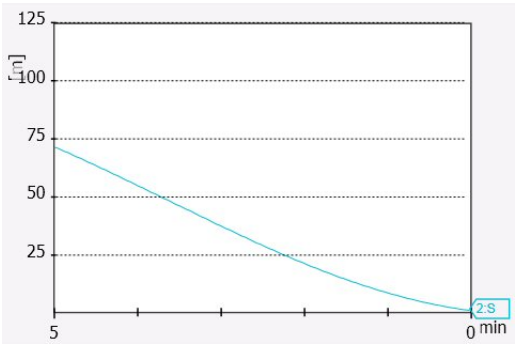
- The history curve has the same colour as used to identify the sensor in the **Sensor view**. The label at the right end of the curve identifies the sensor's **Label ID** and the type of sensor.

Related topics

- *PI Height sensor view* on page 43
- *PI Height trend view* on page 59
- *How to set up the PI Height sensor* on page 79
- *How to set up depth and height sensors to measure total water depth* on page 98
- *How to set up the height sensor to show the trawl opening* on page 98
- *PI Height purpose and application* on page 178

PI Spread trend view

Figure 18 PI Spread trend view



The PI Spread trend view shows the distance between the trawl doors.

- The vertical scale is defined by the settings made with the **Range** and **Start Range** buttons on the **Main** menu

  → *Range* on page 123

  → *Start Range* on page 124

- The horizontal scale is defined by the parameter selected in the **Trend History Length** button on the **Display** menu.

  The time can be selected from 5 to 1440 minutes.

  → *Trend History Length* on page 136

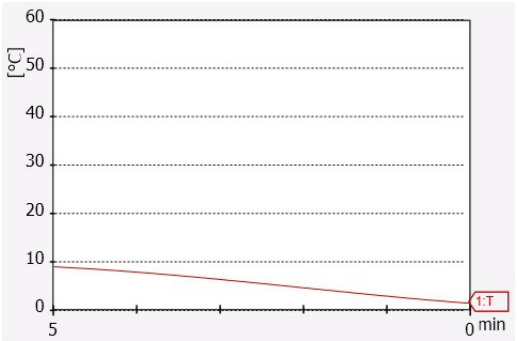
- The history curve has the same colour as used to identify the sensor in the **Sensor view**. The label at the right end of the curve identifies the sensor's **Label ID** and the type of sensor.
- If an external echo sounder is connected to the PI50, the depth recorded by the sounder is also shown. The curve is identified with the label **ES** on the right side.

Related topics

- *PI Spread sensor view* on page 44
- *PI Spread trend view* on page 59
- *How to set up the PI Spread sensor* on page 80
- *How to set up spread and depth sensors to measure vertical geometry* on page 96
- *PI Spread purpose and application* on page 179

PI Temperature trend view

Figure 19 PI Temperature trend view



The PI Temperature trend view shows the temperature changes recorded by the sensor.

- The vertical scale is set up automatically.
- The horizontal scale is defined by the parameter selected in the **Trend History Length** button on the **Display** menu.

  The time can be selected from 5 to 1440 minutes.

  → *Trend History Length* on page 136
- The history curve has the same colour as used to identify the sensor in the **Sensor view**. The label at the right end of the curve identifies the sensor's **Label ID** and the type of sensor.

Related topics

- *PI Temperature sensor view* on page 45
- *PI Temperature trend view* on page 60
- *How to set up the PI Temperature sensor* on page 82
- *PI Temperature purpose and application* on page 180

PI Temperature/Depth trend view

The PI Temperature/Depth provides two separate trend views, one for temperature and one for depth. For information, see:

- *PI Depth trend view* on page 58
- *PI Temperature trend view* on page 60

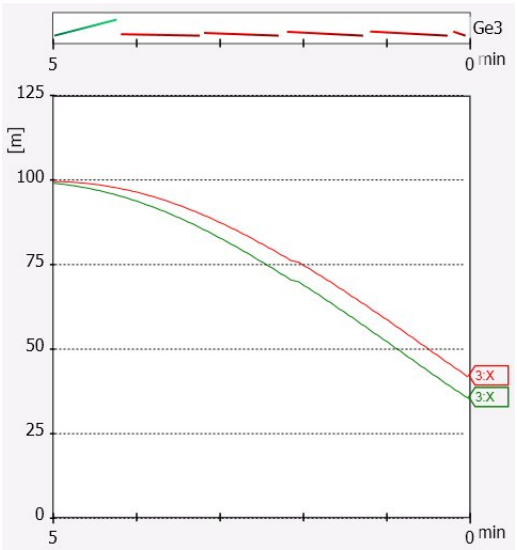
Related topics

- *PI Temperature/Depth sensor view* on page 46

- *PI Temperature/Depth trend view* on page 60
- *How to set up the PI Temperature/Depth sensor* on page 83
- *PI Temperature/Depth purpose and application* on page 181

PI Geometry trend view

Figure 20 PI Geometry trend views



The PI Geometry provides two trend views that can be opened individually. The shows the distance between the centre of the trawl and the two trawl doors.

The top graph provides an overall description of the geometry. The bottom graph presents a more detailed view of the two distances that are measured by the sensor.

- The vertical scale is defined by the settings made with the **Range** and **Start Range** buttons on the **Main** menu

  → *Range* on page 123

  → *Start Range* on page 124

- The horizontal scale is defined by the parameter selected in the **Trend History Length** button on the **Display** menu.

  The time can be selected from 5 to 1440 minutes.

  → *Trend History Length* on page 136

- The history curves use the same two colours that are used to identify the starboard and port measurement. The labels at the right end of the curve identify the sensor's **Label ID** and the type of sensor.

Related topics

- *PI Geometry sensor view* on page 47
- *PI Geometry trend view* on page 61
- *How to set up the PI Geometry sensor* on page 85
- *PI Geometry purpose and application* on page 182

PI Height/Depth trend view

The PI Height/Depth provides two separate trend views, one for height and one for depth. For information, see:

- *PI Height trend view* on page 59
- *PI Depth trend view* on page 58

Related topics

- *PI Height/Depth sensor view* on page 49
- *PI Height/Depth trend view* on page 62
- *How to set up the PI Height/Depth sensor* on page 86
- *PI Height/Depth purpose and application* on page 184

PI Spread/Depth trend view

The PI Spread/Depth provides two separate trend views, one for spread and one for depth. For information, see:

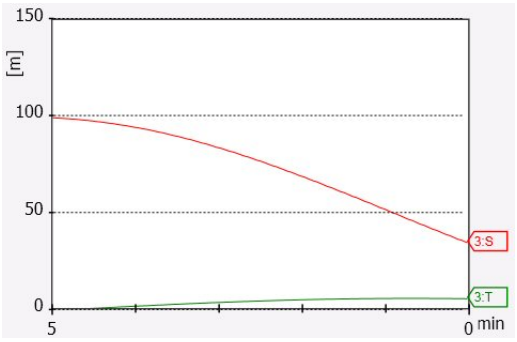
- *PI Spread trend view* on page 59
- *PI Depth trend view* on page 58

Related topics

- *PI Spread/Depth sensor view* on page 50
- *PI Spread/Depth trend view* on page 62
- *How to set up the PI Spread/Depth sensor* on page 88
- *PI Spread/Depth purpose and application* on page 185

PI Twin Spread trend view

Figure 21 PI Twin Spread trend view



The PI Twin Spread trend view shows the distance between the trawl doors in a dual trawl system.

- Two curves are shown, one for the port spread, on one for the starboard spread.
- The vertical scale is defined by the settings made with the **Range** and **Start Range** buttons on the **Main** menu

  → *Range* on page 123

  → *Start Range* on page 124
- The horizontal scale is defined by the parameter selected in the **Trend History Length** button on the **Display** menu.

  The time can be selected from 5 to 1440 minutes.

  → *Trend History Length* on page 136

- The history curves use the same two colours that are used to identify the starboard and port measurement. The labels at the right end of the curve identify the sensor's **Label ID** and the type of sensor.

Related topics

- *PI Twin Spread sensor view* on page 52
- *PI Twin Spread trend view* on page 62
- *How to set up the PI Twin Spread sensor* on page 89
- *PI Twin Spread purpose and application* on page 186

PI SeineSounder trend view

The PI SeineSounder provides two separate trend views, one for height and one for depth. For information, see:

- *PI Height trend view* on page 59
- *PI Depth trend view* on page 58

Related topics

- *PI SeineSounder sensor view* on page 54
- *PI SeineSounder trend view* on page 63
- *How to set up the PI SeineSounder sensor* on page 91
- *PI SeineSounder purpose and application* on page 187

PI Remote/Depth trend view

The PI Remote/Depth provides a depth graph. For information, see *PI Depth trend view* on page 58.

Related topics

- *PI Remote/Depth sensor view* on page 55
- *PI Remote/Depth trend view* on page 63
- *How to set up the PI Remote/Depth sensor* on page 91
- *PI Remote/Depth purpose and application* on page 188

PI Rip trend view

The PI Rip provides a catch graph. For information, see *PI Catch trend view* on page 57.

Related topics

- *PI Rip sensor view* on page 55
- *PI Rip trend view* on page 63
- *How to set up the PI Rip sensor* on page 92
- *PI Rip purpose and application* on page 189

Screen captures

The PI50 provides a built-in screen capture function.

To save an echogram, click the **Screen Capture** button on the **Title Bar**.

To access the images, click **Screen Captures** on the **Display** menu. This will open a file folder, and you can use standard operating systems to delete, copy, rename or move the files.

→ *Screen Captures* on page 139

Operational procedures

Menu navigation employed by PI50 Catch monitoring is similar to the other Simrad applications which follow the new user interface standards developed by Simrad. The main menu is located at the right side of the screen, and by means of dedicated icons at the bottom of the main menu, you can open the relevant sub-menus or dialogs. Menu choices shown in dark colours are not available for the current operation or operational mode.

Topics

- *Power On/Off procedures* on page 66
- *User settings* on page 67
- *User preferences* on page 69
- *How to select and set up the sensors* on page 72
- *Sensor procedures* on page 93
- *Alarms and messages* on page 101
- *Software procedures* on page 104
- *External interfaces* on page 107

Power On/Off procedures

Topics

- *Power on* on page 66
- *Power off* on page 66

Power on

1 Power up the Receiver Unit.

2 Power up the PI50 computer and the display.

3 If necessary, double-click the PI50 icon on the desktop to start the program.

4 Wait while the PI50 program starts on the computer.

- During the program initialisation, a dialog appears to let you choose from the current user settings available on the PI50. The dialog is only visible a few seconds. You do not need to make a choice here. You can select user setting at any time by means of the **User Settings** dialog on the **Main** menu.

  → *User Settings* on page 121

5 Observe that the PI50 starts.

- The PI50 starts up using the same operational parameters as the last time you used it. If these parameters are acceptable, continue operation. If you wish to alter basic operational parameters, see the dedicated procedures.

  → *Starting normal operation* on page 23

Power off

Note

You must never switch off the PI50 only by means of the on/off switch on the computer. This may damage the software or the interface parameters for external devices. You must ALWAYS use this procedure.

1 Click the **Exit** button on the **Title Bar** in the top right corner of the PI50 presentation.

2 Observe that the PI50 application closes down.

3 If the computer does not switch itself off automatically, use the functionality provided by the operating system to switch it off manually.

4 Switch off the display.

5 Switch off the Receiver Unit.

User settings

Topics

- *How to reset the PI50 to factory default parameters* on page 67
- *How to save the current user settings* on page 67
- *How to use previously saved settings* on page 68

How to reset the PI50 to factory default parameters

If the current settings are unreliable, or you simply wish to reset the PI50 to a known set of parameters, choose the factory setting provided.

1 Observe the **Main** menu on the right hand side of the PI50 presentation.

2 Click the **User Settings** button to open the **User Settings** dialog.

→ *User Settings* on page 121

3 In the **User Settings** dialog, click one of the factory settings in the top text field:
- **Simrad Factory Default**
- **Simrad Purse Setup**
- **Simrad Trawl Setup**

4 Click the **Activate Selected Setting**, then click **Close**.

How to save the current user settings

If you have several user with favourite configurations, work with different gears, or with different transducers, depth or bottom conditions, we recommend that you save the parameters for future use.

If you have several sensor configurations dedicated for different gears or different tasks, we also strongly recommend that you save these.

The settings saved using the **User Settings** functionality includes all receiver settings, interface parameters, as well as the currently selected sensors and their communication parameters. This is useful if you operate a combined trawler and seiner using different sensor setup on the different gears.

1 Observe the **Main** menu on the right hand side of the PI50 presentation.

2 Click the **User Settings** button to open the **User Settings** dialog.

→ *User Settings* on page 121

3 In the **User Setting** dialog, click the **Save Current Setting** button.

4 In the **Setting** dialog, click **OK** to accept the suggested name.

5 To choose a different name:

- If you have a keyboard connected to the PI50 computer, you can click in the text field, remove the suggestion, and enter any name.
- If a keyboard is not connected, click the **Keyboard** button to use the on-screen keyboard.

6 Observe that the name you have chosen appears on the **Saved Settings** list.

7 Click **OK** to save the current settings and close the dialog.

How to use previously saved settings

If you have saved sensor configurations dedicated for different gears or different tasks, you can retrieve these for fast and efficient parameter setup.

1 Observe the **Main** menu on the right hand side of the PI50 presentation.

2 Click the **User Settings** button to open the **User Settings** dialog.

→ *User Settings* on page 121

3 In the **User Setting** dialog, click once on the requested saved settings in the **Saved Settings** list.

4 Click **Activate Selected Setting**.

5 Click **OK** to save the current settings and close the dialog.

User preferences

Topics

- *How to select menu language* on page 69
- *How to choose colour presentation theme (palette)* on page 69
- *How to choose screen brightness* on page 70
- *How to select measurement units* on page 70
- *How to control the order of the sensor views* on page 70

How to select menu language

The menu buttons – as well as other text – in the PI50 presentation are available in several languages.

1 Click the **Display** icon under the **Main** menu to open the **Display** sub-menu.

→ *Display menu* on page 118

2 Click the middle of the **Language** button to open the list of available languages.

→ *Language* on page 132

3 Click once on the language you wish to use.

4 Observe that the sub-menu is closed, and that all text in the menu buttons changes to the selected language.

How to choose colour presentation theme (palette)

The PI50 presentation may be set up using one of several colour themes. In the menu system, these are called *palettes*.

The **Palette** parameter allows you to select the background colours and day/night brightness of the display presentation to suit you personal preferences. The choice you make here does not have any effect on the PI50 performance. To change the palette, click either side of the button, or on the middle of the button to open the menu.

1 Click the **Display** icon under the **Main** menu to open the **Display** sub-menu.

→ *Display menu* on page 118

2 Click the middle of the **Palette** button, and observe the choices.

→ *Palette* on page 131

3 Click the palette you wish to use. The changes are made immediately.

How to choose screen brightness

When the bridge is dark, the light emitted by the PI50 display can affect your night vision. In order to compensate for this, you can reduce the intensity. The **Screen Brightness** allows you to reduce the this brightness, and hence make the display darker. The intensity of light emitted by the display can be reduced from 100% to 0% in steps of 10.

1 Click the **Display** icon under the **Main** menu to open the **Display** sub-menu.

→ *Display menu* on page 118

2 Click either side of the **Screen Brightness** button to make the adjustment.

→ *Screen Brightness* on page 131

How to select measurement units

Use the **Units** dialog to set up the various units of measurements you wish to work with. Normally, you will only need to define these once.

1 Click the **Display** icon under the **Main** menu to open the **Display** sub-menu.

→ *Display menu* on page 118

2 Click **Units** to open the **Units** dialog.

→ *Units* on page 132

3 Make the necessary adjustments.

4 Click **OK** to save the current settings and close the dialog.

How to control the order of the sensor views

You can control the vertical order of the Sensor view rectangles. This is configuration is made in the **Select Sensors** dialog.

→ *Select Sensors* on page 142

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click the **Select Sensors** button to open the **Select Sensors** dialog.

→ *Select Sensors* on page 142

3 Observe the **Selected Sensors** list.

→ *Select Sensors; Selected Sensors* on page 145

4 In the **Selected Sensors** field, click once on the sensor to select it.

5 Click one of the [▲] or [▼] buttons to move the sensor up or down on the list in the **Selected Sensors** field.

The order in this list also controls the order in which the sensors are presented in the **Sensor Configuration** field, as well as the vertical order of the Sensor view rectangles in the PI50 display presentation.

→ *How to control the order of the sensor views* on page 70

6 Click **OK** to save the current settings and close the dialog.

How to select and set up the sensors

Topics

- *Generic procedure* on page 72
- *How to set up the PI Bottom Contact sensor* on page 75
- *How to set up the PI Catch sensor* on page 76
- *How to set up the PI Depth sensor* on page 77
- *How to set up the PI Height sensor* on page 79
- *How to set up the PI Spread sensor* on page 80
- *How to set up the PI Temperature sensor* on page 82
- *How to set up the PI Temperature/Depth sensor* on page 83
- *How to set up the PI Geometry sensor* on page 85
- *How to set up the PI Height/Depth sensor* on page 86
- *How to set up the PI Spread/Depth sensor* on page 88
- *How to set up the PI Twin Spread sensor* on page 89
- *How to set up the PI SeineSounder sensor* on page 91
- *How to set up the PI Remote/Depth sensor* on page 91
- *How to set up the PI Rip sensor* on page 92

Generic procedure

The PI50 allows you to put the entire PI sensor range to use. However, you must select the sensors that you wish to use, set them up in the order you wish to see them on the screen, and select the operational parameters. Both the sensor selection and the parameter setup are done in the **Select Sensors** dialog.

→ *Select Sensors* on page 142

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click the **Select Sensors** button to open the **Select Sensors** dialog.

→ *Select Sensors* on page 142

3 Observe the **Available Sensors** field on the upper left side of the dialog. It lists all the sensor types supported by the PI50.

4 Click once a sensor type to select it.

5 Click the [►] button to copy the chosen sensor to the **Selected Sensors** list.

6 Repeat to select all requested sensors.

The PI50 system will keep track of the quantity of sensors you are adding to the **Selected Sensors** list. If you try to add too many sensors, a message will let you know.

If you need to delete a sensor from the **Selected Sensors** list, click on it, and then click the [◄] button.

7 In the **Select Sensors** dialog, observe the items in the **Selected Sensors** list.

Note

The order of the sensors in this list is also reflected to the order of the sensor view rectangles

→ *How to control the order of the sensor views on page 70*

8 Click once a sensor type to select it.

9 Click one of the [▲] or [▼] buttons to move the sensor up or down on the list in the **Selected Sensors** field.

The order in this list also controls the order in which the sensors are presented in the **Sensor Configuration** field, as well as the vertical order of the Sensor view rectangles in the PI50 display presentation.

→ *How to control the order of the sensor views* on page 70

10 Observe the list of sensors in the **Sensor Configuration** field at the bottom of the dialog.

11 For each sensor in the **Sensor Configuration** field:

a Choose **Label ID** (identification).

- **Label ID**: This number is used to identify the sensor.

  The ID must be unique for each sensor, and we recommend that you let it match the physical label placed on the sensor. The number you choose will be used in the Sensor view.

  → *Sensor views* on page 39

- The *order* in which the Sensor views are presented is defined by the order in the **Selected Sensors** list.

b Choose **Label Name**.

- **Label Name**: By default, the **Label Name** is the same as the sensor name listed with the **Available sensors**. If you have a keyboard connected to the PI50 computer, you can click in the field, and enter another name.

  The **Label Name** is only shown in this dialog.

c Choose **Update Rate**.

- **Update Rate**: This parameter i used to select the sensor's update rate.

  This is how often the PI50 can expect to receive information from the sensor.

  → *Changing the update rate* on page 191

Note

*The **Update Rate** parameter is vital. The update rate you choose here must comply to the update rate programmed into the sensor. If these do not match, the communication will not work.*

The default update rates for the various sensors are listed in chapter *PI50 Sensors*.

→ *Default communication channels and update rates* on page 190

To change the channel number on the sensor, use the PI Configurator utility.

→ *PI Configurator* on page 192

d Choose **Sensor Value Name**.

- **Sensor Value Name**: By default, the **Sensor Value Name** is the same as the sensor name listed in the **Available Sensors** list. If you have a keyboard connected to the PI50 computer, you can click in the field, and enter another name. You can also open the on-screen keyboard.

  The **Sensor Value Name** is used in the Sensor views. If you are setting up a dual sensor, you can enter two different names.

  → *Sensor views* on page 39

  Example: If you have three PI Catch sensors on your trawl, you can name them “Catch Rear”, “Catch Middle” and “Catch Forward”.

e Choose **Channel Number**.

- **Channel Number**: This is the communication channel used between the sensor and the PI50 system.

  Note

  *The **Channel Number** parameter is vital. The communication channel number you choose here must comply to the channel number programmed into the sensor. If these do not match, the communication will not work. By default, the channel number will match the factory setting.*

  If you use more than one sensors of the same type, the channel number of one of the sensors must be changed to make it unique for the sensor. This must be changed both in the actual sensor, and in the **Select Sensors** dialog during configuration.

  The default communication channels for the various sensors are listed in chapter *PI50 Sensors*.

  To change the channel number on the sensor, use the PI Configurator utility.

  → *Default communication channels and update rates* on page 190

  → *Changing a communication channel* on page 191

  → *PI Configurator* on page 192

f Observe the **Offset** value.

- **Offset**: Each sensor measuring spread and depth will have an offset value.

The offset value for the depth sensors are determined during calibration.

→ *How to calibrate the depth sensors* on page 27

→ *Calibration* on page 149

The offset value for the spread sensor must be entered manually based on your knowledge about the physical locations of the sensors and the properties of the gear.

12 Click **Apply** to save the sensor configuration.

13 Check that all sensors are shown in the PI50 presentation.

14 Click **OK** to save the current settings and close the dialog.

Tip

If you have several sensor configurations dedicated for different gears or different tasks, we strongly recommend that you save these for future use.

→ *How to save the current user settings* on page 67

→ *User Settings* on page 121

How to set up the PI Bottom Contact sensor

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click the **Select Sensors** button to open the **Select Sensors** dialog.

→ *Select Sensors* on page 142

3 Observe the **Available Sensors** field on the upper left side of the dialog. It lists all the sensor types supported by the PI50.

4 Click once on the Bottom Contact sensor in the list, then click the [►] button to copy the sensor to the **Selected Sensors** list.

5 Observe that an error message appears if you try to add too many sensors to the **Selected Sensors** field.

The PI50 can handle maximum six sensors. Remember that dual sensors each seize two sensor communication channels.

6 In the **Selected Sensors** field, click once on the sensor to select it.

7 Click one of the [▲] or [▼] buttons to move the sensor up or down on the list in the **Selected Sensors** field.

The order in this list also controls the order in which the sensors are presented in the **Sensor Configuration** field, as well as the vertical order of the Sensor view rectangles in the PI50 display presentation.

→ *How to control the order of the sensor views* on page 70

8 In the **Sensor Configuration** field, choose:

a Label ID

b Label Name

c Update Rate

d Sensor Value Name

The name you enter here is shown in the Sensor view.

→ *PI Bottom Contact sensor view* on page 40

e Channel Number

Note

*It is very important that the **Channel number** and **Update Rate** parameters defined for each sensor in the **Select Sensors** dialog matches the corresponding parameters programmed into the sensor. If these vital parameters do not match, you will not receive information from the sensor.*

9 If this is the only sensor you wish to set up, or the last sensor, click **Ok** to save the settings and close the dialog.

Related topics

- *PI Bottom Contact sensor view* on page 40
- *PI Bottom Contact trend view* on page 57
- *How to set up the PI Bottom Contact sensor* on page 75
- *PI Bottom Contact purpose and application* on page 175

How to set up the PI Catch sensor

Note

This procedure is also used to set up the PI Rip sensor.

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click the **Select Sensors** button to open the **Select Sensors** dialog.

→ *Select Sensors* on page 142

3 Observe the **Available Sensors** field on the upper left side of the dialog. It lists all the sensor types supported by the PI50.

4 Click once on the Catch sensor in the list, then click the [►] button to copy the sensor to the **Selected Sensors** list.

5 Observe that an error message appears if you try to add too many sensors to the **Selected Sensors** field.

The PI50 can handle maximum six sensors. Remember that dual sensors each seize two sensor communication channels.

6 In the **Selected Sensors** field, click once on the sensor to select it.

7 Click one of the [▲] or [▼] buttons to move the sensor up or down on the list in the **Selected Sensors** field.

The order in this list also controls the order in which the sensors are presented in the **Sensor Configuration** field, as well as the vertical order of the Sensor view rectangles in the PI50 display presentation.

→ *How to control the order of the sensor views* on page 70

8 In the **Sensor Configuration** field, choose:

a Label ID

b Label Name

c Update Rate

d Sensor Value Name

The name you enter here is shown in the Sensor view. If you have more than one Catch sensor, you can use this field to enter dedicated names for each of them.

→ *PI Catch sensor view* on page 41

e Channel Number

Note

*It is very important that the **Channel number** and **Update Rate** parameters defined for each sensor in the **Select Sensors** dialog matches the corresponding parameters programmed into the sensor. If these vital parameters do not match, you will not receive information from the sensor.*

9 If this is the only sensor you wish to set up, or the last sensor, click **Ok** to save the settings and close the dialog.

Related topics

- *PI Catch sensor view* on page 41
- *PI Catch trend view* on page 57
- *How to set up the PI Bottom Contact sensor* on page 75
- *PI Catch purpose and application* on page 176

How to set up the PI Depth sensor

Note

This procedure is also used to set up the PI Remote/Depth sensor.

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click the **Select Sensors** button to open the **Select Sensors** dialog.

→ *Select Sensors* on page 142

3 Observe the **Available Sensors** field on the upper left side of the dialog. It lists all the sensor types supported by the PI50.

4 Click once on the Depth sensor in the list, then click the [►] button to copy the sensor to the **Selected Sensors** list.

Three Depth versions are available. These are set up for maximum depth 300 m, 600 m or 1000 m. The depth range is fixed by the factory, and can not be changed in the PI Configurator utility.

5 Observe that an error message appears if you try to add too many sensors to the **Selected Sensors** field.

The PI50 can handle maximum six sensors. Remember that dual sensors each seize two sensor communication channels.

6 In the **Selected Sensors** field, click once on the sensor to select it.

7 Click one of the [▲] or [▼] buttons to move the sensor up or down on the list in the **Selected Sensors** field.

The order in this list also controls the order in which the sensors are presented in the **Sensor Configuration** field, as well as the vertical order of the Sensor view rectangles in the PI50 display presentation.

→ *How to control the order of the sensor views* on page 70

8 In the **Sensor Configuration** field, choose:

a Label ID

b Label Name

c Update Rate

d Sensor Value Name

The name you enter here is shown in the Sensor view.

→ *PI Depth sensor view* on page 42

e Channel Number

f Offset for the depth sensor

The offset for the sensor is calculated automatically by means of the calibration procedure. If you already know the offset value, you can enter it directly.

→ *How to calibrate the depth sensors* on page 93

Note

*It is very important that the **Channel number** and **Update Rate** parameters defined for each sensor in the **Select Sensors** dialog matches the corresponding parameters programmed into the sensor. If these vital parameters do not match, you will not receive information from the sensor.*

9 Click the **Advanced Sensor Configuration** button, and observe that additional choices are added to the **Sensor Configuration** field.

10 If you have a Height sensor in use, set up a connection to it.

This will allow the PI50 to calculate and display the total water depth.

→ *How to set up depth and height sensors to measure total water depth* on page 98

11 If this is the only sensor you wish to set up, or the last sensor, click **Ok** to save the settings and close the dialog.

Related topics

- *PI Depth sensor view* on page 42
- *PI Depth trend view* on page 58
- *How to set up the PI Depth sensor* on page 77
- *How to set up spread and depth sensors to measure vertical geometry* on page 96
- *How to set up depth and height sensors to measure total water depth* on page 98
- *PI Depth purpose and application* on page 177

How to set up the PI Height sensor

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click the **Select Sensors** button to open the **Select Sensors** dialog.

→ *Select Sensors* on page 142

3 Observe the **Available Sensors** field on the upper left side of the dialog. It lists all the sensor types supported by the PI50.

4 Click once on the Height sensor in the list, then click the [►] button to copy the sensor to the **Selected Sensors** list.

5 Observe that an error message appears if you try to add too many sensors to the **Selected Sensors** field.

The PI50 can handle maximum six sensors. Remember that dual sensors each seize two sensor communication channels.

6 In the **Selected Sensors** field, click once on the sensor to select it.

7 Click one of the [▲] or [▼] buttons to move the sensor up or down on the list in the **Selected Sensors** field.

The order in this list also controls the order in which the sensors are presented in the **Sensor Configuration** field, as well as the vertical order of the Sensor view rectangles in the PI50 display presentation.

→ *How to control the order of the sensor views* on page 70

8 In the **Sensor Configuration** field, choose:

a Label ID

b Label Name

c Update Rate

d Sensor Value Name

The name you enter here is shown in the Sensor view.

→ *PI Height sensor view* on page 43

e Channel Number

Note

*It is very important that the **Channel number** and **Update Rate** parameters defined for each sensor in the **Select Sensors** dialog matches the corresponding parameters programmed into the sensor. If these vital parameters do not match, you will not receive information from the sensor.*

9 Click the **Advanced Sensor Configuration** button, and observe that additional choices are added to the **Sensor Configuration** field.

10 Enter the trawl opening.

This will allow the trawl opening to be shown in the PI Height trend view.

→ *How to set up the height sensor to show the trawl opening* on page 98

11 If this is the only sensor you wish to set up, or the last sensor, click **Ok** to save the settings and close the dialog.

Related topics

- *PI Height sensor view* on page 43
- *PI Height trend view* on page 59
- *How to set up the PI Height sensor* on page 79
- *How to set up depth and height sensors to measure total water depth* on page 98
- *How to set up the height sensor to show the trawl opening* on page 98
- *PI Height purpose and application* on page 178

How to set up the PI Spread sensor

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click the **Select Sensors** button to open the **Select Sensors** dialog.

→ *Select Sensors* on page 142

3 Observe the **Available Sensors** field on the upper left side of the dialog. It lists all the sensor types supported by the PI50.

4 Click once on the Spread sensor in the list, then click the [►] button to copy the sensor to the **Selected Sensors** list.

Two Spread versions are available. These are set up for standard or extended (XT) spread range. This configuration can be changed in the PI Configurator utility.

5 Observe that an error message appears if you try to add too many sensors to the **Selected Sensors** field.

The PI50 can handle maximum six sensors. Remember that dual sensors each seize two sensor communication channels.

6 In the **Selected Sensors** field, click once on the sensor to select it.

7 Click one of the [▲] or [▼] buttons to move the sensor up or down on the list in the **Selected Sensors** field.

The order in this list also controls the order in which the sensors are presented in the **Sensor Configuration** field, as well as the vertical order of the Sensor view rectangles in the PI50 display presentation.

→ *How to control the order of the sensor views* on page 70

8 In the **Sensor Configuration** field, choose:

a Label ID

b Label Name

c Update Rate

d Sensor Value Name

The name you enter here is shown in the Sensor view.

→ *PI Spread sensor view* on page 44

e Channel Number

f Offset for the spread sensor

The offset for the spread sensor must be entered manually based on your knowledge about the sensor installation and the properties of the gear. You can enter a value between +99 and –99 meters.

Note

*It is very important that the **Channel number** and **Update Rate** parameters defined for each sensor in the **Select Sensors** dialog matches the corresponding parameters programmed into the sensor. If these vital parameters do not match, you will not receive information from the sensor.*

9 Click the **Advanced Sensor Configuration** button, and observe that additional choices are added to the **Sensor Configuration** field.

10 Connect the Spread sensor with port and/or starboard Depth sensor.

This will allow you to set up the system to measure vertical geometry. Refer to the dedicated procedure.

→ *How to set up spread and depth sensors to measure vertical geometry* on page 96

11 If this is the only sensor you wish to set up, or the last sensor, click **Ok** to save the settings and close the dialog.

Related topics

- *PI Spread sensor view* on page 44
- *PI Spread trend view* on page 59
- *How to set up the PI Spread sensor* on page 80
- *How to set up spread and depth sensors to measure vertical geometry* on page 96
- *PI Spread purpose and application* on page 179

How to set up the PI Temperature sensor

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click the **Select Sensors** button to open the **Select Sensors** dialog.

→ *Select Sensors* on page 142

3 Observe the **Available Sensors** field on the upper left side of the dialog. It lists all the sensor types supported by the PI50.

4 Click once on the Temperature sensor in the list, then click the [►] button to copy the sensor to the **Selected Sensors** list.

5 Observe that an error message appears if you try to add too many sensors to the **Selected Sensors** field.

The PI50 can handle maximum six sensors. Remember that dual sensors each seize two sensor communication channels.

6 In the **Selected Sensors** field, click once on the sensor to select it.

7 Click one of the [▲] or [▼] buttons to move the sensor up or down on the list in the **Selected Sensors** field.

The order in this list also controls the order in which the sensors are presented in the **Sensor Configuration** field, as well as the vertical order of the Sensor view rectangles in the PI50 display presentation.

→ *How to control the order of the sensor views* on page 70

8 In the **Sensor Configuration** field, choose:

a Label ID

b Label Name

c Update Rate

d Sensor Value Name

The name you enter here is shown in the Sensor view.

→ *PI Temperature sensor view* on page 45

e Channel Number

Note

*It is very important that the **Channel number** and **Update Rate** parameters defined for each sensor in the **Select Sensors** dialog matches the corresponding parameters programmed into the sensor. If these vital parameters do not match, you will not receive information from the sensor.*

9 If this is the only sensor you wish to set up, or the last sensor, click **Ok** to save the settings and close the dialog.

Related topics

- *PI Temperature sensor view* on page 45
- *PI Temperature trend view* on page 60
- *How to set up the PI Temperature sensor* on page 82
- *PI Temperature purpose and application* on page 180

How to set up the PI Temperature/Depth sensor

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click the **Select Sensors** button to open the **Select Sensors** dialog.

→ *Select Sensors* on page 142

3 Observe the **Available Sensors** field on the upper left side of the dialog. It lists all the sensor types supported by the PI50.

4 Click once on the Temperature/Depth sensor in the list, then click the [►] button to copy the sensor to the **Selected Sensors** list.

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.

Three Depth versions are available. These are set up for maximum depth 300 m, 600 m or 1000 m. The depth range is fixed by the factory, and can not be changed in the PI Configurator utility.

5 Observe that an error message appears if you try to add too many sensors to the **Selected Sensors** field.

The PI50 can handle maximum six sensors. Remember that dual sensors each seize two sensor communication channels.

6 In the **Selected Sensors** field, click once on the sensor to select it.

7 Click one of the [▲] or [▼] buttons to move the sensor up or down on the list in the **Selected Sensors** field.

The order in this list also controls the order in which the sensors are presented in the **Sensor Configuration** field, as well as the vertical order of the Sensor view rectangles in the PI50 display presentation.

→ *How to control the order of the sensor views* on page 70

8 In the **Sensor Configuration** field, choose:

a Label ID

b Label Name

c Update Rate for each of the two sensors

d Sensor Value Name for each of the two sensors

e These names you enter are shown in the Sensor views.

→ *PI Temperature/Depth sensor view* on page 46

f Channel Number

g Offset for the depth sensor

The offset for the sensor is calculated automatically by means of the calibration procedure. If you already know the offset value, you can enter it directly.

→ *How to calibrate the depth sensors* on page 93

Note

*It is very important that the **Channel number** and **Update Rate** parameters defined for each sensor in the **Select Sensors** dialog matches the corresponding parameters programmed into the sensor. If these vital parameters do not match, you will not receive information from the sensor.*

9 If this is the only sensor you wish to set up, or the last sensor, click **Ok** to save the settings and close the dialog.

Related topics

- *PI Temperature/Depth sensor view* on page 46
- *PI Temperature/Depth trend view* on page 60
- *How to set up the PI Temperature/Depth sensor* on page 83
- *PI Temperature/Depth purpose and application* on page 181

How to set up the PI Geometry sensor

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click the **Select Sensors** button to open the **Select Sensors** dialog.

→ *Select Sensors* on page 142

3 Observe the **Available Sensors** field on the upper left side of the dialog. It lists all the sensor types supported by the PI50.

4 Click once on the Geometry sensor in the list, then click the [►] button to copy the sensor to the **Selected Sensors** list.

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.

Several PI Geometry configurations are available.

- **PI Geometry**: This is the standard configuration. Both distance measurements, as well as the difference between them, are transmitted by the sensor. This standard range configuration is used when the distance between the sensor and the trawl doors is below 300 meters, and will provide the best accuracy for shorter distances.
- **PI Geometry XT**: Extended range version. The **XT** configuration can be used for maximum distances up to 600 meters. The **XT** configuration does not provide the same accuracy as the standard configuration. Use this only if the standard configuration can not be used. All three measurements are transmitted by the sensor.
- **PI Geometry Differential**: Standard range. Only the difference between the two measurements are transmitted by the sensor. This saves battery, and it will only require one channel on the host PI system.

To change configuration, use the **PI Configurator** application.

5 Observe that an error message appears if you try to add too many sensors to the **Selected Sensors** field.

The PI50 can handle maximum six sensors. Remember that dual sensors each seize two sensor communication channels.

6 In the **Selected Sensors** field, click once on the sensor to select it.

7 Click one of the [▲] or [▼] buttons to move the sensor up or down on the list in the **Selected Sensors** field.

The order in this list also controls the order in which the sensors are presented in the **Sensor Configuration** field, as well as the vertical order of the Sensor view rectangles in the PI50 display presentation.

→ *How to control the order of the sensor views* on page 70

8 In the **Sensor Configuration** field, choose:

a Label ID

b Label Name

c Update Rate for each of the two sensors

d Sensor Value Name for each of the two measurements, for example “port” and “starboard”.

If you use a differential configuration, you only need to enter one name.

The names you enter are shown in the Sensor views.

→ *PI Geometry sensor view* on page 47

e Channel Number

Note

*It is very important that the **Channel number** and **Update Rate** parameters defined for each sensor in the **Select Sensors** dialog matches the corresponding parameters programmed into the sensor. If these vital parameters do not match, you will not receive information from the sensor.*

9 If this is the only sensor you wish to set up, or the last sensor, click **Ok** to save the settings and close the dialog.

Related topics

- *PI Geometry sensor view* on page 47
- *PI Geometry trend view* on page 61
- *How to set up the PI Geometry sensor* on page 85
- *PI Geometry purpose and application* on page 182

How to set up the PI Height/Depth sensor

Note

This procedure is also used to set up a PI SeineSounder sensor.

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click the **Select Sensors** button to open the **Select Sensors** dialog.

→ *Select Sensors* on page 142

3 Observe the **Available Sensors** field on the upper left side of the dialog. It lists all the sensor types supported by the PI50.

4 Click once on the Height/Depth sensor in the list, then click the [►] button to copy the sensor to the **Selected Sensors** list.

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.

Three Depth versions are available. These are set up for maximum depth 300 m, 600 m or 1000 m. The depth range is fixed by the factory, and can not be changed in the PI Configurator utility.

5 Observe that an error message appears if you try to add too many sensors to the **Selected Sensors** field.

The PI50 can handle maximum six sensors. Remember that dual sensors each seize two sensor communication channels.

6 In the **Selected Sensors** field, click once on the sensor to select it.

7 Click one of the [▲] or [▼] buttons to move the sensor up or down on the list in the **Selected Sensors** field.

The order in this list also controls the order in which the sensors are presented in the **Sensor Configuration** field, as well as the vertical order of the Sensor view rectangles in the PI50 display presentation.

→ *How to control the order of the sensor views* on page 70

8 In the **Sensor Configuration** field, choose:

a Label ID

b Label Name

c Update Rate for each of the two sensors

d Sensor Value Name for each of the two sensors

e These names you enter are shown in the Sensor views.

→ *PI Height/Depth sensor view* on page 49

f Channel Number

g Offset for the depth sensor

The offset for the sensor is calculated automatically by means of the calibration procedure. If you already know the offset value, you can enter it directly.

→ *How to calibrate the depth sensors* on page 93

Note

*It is very important that the **Channel number** and **Update Rate** parameters defined for each sensor in the **Select Sensors** dialog matches the corresponding parameters programmed into the sensor. If these vital parameters do not match, you will not receive information from the sensor.*

9 If this is the only sensor you wish to set up, or the last sensor, click **Ok** to save the settings and close the dialog.

Related topics

- *PI Height/Depth sensor view* on page 49
- *PI Height/Depth trend view* on page 62
- *How to set up the PI Height/Depth sensor* on page 86
- *PI Height/Depth purpose and application* on page 184

How to set up the PI Spread/Depth sensor

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click the **Select Sensors** button to open the **Select Sensors** dialog.

→ *Select Sensors* on page 142

3 Observe the **Available Sensors** field on the upper left side of the dialog. It lists all the sensor types supported by the PI50.

4 Click once on the Spread/Depth sensor in the list, then click the [►] button to copy the sensor to the **Selected Sensors** list.

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.

Two Spread versions are available. These are set up for standard or extended (XT) spread range. This configuration can be changed in the PI Configurator utility.

Three Depth versions are available. These are set up for maximum depth 300 m, 600 m or 1000 m. The depth range is fixed by the factory, and can not be changed in the PI Configurator utility.

5 Observe that an error message appears if you try to add too many sensors to the **Selected Sensors** field.

The PI50 can handle maximum six sensors. Remember that dual sensors each seize two sensor communication channels.

6 In the **Selected Sensors** field, click once on the sensor to select it.

7 Click one of the [▲] or [▼] buttons to move the sensor up or down on the list in the **Selected Sensors** field.

The order in this list also controls the order in which the sensors are presented in the **Sensor Configuration** field, as well as the vertical order of the Sensor view rectangles in the PI50 display presentation.

→ *How to control the order of the sensor views* on page 70

8 In the **Sensor Configuration** field, choose:

a Label ID

b Label Name

c Update Rate for each of the two sensors

d Sensor Value Name for each of the two sensors

These names you enter are shown in the Sensor views.

→ *PI Spread/Depth sensor view* on page 50

e Channel Number

f Offset for the depth sensor

The offset for the sensor is calculated automatically by means of the calibration procedure. If you already know the offset value, you can enter it directly.

→ *How to calibrate the depth sensors* on page 93

g Offset for the spread sensor

The offset for the spread sensor must be entered manually based on your knowledge about the sensor installation and the properties of the gear. You can enter a value between +99 and –99 meters.

Note

*It is very important that the **Channel number** and **Update Rate** parameters defined for each sensor in the **Select Sensors** dialog matches the corresponding parameters programmed into the sensor. If these vital parameters do not match, you will not receive information from the sensor.*

9 Click the **Advanced Sensor Configuration** button, and observe that additional choices are added to the **Sensor Configuration** field.

10 Connect the Spread/Depth sensor with starboard Depth sensor.

This will allow you to set up the system to measure vertical geometry. Refer to the dedicated procedure.

→ *How to set up spread and depth sensors to measure vertical geometry* on page 96

11 If this is the only sensor you wish to set up, or the last sensor, click **Ok** to save the settings and close the dialog.

Related topics

- *PI Spread/Depth sensor view* on page 50
- *PI Spread/Depth trend view* on page 62
- *How to set up the PI Spread/Depth sensor* on page 88
- *PI Spread/Depth purpose and application* on page 185

How to set up the PI Twin Spread sensor

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click the **Select Sensors** button to open the **Select Sensors** dialog.

→ *Select Sensors* on page 142

3 Observe the **Available Sensors** field on the upper left side of the dialog. It lists all the sensor types supported by the PI50.

4 Click once on the Twin Spread sensor in the list, then click the [►] button to copy the sensor to the **Selected Sensors** list.

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.

5 Observe that an error message appears if you try to add too many sensors to the **Selected Sensors** field.

The PI50 can handle maximum six sensors. Remember that dual sensors each seize two sensor communication channels.

6 In the **Selected Sensors** field, click once on the sensor to select it.

7 Click one of the [▲] or [▼] buttons to move the sensor up or down on the list in the **Selected Sensors** field.

The order in this list also controls the order in which the sensors are presented in the **Sensor Configuration** field, as well as the vertical order of the Sensor view rectangles in the PI50 display presentation.

→ *How to control the order of the sensor views* on page 70

8 In the **Sensor Configuration** field, choose:

a Label ID

b Label Name

c Common Update Rate for the two measurements

d Sensor Value Name for each of the two sensors

These names you enter are shown in the Sensor views.

→ *PI Twin Spread sensor view* on page 52

e Channel Number

f Offset for the spread sensor

The offset for the spread sensor must be entered manually based on your knowledge about the sensor installation and the properties of the gear. You can enter a value between +99 and –99 meters.

Note

*It is very important that the **Channel number** and **Update Rate** parameters defined for each sensor in the **Select Sensors** dialog matches the corresponding parameters programmed into the sensor. If these vital parameters do not match, you will not receive information from the sensor.*

9 If this is the only sensor you wish to set up, or the last sensor, click **Ok** to save the settings and close the dialog.

Related topics

- *PI Twin Spread sensor view* on page 52
- *PI Twin Spread trend view* on page 62
- *How to set up the PI Twin Spread sensor* on page 89
- *PI Twin Spread purpose and application* on page 186

How to set up the PI SeineSounder sensor

Note

The PI SeineSounder sensor is set up as a PI Height/Depth sensor.

→ How to set up the PI Height/Depth sensor on page 86.

Related topics

- *PI SeineSounder sensor view* on page 54
- *PI SeineSounder trend view* on page 63
- *How to set up the PI SeineSounder sensor* on page 91
- *PI SeineSounder purpose and application* on page 187

How to set up the PI Remote/Depth sensor

Note

The PI Remote/Depth sensor is set up as a PI Depth sensor.

→ How to set up the PI Depth sensor on page 77

Related topics

- *PI Remote/Depth sensor view* on page 55
- *PI Remote/Depth trend view* on page 63
- *How to set up the PI Remote/Depth sensor* on page 91
- *PI Remote/Depth purpose and application* on page 188

How to set up the PI Rip sensor

Note

The PI Rip sensor is set up as a PI Catch sensor.

→ *How to set up the PI Catch sensor on page 76*

Related topics

- *PI Rip sensor view* on page 55
- *PI Rip trend view* on page 63
- *How to set up the PI Rip sensor* on page 92
- *PI Rip purpose and application* on page 189

Sensor procedures

Topics

- *How to calibrate the depth sensors* on page 93
- *How to reset the sensor counter* on page 94
- *How to smooth out the bottom and catch readings* on page 94
- *How to smooth out the data reception* on page 95
- *How to remove spikes and reflections from the sensor data* on page 95
- *How to set up spread and depth sensors to measure vertical geometry* on page 96
- *How to set up depth and height sensors to measure total water depth* on page 98
- *How to set up the height sensor to show the trawl opening* on page 98

How to calibrate the depth sensors

Only depth sensors can be calibrated. The purpose is to make sure that the depth reported by the sensor is as accurate as possible. This procedure is carried out on board the vessel.

Note

In order to calibrate the sensor, it must be submerged in salt water.

The software provided for calibration assumes that the sensor is lowered to 1 meter deep. If you need to lower it even deeper, you will need to add this additional depth to the **Offset** value when you select and set up the sensor in the **Select Sensors** dialog.

Example: If you lower your sensor to 5 meters depth for calibration, you must enter 4 (meters) into the **Offset** for the sensor.

→ *Select Sensors* on page 142

1 Mount a rope to the top fastening lugs on the sensor.

2 Tighten the rope, and measure one meter from the bottom of the sensor to a spot on the rope. Place a visual marker on the rope at that location.

3 Lower the sensor over the side of the vessel and into the water. Lower it until the visual marker on the rope is even with the surface.

You may wish to use a different depth reference than the sea surface. If this is the case, change the marking on the rope to fit you preference, for example the depth of the keel or the depth of an echo sounder transducer.

4 Observe the numerical presentation of the sensor depth, and allow the reading to stabilize itself.

5 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

6 Click **Calibration**.

→ *Calibration* on page 149

7 In the **Calibration** dialog, click **Start Calibration**.

8 Wait for the PI50 system to do the calibration. Read a book, or call your mother.

When the **Calibration** dialog closes, the calibration has finished. Click **Close** to close the dialog.

9 Observe the numerical presentation of the sensor depth, and verify that it reads 1 m.

10 Retrieve the sensor from the water.

How to reset the sensor counter

The Bottom Contact and Catch sensors have timers. These are used to keep track of how long the sensors have been activated.

1 Click the **Operation** icon under the **Main** menu to open the **Operation** sub-menu.

2 Click the **Reset Counters** button.

→ *Reset Counters* on page 129

How to smooth out the bottom and catch readings

The **Catch/Bottom Filter** is used to smooth the information from the PI Catch and PI Bottom Contact sensors.

Set to *Light* filtering the change in status must last and remain stable for at least two sensor transmissions before the display is changed. When *Heavy* filtering is applied, the change in status must last and remain stable for at least eight sensor transmissions before the change is shown on the PI50 display.

The **Catch/Bottom Filter** is available both on the **Operation** menu and in the **Receiver** dialog.

→ *Catch/Bottom Filter* on page 127

→ *Receiver* on page 150

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

2 Click **Receiver** to open the **Receiver** dialog.

→ *Receiver* on page 150

3 Change the status of the **Catch/Bottom Filter**.

4 Click **OK** to save the current settings and close the dialog.

How to smooth out the data reception

The **Sensor Filter** can be used if you have problems with the reception. It will average the data received from the sensors.

The PI50 is designed to quickly update data. After the sensors have been submerged, the receiver requires only three consecutive pings from individual sensors to calculate and display their respective information. However, if you experience problems with the reception, you may try this filter.

The **Sensor Filter** is available both on the **Operation** menu and in the **Receiver** dialog.

→ *Sensor Filter* on page 126

→ *Receiver* on page 150

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

2 Click **Receiver** to open the **Receiver** dialog.

→ *Receiver* on page 150

3 Change the status of the **Sensor Filter**.

We recommend that you only use *Heavy* filtering if there are large fluctuations in the displayed data, or if the rate of change is small. Reduced filtering is preferable, since this shortens the delay between updating the changes in sensor location, and the corresponding displayed information.

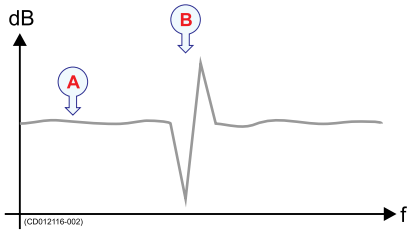
4 Click **OK** to save the current settings and close the dialog.

How to remove spikes and reflections from the sensor data

The **Multipath Filter** is designed to remedy for reflections, spikes and time-lag in the sensor data. These problems may occur if neighbouring channels are used, or if the PI50 is disturbed by other hydroacoustic systems in use on own or other vessels.

When you operate in an areas with substantial reverberation due to the bottom topography, or in shallow waters, you may experience “jumps” or spikes in the data received from the sensors. Such errors can also be caused by other types of hydroacoustic equipment operating on the PI50 frequency range. This filter has been implemented to remedy for such interference problem as well.

Figure 22 Spikes



A *Stable data reading*

B *Spike caused by reflections, time-lag, reverberation or interference*

The **Multipath Filter** is available both on the **Operation** menu and in the **Receiver** dialog.

→ *Multipath Filter* on page 128

→ *Receiver* on page 150

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

2 Click **Receiver** to open the **Receiver** dialog.

→ *Receiver* on page 150

3 Change the status of the **Multipath Filter**.

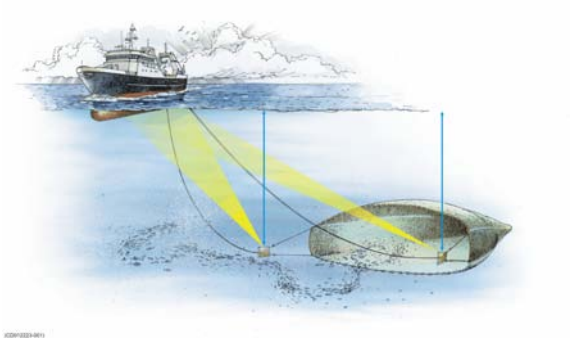
We recommend that you only use *Heavy* filtering if there are large fluctuations in the displayed data, or if the rate of change is small. Reduced filtering is preferable, since this shortens the delay between updating the changes in sensor location, and the corresponding displayed information.

4 Click **OK** to save the current settings and close the dialog.

How to set up spread and depth sensors to measure vertical geometry

If you have one depth sensor mounted on each trawl door, you can make the PI50 calculate the vertical geometry. The system will then read each of the two depth values, subtract one from the other, and show you the difference.

Figure 23 Vertical geometry measurements



Provided that the sensors are mounted on the trawl doors, the vertical geometry measurements can be made using any of the following sensors:

- PI Depth
- PI Height/Depth
- PI Spread/Depth
- PI Remote/Depth
- PI Temperature/Depth

The configuration of the vertical geometry measurement is made in the **Select Sensors** dialog during the configuration of a PI Spread sensor.

→ *Select Sensors* on page 142

Note

You must have one depth sensor on each trawl door to measure vertical geometry.

1. Set up the PI Depth, PI Height/Depth, PI Temperature/Depth or PI Remote/Depth sensor as described in the dedicated procedure.
   → *How to set up the PI Depth sensor* on page 77
   → *How to set up the PI Height/Depth sensor* on page 86
   → *How to set up the PI Temperature/Depth sensor* on page 83
   → *How to set up the PI Remote/Depth sensor* on page 91
2. Set up the PI Spread or PI Spread/Depth sensor as described in the dedicated procedure.
   → *How to set up the PI Spread sensor* on page 80
   → *How to set up the PI Spread/Depth sensor* on page 88
3. For the dedicated spread sensor, click **Advanced Sensor Configuration**.
4. Connect the spread sensor to one or two depth sensors.
   The available depth sensors will automatically be listed.
5. Click **OK** to save the settings and close the dialog.
6. Observe that the vertical geometry is shown as a sensor view.
   → *Vertical geometry view* on page 56

How to set up depth and height sensors to measure total water depth

If you have both a depth sensor and a height sensor mounted on the gear, you can make the PI50 calculate the total depth. The system will then read each of the two sensor values, add one to the other, and show you the sum.

The configuration of the water depth measurement is made in the **Select Sensors** dialog during the configuration of a PI Depth sensor.

→ *Select Sensors* on page 142

Note

You must have both sensors on you gear. They must be physically located next to each other to make the total depth value correct.

1. Set up the PI Height sensor as described in the dedicated procedure.
   → *How to set up the PI Height sensor* on page 79
2. Set up the PI Depth sensor as described in the dedicated procedure.
   → *How to set up the PI Depth sensor* on page 77
3. For the dedicated depth sensor, click **Advanced Sensor Configuration**.
   The available height sensors will automatically be listed.
4. Click **OK** to save the settings and close the dialog.
5. Observe that the total depth is shown in the PI Depth trend view.
   → *PI Depth trend view* on page 58

How to set up the height sensor to show the trawl opening

The PI Height sensor may be set up to display the trawl opening in the trend view.

The configuration of this function is made in the **Select Sensors** dialog during the configuration of a PI Height sensor.

→ *Select Sensors* on page 142

1. Set up the PI Height sensor as described in the dedicated procedure.
   → *How to set up the PI Height sensor* on page 79
2. Click **Advanced Sensor Configuration**.
3. Enter the height of the trawl door.
4. Click **OK** to save the settings and close the dialog.
5. Observe that the total depth is shown in the PI Height trend view.
   → *PI Height trend view* on page 59

Receiver settings

Topics

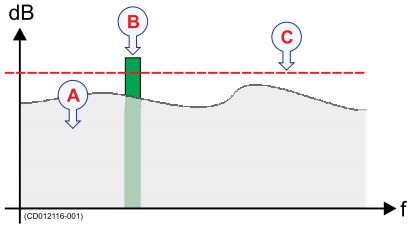
- *How to adjust the receiver sensitivity* on page 99
- *How to fight interference* on page 100

How to adjust the receiver sensitivity

The parameter used to adjust the receiver sensitivity is the **Detection Threshold (DT)**. It is adjusted in the **Receiver** dialog.

→ *Receiver* on page 150

Figure 24 Detection Threshold principle



A *Noise*

B *Signal from sensor*

C *Detection threshold*

Sensor signals below the threshold level will not be detected by the PI50, while signals above the threshold will be detected. If the threshold level is set too low, this may cause false signals to be detected.

If the detection threshold is set too high, the signal from the sensor will not be detected. If it is set too low, the sensor signal will be buried in the noise.

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

2 Click **Receiver** to open the **Receiver** dialog.

→ *Receiver* on page 150

3 Adjust the level of the **Detection Threshold (DT)**.

For PI50 two different parameter ranges are used:

- **3 to 14**: By increasing the parameter value, the threshold level is increased.

  This range should normally not be used for PI50.

  During special operations where extreme range is required, and the interference sources are minor, the parameter may be set to 8. If interference is present, the parameter can by increased up to maximum 14.

- **15 to 20**: By increasing the parameter value, the threshold level is decreased.

  This is the main parameter range to be used with the PI50. The default value is 17.

4 Click **OK** to save the current settings and close the dialog.

How to fight interference

Interference is normally identified in the sensor views by readings “jumping” up and down, and deviating from their expected values. Some times you may even be provided with steady readings that are obviously wrong.

To fight this disturbance, you can use the **Interference Filter** provided by the **Receiver** dialog.

→ *Receiver* on page 150

When the interference filter is switched on it will remove interference (noise and false echoes) from other echo sounders and sonars in the vicinity of your own vessel. The default setting is *Off*.

You can also adjust the **Detection Threshold (DT)** parameter to fight interference.

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

2 Click **Receiver** to open the **Receiver** dialog.

→ *Receiver* on page 150

3 Activate the **Interference Filter**, and try different values.

The **Interference Filter** may prove inefficient.

4 Switch off the **Interference Filter** filter.

5 Adjust the level of the **Detection Threshold (DT)**.

a Make sure that the **Interference Filter** is switched off.

b Normal ranges up to 1500 meters:

If you experience poor reception with the sensors in the sea, try to increase the detection threshold until the data reception appears completely random. Then, decrease the parameter until you have stable data reception. If you have interference problems while no sensors have been deployed, try to decrease the detection threshold until you have a stable data reception.

c Long ranges above 1500 meters:

Initially, use the same strategy as for normal range. However, if those actions are not enough to provide stable readings, try to set the detection threshold to 8. If your vessel’s self noise and interference is lower than normal, you may achieve a range enhancement by using this value. If interference cause problems, try to increase the detection threshold value until the interference disappears.

6 Click **OK** to save the current settings and close the dialog.

Alarms and messages

Topics

- *How to read and acknowledge alarms and messages* on page 101
- *How to set up sensor alarms* on page 101
- *How to access the log files* on page 102

How to read and acknowledge alarms and messages

Messages could be related to any type of hardware or software error, and even events related to operational conditions. A new message is flagged by means of the **Message** icon on the taskbar. The messages are divided into five types related to their importance.

All messages are read and acknowledge in the **Messages** dialog.

→ *Messages* on page 171

1. Observe the status of the **Messages** icon on the **Title Bar**.
   If it is lit, a message awaits in the **Messages** dialog.
2. Hold the cursor over the **Messages** icon to see a short list of the current messages.
3. Click the **Messages** icon to open the **Messages** dialog.
4. Click on the applicable tab in the **Messages** dialog to see the messages in each category.
5. Click once on a message to see the extended version (when applicable) in the **Current Message** field.
6. Click any of the following buttons to acknowledge and delete messages:
   - **Acknowledge All**: Click to acknowledge all new messages in the current list (tab).
   - **Delete All**: Click to delete all the messages in the current list (tab).
   - **Acknowledge**: Click to acknowledge the currently selected message.
   - **Delete**: Click to delete the currently selected message.
7. Once all messages have been acknowledged and deleted as appropriate, click **Close** to close the **Messages** dialog.

How to set up sensor alarms

Each sensor has an individual alarm setting. To enable an alarm, you must define minimum and maximum limits within the sensor's range, and click to enable message and/or audio notification. If the alarm is triggered, an audible signal may thus be provided, and/or you will receive a message indicating which sensor that caused the alarm. Once an alarm has been triggered, it is automatically disabled after 20 seconds. After this time it may be triggered again unless the alarm situation has been rectified, or you have disabled the alarm.

1. Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

2 Click **Alarm Limits** to open the **Alarm Limits** dialog.

Observe that the **Alarm Limits** dialog is dynamic. It lists the sensors you have currently selected in the **Select Sensors** dialog, and placed them in the order you have defined. The **Label ID** and **Sensor Value Name** provided are the same as those you selected in the **Select Sensors** dialog.

→ *Alarm Limits* on page 148

3 For each sensor:

a Set up the maximum and minimum alarm limits in the spin boxes.

b Click to enable message and/or audio notification

4 To disable all alarms, remove all **Message** and **Audio** selections.

5 Click **OK** to save the current settings and close the dialog.

How to access the log files

Whenever the PI50 issues a message, it is shown in the **Messages** dialog. Simultaneously, the messages are stored in a number of logging files on the hard disk. If you experience abnormal behaviour, and wish to consult your dealer and/or Simrad, these logging files are very useful. The following procedure explains how to access these files.

1 Click the **Display** icon under the **Main** menu to open the **Display** sub-menu.

2 Click **Screen Captures** to open an operating system folder.

By default, the folder name is

```
c:\documents and settings\All Users\Application
data\Simrad\PI50\ScreenDumps
```

→ *Screen Captures* on page 139

3 In the folder, go one step “back” (up) to:

```
c:\documents and settings\All Users\Application
data\Simrad\PI50
```

4 Observe that a folder named **Log** is now visible.

5 Open the **Log** folder.

The folder contains all recent log files containing the PI50 messages.

6 Using the functionality provided by the operating system, copy the log files to a USB memory stick.

Whenever possible, send the files to your dealer.

7 Close the folder.

Software procedures

If the PI50 system is provided with a computer, it is delivered with all necessary software installed, configured and tested. If you use your own computer, you must do this yourself.

Software upgrades are useful if your PI50 fails, and you suspect a software error. An upgrade is also required whenever the PI50 software is modified.

To check which software version you have, observe the **About** dialog opened from the **Display** menu.

→ *About* on page 139

If you experience problems during a software installation or upgrade, write down the installation parameters. Remove the PI50 software entirely, then reinstall from scratch.

Topics

- *How to install the PI50 software* on page 104
- *How to obtain the PI50 license* on page 105
- *How to upgrade the PI50 software* on page 105
- *How to remove the PI50 software* on page 106

How to install the PI50 software

Use this procedure if you need to install the software on a new computer. Note that minimum hardware and software requirements must be met by the computer.

1 Power up the computer.

2 Insert the PI50 CD-ROM.

If your computer is not fitted with a CD or DVD drive, copy the files from the CD to a USB memory stick.

3 Observe that the installation program opens.

If the installation program does not start automatically, use a file manager to access the CD or USB memory stick. Double-click on the **Setup.exe** file to start the installation.

4 Allow the PI50 installation to run. Follow the instructions provided.

5 Once the installation has been completed, double-click the PI50 icon on the desktop to start the application.

6 If you use **Windows 7** operating system:

a Observe that **Windows 7 Firewall** will open a dialog requesting information about the network.

b Select *Public*, and click **Allow access**.

7 Observe the start-up procedure in the *Getting started* chapter.

→ *Power on* on page 20

How to obtain the PI50 license

The PI50 requires a valid license to operate. Without a license you will not be able to communicate with the Receiver Unit.

Note

If you replace your computer, or if you replace major components inside your computer, you will need a new license code.

1 Double-click the PI50 icon on the desktop to start the application.

2 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

3 Click **Installation** to open the **Installation** sub-menu.

On the sub-menu, click **Software License** to open the **Software License** dialog.

→ *Software License* on page 162

4 Write down the **Hardware ID** provided by the **Software License** dialog.

5 Contact your dealer to order the software license.

Your dealer will need the following information from you to place the order:

- Vessel name and call sign
- Vessel type (trawler, purse seiner, etc.)
- Vessel owner's name, address and contact information
- Serial number on all transceivers
- Hardware ID

6 When the software license is returned, start the PI50, open the **Software License** dialog, and click **Enter Licence String**.

7 Write down the code, and click **Ok**.

8 Click **OK** to save the current settings and close the dialog.

How to upgrade the PI50 software

Use this procedure if you wish to reinstall the software, or receive a new CD-ROM with a software upgrade.

1 Observe the procedure for software installation.

→ *How to install the PI50 software* on page 104

Unless you have made any hardware changes on your computer, the existing software license will be used.

How to remove the PI50 software

1 Observe the operating system's functionality for software removal.

External interfaces

The following interfaces are set up to transmit and/or receive information by means of Ethernet and/or serial lines.

Topics

- *How to set up the PI sensor data output* on page 107
- *How to set up the Simrad ITI Trawl system input* on page 108
- *How to set up the Simrad echo sounder input* on page 110
- *How to set up the navigation system input* on page 111

How to set up the PI sensor data output

The PI50 will provide PI sensor information on an output line.

Supported telegram formats

- *PSIMP-D1 PI Sensor data* on page 209

Wiring procedure for serial communication

1. Locate which RS-232 port you wish to use.
2. The PI50 Catch monitoring, connect the transmit signal **Tx** on pin 3, and **ground** on pin 5.
3. On the remote system, wire as described in the relevant documentation.
4. Ensure that the length of the cable does not exceed approximately 50 meters. If a longer cable is required, you may need to use buffer amplifiers on the serial line.

Setup procedure

1. Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

   → *Setup menu* on page 119
2. Click **Installation** to open the **Installation** sub-menu.

   On the sub-menu **I/O Setup** to open the **I/O Setup** dialog.

   → *I/O Setup* on page 158
3. In the **I/O Setup** dialog, select which serial line to use to export the PI information.
4. Click on the chosen port to select it, then click the **Input** button to open the **Select Outputs** dialog.

→ *Select Outputs* on page 170

5 In the **Select Outputs** dialog, locate the **PI_NMEA** option on the left side, and click the [>] button to connect it.

6 Click once on the **PI_NMEA** option on the left side, then click **Configure Output**.

7 Observe that the **PI Data Output** dialog opens.

→ *PI Data Output* on page 172

8 In the **PI Data Output** dialog, click to enable the telegrams to be exported.

9 Click **OK** to save the current settings and close the dialog.

10 Observe that you are back in the **Select Outputs** dialog.

11 Click **OK** to save the current settings and close the dialog.

12 In the **I/O Setup** dialog, click on the chosen port to select it, then click the **Setup** button to open the **Serial Port Setup** dialog.

→ *Serial Port Setup* on page 166

13 In the **Serial Port Setup** dialog, enter the relevant parameters to set up the port.

→ *Standard NMEA 0183 communication parameters* on page 202

14 Click **OK** to save the current settings and close the dialog.

15 In the **I/O Setup** dialog, click on the chosen port to select it, then click the **Monitor** button to open the **Port Monitor** dialog.

→ *Port Monitor* on page 167

16 Observe the data flow.

In order to monitor the data flow, the PI50 must be active and transmitting information to the serial line.

17 If the data flow is operational, close all dialogs.

How to set up the Simrad ITI Trawl system input

Communication with the Simrad ITI (Integrated Trawl Instrumentation) is based on NMEA and proprietary telegrams.

Supported telegram formats

- *DBS Depth below surface* on page 203
- *DBS Depth of trawl below surface* on page 209
- *HFB Trawl headrope to footrope and bottom* on page 209

Wiring procedure for serial communication

1 Locate a free RS-232 serial port that can be used to connect the ITI system.

2 On the PI50 computer, connect the receive signal **Rx** on pin 2, the transmit signal **Tx** on pin 3, and **ground** on pin 5.

3 On the ITI transceiver, use connector **Serial A**. Connect the receive signal **Rx** on pin 2, the transmit signal **Tx** on pin 3, and **ground** on pin 5.

4 Ensure that the length of the cable does not exceed approximately 50 meters. If a longer cable is required, you may need to use buffer amplifiers on the serial line.

Setup procedure

This procedure explains how the PI50 can be set up to receive ITI information on a serial port.

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click **Installation** to open the **Installation** sub-menu.

On the sub-menu **I/O Setup** to open the **I/O Setup** dialog.

→ *I/O Setup* on page 158

3 In the **I/O Setup** dialog, select which serial line to use to accept ITI information.

4 Click on the chosen port to select it, then click the **Input** button to open the **Select Inputs** dialog.

→ *Select Inputs* on page 168

5 In the **Select Inputs** dialog, locate the **ITI** on the left side, and click the [>] button to connect it.

6 Click **OK** to save the current settings and close the dialog.

7 In the **I/O Setup** dialog, click on the chosen port to select it, then click the **Setup** button to open the **Serial Port Setup** dialog.

→ *Serial Port Setup* on page 166

8 In the **Serial Port Setup** dialog, enter the relevant parameters to set up the port.

→ *Standard NMEA 0183 communication parameters* on page 202

9 Click **OK** to save the current settings and close the dialog.

10 In the **I/O Setup** dialog, click on the chosen port to select it, then click the **Monitor** button to open the **Port Monitor** dialog.

→ *Port Monitor* on page 167

11 Observe the data flow

In order to monitor the data flow, the ITI system must be active and transmitting information to the PI50.

12 If the data flow is operational, close all dialogs.

How to set up the Simrad echo sounder input

Communication with the Simrad ES Family echo sounder systems is based on NMEA and proprietary telegrams. Depth information is also accepted from other echo sounders, provided that one of the listed datagram formats are used.

Supported telegram formats

- *DBS Depth below surface* on page 203

Wiring procedure for serial communication

1 Locate a free RS-232 serial port that can be used to connect the ES system.

2 On the PI50 computer, connect the receive signal **Rx** on pin 2, the transmit signal **Tx** on pin 3, and **ground** on pin 5.

3 On the echo sounder computer, use a serial line output. Connect the receive signal **Rx** on pin 3, the transmit signal **Tx** on pin 2, and **ground** on pin 5.

4 Ensure that the length of the cable does not exceed approximately 50 meters. If a longer cable is required, you may need to use buffer amplifiers on the serial line.

Setup procedure

This procedure explains how the PI50 can be set up to receive depth information on a serial port.

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

→ *Setup menu* on page 119

2 Click **Installation** to open the **Installation** sub-menu.

On the sub-menu **I/O Setup** to open the **I/O Setup** dialog.

→ *I/O Setup* on page 158

3 In the **I/O Setup** dialog, select which serial line to use to accept the depth information.

4 Click on the chosen port to select it, then click the **Input** button to open the **Select Inputs** dialog.

→ *Select Inputs* on page 168

5 In the **Select Inputs** dialog, locate **EchoNMEA** on the left side, and click the [>] button to connect it.

6 Click **OK** to save the current settings and close the dialog.

7 In the **I/O Setup** dialog, click on the chosen port to select it, then click the **Setup** button to open the **Serial Port Setup** dialog.

→ *Serial Port Setup* on page 166

8 In the **Serial Port Setup** dialog, enter the relevant parameters to set up the port.

→ *Standard NMEA 0183 communication parameters* on page 202

9 Click **OK** to save the current settings and close the dialog.

10 In the **I/O Setup** dialog, click on the chosen port to select it, then click the **Monitor** button to open the **Port Monitor** dialog.

→ *Port Monitor* on page 167

11 Observe the data flow.

In order to monitor the data flow, the echo sounder system must be active and transmitting depth information to the PI50.

12 If the data flow is operational, close all dialogs.

How to set up the navigation system input

Most Global Positioning System (GPS) receivers provide NMEA 0183 telegrams containing speed, heading and sailed distance as well as geographical latitude and longitude.

Supported telegram formats for heading:

- *HDG Heading, deviation and variation* on page 205
- *HDT Heading, true* on page 206
- *HDM Heading, magnetic* on page 206
- *VHW Water speed and heading* on page 207

Supported telegram formats for distance

- *RMC Recommended minimum specific GNSS data* on page 206
- *VHW Water speed and heading* on page 207
- *VTG Course over ground & ground speed* on page 207

Supported telegram formats for positioning

- *GLL Geographical position latitude/longitude* on page 204
- *GGA Global positioning system fix data* on page 205
- *RMC Recommended minimum specific GNSS data* on page 206

Supported telegram formats for speed

- *RMC Recommended minimum specific GNSS data* on page 206
- *VHW Water speed and heading* on page 207
- *VTG Course over ground & ground speed* on page 207

Wiring procedure for serial communication

1 Locate a free RS-232 serial port that can be used to connect the navigation receiver.

2 On the PI50 computer, connect the receive signal **Rx** on pin 2, and **ground** on pin 5.

3 On the GPS system, wire as described in the relevant documentation.

4 Ensure that the length of the cable does not exceed approximately 50 meters. If a longer cable is required, you may need to use buffer amplifiers on the serial line.

Setup procedure

1 Click the **Setup** icon under the **Main** menu to open the **Setup** sub-menu.

2 Click **Navigation** to open the **Navigation** dialog.

3 For each tab:

a Select which port to use.

b Click **Setup** for the selected port to define the communication parameters.

c Select which **NMEA Sentence** to use.

If you choose *Auto*, the PI50 will automatically choose among the incoming information according to a predefined priority list.

d If applicable, define the **Talker ID**.

4 Click **OK** to save the current settings and close the dialog.

The menu system

Menu navigation employed by PI50 Catch monitoring system is similar to the other Kongsberg Maritime applications which follow the new user interface standards developed by Kongsberg Maritime. The main menu is by default located at the right side of the screen. By means of dedicated icons at the bottom of the main menu, you can open the relevant sub-menus. Menu choices shown in dark colours are not available for the current operation or operational mode.

Topics

- *About menus and buttons* on page 113
- *Button types* on page 114
- *Main menu* on page 116
- *Operation menu* on page 117
- *Display menu* on page 118
- *Setup menu* on page 119

About menus and buttons

The operational navigation on the PI50 is designed by means of menus and command buttons.

Menu hierarchy

1. The **Main** menu provides the parameters most frequently used during normal operation.
2. The **Operation** menu controls the main operational parameters.
3. The **Display** menu controls the visual aspects of the system, such as parameters related to the display presentation.
4. The **Setup** menu allows you to control the configuration of the signal processing, as well as system installation and maintenance, and the interfaces to peripheral devices.

Sub-menu icons (from left)

- **Operation** menu
- **Display** menu
- **Setup** menu

Button types

Each menu contains several command buttons. Each button shows the function of the button, some of them also displays the current parameter setting. The majority of the buttons in each menu field have these functions:

- You can increase and decrease parameter values by clicking the button.
- You can change parameter values by moving the cursor sideways.
- You can change parameter values by means of the scroll wheel on the mouse or trackball.
- You can enter parameter values from the keyboard (if you have one).
- You can select parameter value from the button's sub-menu.
- You can open a dedicated dialog.

How to select a numerical parameter using the +/- buttons

1 Move the cursor to either side of the button, and observe that the background colour changes.

a Click on the left side of the button to decrease the numerical value.

b Click on the right side of the button to increase the numerical value.

How to select a numerical parameter by moving the cursor horizontally

1 Place the cursor on the middle of the button.

2 Click and hold the left mouse button depressed.

3 Move the cursor horizontally: left to decrease the parameter value, or right to increase it.

4 Release the mouse button when the requested value is shown.

How to select a numerical parameter by means of the scroll wheel

1 Place the cursor on the middle of the button.

2 Spin the scroll wheel in either direction to increase or decrease the parameter value.

3 Release the scroll wheel when the requested value is shown.

How to select a numerical parameter using the keyboard

1 Click the middle section of the button to open a text field.

2 Enter the numerical value into the text field.

If the numerical value exceeds the permitted range for the parameter, the frame in the text field will be red. You will then not be able to enter the value.

3 Press the **Enter** key.

How to select a parameter using a sub-menu

1 Click the middle section of the button to open a sub-menu, then click the requested parameter value.

The chosen value is applied, and the sub-menu is automatically closed.

2 Whenever applicable, you can also access the sub-menu by clicking the left and right side of the button, but this method will not show you the menu choices.

a Click on the left side of the button to select a lower sub-menu choice.

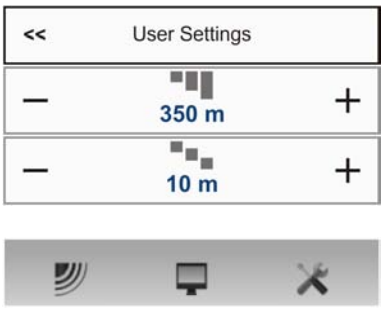
b Click on the right side of the button to select a higher sub-menu choice.

How to select parameters using a dialog

1 Click anywhere on the button to open a separate dialog.

Main menu

The following functions and parameters are available from the **Main** menu.



The bottom of the **Main** menu holds the icons for the sub-menus. Click on one of these icons to open the requested sub-menu.

Note that the menu system may be hidden from view if you click the **Menu** button on the **Task bar**.

- The **User Settings** dialog allows you to save the current user settings (parameter selections), and to retrieve previously saved factory or user settings.

  → *User Settings* on page 121

- The **Range** function allows you to specify the maximum range of the sensors related to depth and distance measurements. The range is defined from a selected start range, and in horizontal or vertical direction to a value exceeding the bottom depth or the location of the sensor. Use this setting together with the **Start Range** parameter to set up the depth or distance scales in the history field.

  → *Range* on page 123

- **Start Range** allows you to specify the start value for the depth or distance presentation in the sensor's history field. Use this setting together with the **Range** parameter to set up the depth or distance scales in the history field.

  → *Start Range* on page 124

Menu button

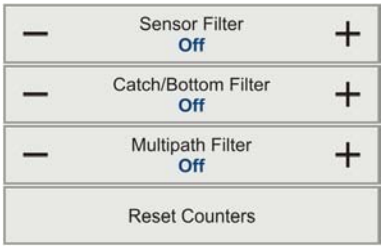
Click once on the **Menu** button to hide the menu.

Click one more time to bring the menu back again.

When the menu is hidden, it will temporarily be shown on the left and right hand side of the display if you move the cursor to that position.

Operation menu

The following functions and parameters are available from the **Operation** menu.



How to open the Operation menu

1 Click once on the icon under the **Main** menu to open the **Operation** menu

2 Click one more time on the icon to close the menu.

- The **Sensor Filter** can be used if you have problems with the reception. It will average the data received from the sensors.

  → *Sensor Filter* on page 126

- The **Catch/Bottom Filter** is used to smooth the information from the PI Catch and PI Bottom Contact sensors.

  → *Catch/Bottom Filter* on page 127

- The **Multipath Filter** is designed to remedy for reflections, spikes and time-lag in the sensor data. These problems may occur if neighbouring channels are used, or if the PI50 is disturbed by other hydroacoustic systems in use on own or other vessels.

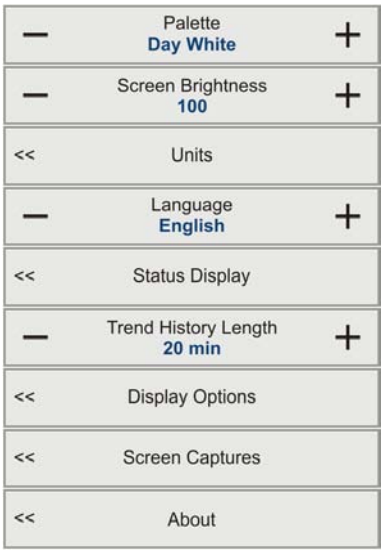
  → *Multipath Filter* on page 128

- The **Reset Counters** functions allows you to reset the built-in timer function.

  → *Reset Counters* on page 129

Display menu

The following functions and parameters are available from the **Display** menu.



How to open the Display menu

1 Click once on the icon under the **Main** menu to open the **Display** menu

2 Click one more time on the icon to close the menu.

- The **Palette** function allows you to change the main colour scheme of the PI50 presentation.

  → *Palette* on page 131

- The purpose of the **Screen Brightness** function is to adjust the intensity of the light given off by the display.

  → *Screen Brightness* on page 131

- The purpose of the **Units** dialog is to control the unit of measurements used by the PI50.

  → *Units* on page 132

- The purpose of the **Language** function is to select the language to be used on the menus.

  → *Language* on page 132

- The **Status Display** provides an overview of the present hydro-acoustical conditions.

  → *Status Display* on page 133

- The **Trend History Length** function allows you to adjust the horizontal resolution of the history fields.

  → *Trend History Length* on page 136

- The purpose of the **Display Options** dialog is to control the location of the menu, and which information to be provided on the **Title Bar** and the **Taskbar**.

  → *Display Options* on page 137

- The **Screen Captures** function allows you to access the screen captures you have created using the **Screen Capture** function on the **Title Bar**.

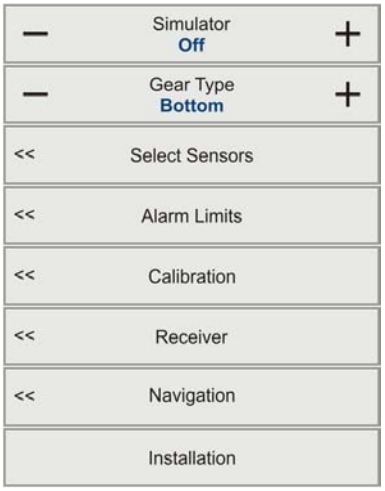
  → *Screen Captures* on page 139

- The purpose of the **About** dialog is provide you with the current PI50 software version.

  → *About* on page 139

Setup menu

The following functions and parameters are available from the **Setup** menu.



How to open the Setup menu

1 Click once on the icon under the **Main** menu to open the **Setup** menu

2 Click one more time on the icon to close the menu.

- The **Simulator** will provide artificial data to support hand-on PI50 training.

  → *Simulator* on page 141

- The **Gear Type** function allows you to set up the PI50 to work with either a pelagic or a bottom trawl.

  → *Gear Type* on page 142

- The **Select Sensors** dialog allows you to define which sensors you will use to monitor your gear.

  → *Select Sensors* on page 142

- The **Alarm Limits** dialog allows you to define alarms related to the information provided by the sensors.

  → *Alarm Limits* on page 148

- The **Calibration** dialog allows you to start automatic calibration of the depth sensors.

  → *Calibration* on page 149

- The **Receiver** dialog allows you to set up the detailed communication parameters, and to “fine tune” the receiver circuitry for optimal performance in various sea conditions and for various gear types.

  → *Receiver* on page 150

- The **Navigation** dialog controls how the PI50 receives information from external peripherals, such as navigation and compass gyro systems.

  → *Navigation* on page 153

- The **Installation** button opens a sub-menu with two choices. You can set up the inputs and outputs from peripheral devices, and administrate the software license.

  → *Installation* on page 157

Functions and dialogs

This chapter presents a detailed description of each dialog used by the PI50 system. Whenever applicable, references are made to the *Operational procedure* chapter.

Note

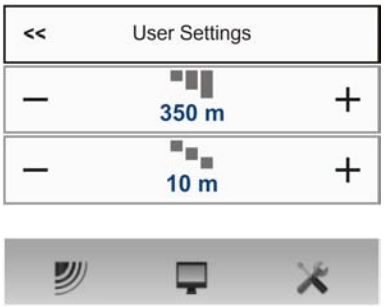
You do not need to have an in-depth knowledge of these dialogs to use the PI50. This information is for reference only.

Topics

- *Main menu; functions and dialogs* on page 121
- *Operation menu; functions and dialogs* on page 126
- *Display menu; functions and dialogs* on page 130
- *Setup menu; functions and dialogs* on page 141
- *Other dialogs and functions* on page 163

Main menu; functions and dialogs

The following functions and parameters are available from the **Main** menu.



The bottom of the **Main** menu holds the icons for the sub-menus. Click on one of these icons to open the requested sub-menu.

Note that the menu system may be hidden from view if you click the **Menu** button on the **Task bar**.

- The **User Settings** dialog allows you to save the current user settings (parameter selections), and to retrieve previously saved factory or user settings.

  → *User Settings* on page 121
- The **Range** function allows you to specify the maximum range of the sensors related to depth and distance measurements. The range is defined from a selected start range, and in horizontal or vertical direction to a value exceeding the bottom depth or the location of the sensor. Use this setting together with the **Start Range** parameter to set up the depth or distance scales in the history field.

  → *Range* on page 123
- **Start Range** allows you to specify the start value for the depth or distance presentation in the sensor's history field. Use this setting together with the **Range** parameter to set up the depth or distance scales in the history field.

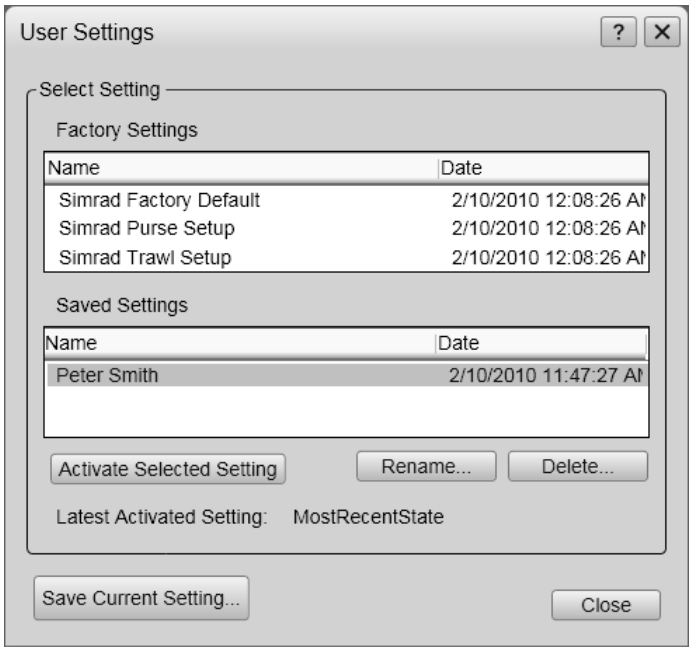
  → *Start Range* on page 124

User Settings

The **User Settings** dialog is available by clicking the **User Settings** button on the **Main** menu.

Purpose

The **User Settings** dialog allows you to save the current user settings (parameter selections), and to retrieve previously saved factory or user settings.



Description

This dialog is used to store the PI50 settings for different type of fisheries, or individual user related settings.

You can create as many user profiles as you like, and you can give them any type of name. All the parameters you have entered using menu buttons and dialogs are saved in the configuration file.

The settings saved using the **User Settings** functionality includes all receiver settings, interface parameters, as well as the currently selected sensors and their communication parameters. This is useful if you operate a combined trawler and seiner using different sensor setup on the different gears.

Parameters

- **Factory Settings**: These settings are those provided by the PI50 manufacturer. These settings may be put to use if you are uncertain of which parameters to use, as they offer "best practice" for typical use. The factory settings can not be altered.

  Three factory settings are available. One is for generic use, the two provide typical sensors and parameters settings for trawl and purse seine.
- **Saved Settings**: These settings are those created and saved by the various PI50 users. Each setting is identified by a name, and the time and date it was created. These settings may be deleted or renamed.

  You can save an unlimited number of profile settings.
- **Activate Selected Setting**: This button is used to activate the setting you wish to use.

  To activate either a factory or a saved setting, click the setting name in one of the lists, then click this button.
- **Rename**: This button is used to rename one of the saved settings.

  To rename a setting, click the setting name, and then this button. A dedicated dialog opens to accept the new name.

  If you do have a keyboard connected to your PI50 system, click the **Keyboard** button at the bottom of the dialog to open an on-screen keyboard.

  The factory setting(s) can not be renamed.
- **Delete**: This button is used to delete one of the saved settings.

  To delete a setting, click the setting name, and then this button. A dedicated dialog opens to verify your choice.

  The factory setting(s) can not be deleted.

- **Save Current Setting**: This button is used to save the currently applied PI50 settings.

  To save the settings, click this button. A dedicated dialog opens to record the name of the new settings.

  If you do have a keyboard connected to your PI50 system, click the **Keyboard** button at the bottom of the dialog to open an on-screen keyboard.

  You can only add settings to the **Saved Settings** list.

Related topics

- *How to reset the PI50 to factory default parameters* on page 67
- *How to save the current user settings* on page 67
- *How to use previously saved settings* on page 68

Range

The **Range** function is available by clicking the **Range** button on the **Main** menu.

Purpose

The **Range** function allows you to specify the maximum range of the sensors related to depth and distance measurements. The range is defined from a selected start range, and in horizontal or vertical direction to a value exceeding the bottom depth or the location of the sensor. Use this setting together with the **Start Range** parameter to set up the depth or distance scales in the history field.

Description

This parameter setting applies to the currently selected sensor's history field (identified with a thick border).

If you open this menu button, you will only be able to enter a value if a keyboard is connected to your PI50. Note however, that you can click the button, and while holding the mouse button depressed, and moving the mouse sideways, you can change the parameter value. You can also adjust the setting by clicking and holding either the [+] or [-] buttons.

Parameters

- **Range**: This parameter controls the displayed depth or distance range in the sensor's history field.

  The start value for the vertical or horizontal range shown in the field will always be the value defined by the **Start Range** parameter.

  Example: When you open the history field for a **PI Depth** sensor, it will display a vertical depth range. The range has a start depth defined by the **Start Range** parameter, and a total maximum depth range defined by the **Range** parameter. If you set **Range**

to 500 meters and **Start Range** to 100 meters, the history field will show the sensor results with a depth scale from 100 and 500 meters.

Example: When you open the history field for a **PI Spread** sensor, it will display a horizontal range. The range has a start value defined by the **Start Range** parameter, and a total maximum range defined by the **Range** parameter. If you set **Range** to 60 meters and **Start Range** to 5 meters, the history field will show the sensor results with a horizontal range scale from 5 and 60 meters. If you set a small range scale, for example ±10 meters related to the nominal spread distance, you will easily see small changes in the distance.

- **Auto Range**: This selection allows the PI50 to automatically adjust the range.

Related topics

- *Start Range* on page 124

Start Range

The **Start Range** function is available by clicking the **Start Range** button on the **Main** menu.

Purpose

Start Range allows you to specify the start value for the depth or distance presentation in the sensor's history field. Use this setting together with the **Range** parameter to set up the depth or distance scales in the history field.

Description

This parameter setting applies to the currently selected sensor's history field (identified with a thick border).

If you open this menu button, you will only be able to enter a value if a keyboard is connected to your PI50. Note however, that you can click the button, and while holding the mouse button depressed, and moving the mouse sideways, you can change the parameter value. You can also adjust the setting by clicking and holding either the [+] or [-] buttons.

Parameters

- **Start Range**: This parameter controls the start value of the information provided in the sensor's history field.

  Example: When you open the history field for a **PI Spread** sensor, it will display a horizontal range. The range has a start value defined by the **Start Range** parameter, and a total maximum range defined by the **Range** parameter. If you set **Range** to 60 meters and **Start Range** to 5 meters, the history field will show the sensor results with a horizontal range scale from 5 and 60 meters. If you set a small range scale, for example ±10 meters related to the nominal spread distance, you will easily see small changes in the distance.

Example: When you open the history field for a **PI Depth** sensor, it will display a vertical depth range. The range has a start depth defined by the **Start Range** parameter, and a total maximum depth range defined by the **Range** parameter. If you set **Range** to 500 meters and **Start Range** to 100 meters, the history field will show the sensor results with a depth scale from 100 and 500 meters.

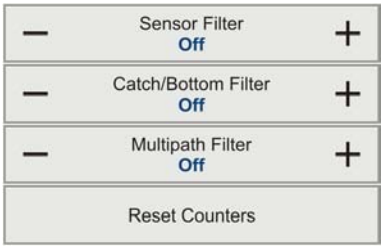
- **Auto Range**: This selection allows the PI50 to automatically adjust the start range.

Related topics

- *Range* on page 123

Operation menu; functions and dialogs

The following functions and parameters are available from the **Operation** menu.



How to open the Operation menu

1 Click once on the icon under the **Main** menu to open the **Operation** menu

2 Click one more time on the icon to close the menu.

- The **Sensor Filter** can be used if you have problems with the reception. It will average the data received from the sensors.

  → *Sensor Filter* on page 126
- The **Catch/Bottom Filter** is used to smooth the information from the PI Catch and PI Bottom Contact sensors.

  → *Catch/Bottom Filter* on page 127
- The **Multipath Filter** is designed to remedy for reflections, spikes and time-lag in the sensor data. These problems may occur if neighbouring channels are used, or if the PI50 is disturbed by other hydroacoustic systems in use on own or other vessels.

  → *Multipath Filter* on page 128
- The **Reset Counters** functions allows you to reset the built-in timer function.

  → *Reset Counters* on page 129

Sensor Filter

The **Sensor Filter** function is available by clicking the **Sensor Filter** button on the **Operation** menu.

Purpose

The **Sensor Filter** can be used if you have problems with the reception. It will average the data received from the sensors.

Description

The PI50 is designed to quickly update data. After the sensors have been submerged, the receiver requires only three consecutive pings from individual sensors to calculate and display their respective information. However, if you experience problems with the reception, you may try this filter.

It will average the data received from the sensors. *Light* filtering will average the data received by the last four sensor transmissions, while *Heavy* filtering averages the data received by the last eight transmissions.

You can also control this filter in the **Receiver** dialog, which you can open from the **Setup** menu.

→ *Receiver* on page 150

Parameters

- **Off**: The filter is switched off.
- **Light**: The information from the last four sensor transmissions are averaged. This is the default – and recommended – setting.
- **Medium**: The information from the last eight sensor transmissions are averaged. This has proven to be a useful setting for trawlers.
- **Heavy**: The information from the last 16 sensor transmissions are averaged.

  We recommend that you only use *Heavy* filtering if there are large fluctuations in the displayed data, or if the rate of change is small. Reduced filtering is preferable, since this shortens the delay between updating the changes in sensor location, and the corresponding displayed information.

Related topics

- *How to smooth out the data reception* on page 95
- *Receiver* on page 150

Catch/Bottom Filter

The **Catch/Bottom Filter** function is available by clicking the **Catch/Bottom Filter** button on the **Operation** menu.

Purpose

The **Catch/Bottom Filter** is used to smooth the information from the PI Catch and PI Bottom Contact sensors.

Description

When the filter is switched off any change in sensor status will immediately be shown on the display.

Set to *Light* filtering the change in status must last and remain stable for at least two sensor transmissions before the display is changed. When *Heavy* filtering is applied, the change in status must last and remain stable for at least eight sensor transmissions before the change is shown on the PI50 display.

You can also control this filter in the **Receiver** dialog, which you can open from the **Setup** menu.

→ *Receiver* on page 150

Parameters

- **Off**: The filter is switched off.
- **Light**: The information provided from the PI Catch and PI Bottom Contact sensors must be stable for at least two consecutive transmissions. If this is not the case, the information is not shown on the PI50 display.

  This is the default – and recommended – setting.
- **Medium**: The information provided from the PI Catch and PI Bottom Contact sensors must be stable for at least four consecutive transmissions. If this is not the case, the information is not shown on the PI50 display.
- **Heavy**: The information provided from the PI Catch and PI Bottom Contact sensors must be stable for at least eight consecutive transmissions. If this is not the case, the information is not shown on the PI50 display.

Related topics

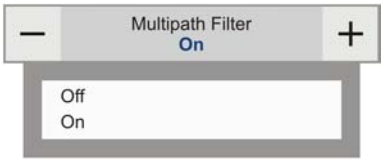
- *How to smooth out the bottom and catch readings* on page 94
- *Receiver* on page 150

Multipath Filter

The **Multipath Filter** function is available by clicking the **Multipath Filter** button on the **Operation** menu.

Purpose

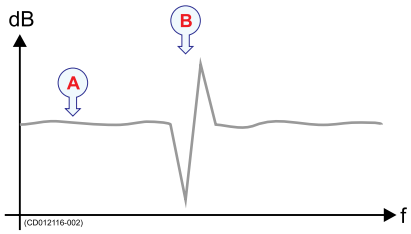
The **Multipath Filter** is designed to remedy for reflections, spikes and time-lag in the sensor data. These problems may occur if neighbouring channels are used, or if the PI50 is disturbed by other hydroacoustic systems in use on own or other vessels.



Description

When you operate in an areas with substantial reverberation due to the bottom topography, or in shallow waters, you may experience “jumps” or spikes in the data received from the sensors. Such errors can also be caused by other types of hydroacoustic equipment operating on the PI50 frequency range. This filter has been implemented to remedy for such interference problem as well.

Figure 25 Spikes



A *Stable data reading*

B *Spike caused by reflections, time-lag, reverberation or interference*

You can also control this filter in the **Receiver** dialog, which you can open from the **Setup** menu.

→ *Receiver* on page 150

Parameters

- **Off**: The filter is switched off.
- **On**: The filter is on. This is the default setting.

Related topics

- *How to remove spikes and reflections from the sensor data* on page 95
- *Receiver* on page 150

Reset Counters

The **Reset Counters** function is available by clicking the **Reset Counters** button on the **Operation** menu.

Purpose

The **Reset Counters** functions allows you to reset the built-in timer function.

Description

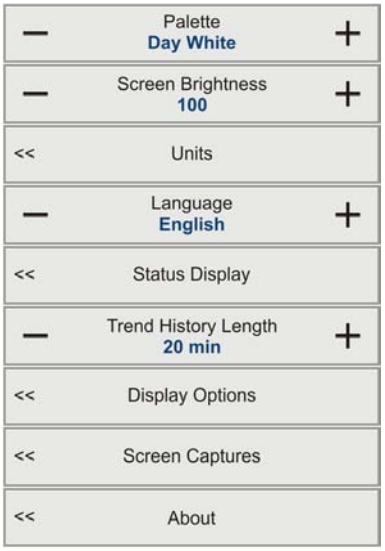
The PI Catch and PI Bottom Contact sensor presentations both have a timer feature. Each timer indicates how many times the sensor has been activated during a tow. To reset the timers to zero -0- prior to a new tow, or during a tow, click this button once. Note that you will not be asked for confirmation.

Related topics

- *How to reset the sensor counter* on page 94

Display menu; functions and dialogs

The following functions and parameters are available from the **Display** menu.



How to open the Display menu

1 Click once on the icon under the **Main** menu to open the **Display** menu

2 Click one more time on the icon to close the menu.

- The **Palette** function allows you to change the main colour scheme of the PI50 presentation.

  → *Palette* on page 131

- The purpose of the **Screen Brightness** function is to adjust the intensity of the light given off by the display.

  → *Screen Brightness* on page 131

- The purpose of the **Units** dialog is to control the unit of measurements used by the PI50.

  → *Units* on page 132

- The purpose of the **Language** function is to select the language to be used on the menus.

  → *Language* on page 132

- The **Status Display** provides an overview of the present hydro-acoustical conditions.

  → *Status Display* on page 133

- The **Trend History Length** function allows you to adjust the horizontal resolution of the history fields.

  → *Trend History Length* on page 136

- The purpose of the **Display Options** dialog is to control the location of the menu, and which information to be provided on the **Title Bar** and the **Taskbar**.

  → *Display Options* on page 137

- The **Screen Captures** function allows you to access the screen captures you have created using the **Screen Capture** function on the **Title Bar**.

  → *Screen Captures* on page 139

- The purpose of the **About** dialog is provide you with the current PI50 software version.

  → *About* on page 139

Palette

The **Palette** function is opened by clicking the **Palette** button on the **Display** menu.

Purpose

The **Palette** function allows you to change the main colour scheme of the PI50 presentation.

Description

The **Palette** parameter controls the colour theme used by the PI50.

The **Palette** parameter allows you to select the background colours and day/night brightness of the display presentation to suit you personal preferences. The choice you make here does not have any effect on the PI50 performance. To change the palette, click either side of the button, or on the middle of the button to open the menu.

Related topics

- *How to choose colour presentation theme (palette)* on page 69
- *Screen Brightness* on page 131

Screen Brightness

The **Screen Brightness** function is opened by clicking the **Screen Brightness** button on the **Display** menu.

Purpose

The purpose of the **Screen Brightness** function is to adjust the intensity of the light given off by the display.

Description

The **Screen Brightness** parameter reduces the screen intensity.

When the bridge is dark, the light emitted by the PI50 display can affect your night vision. In order to compensate for this, you can reduce the intensity. The **Screen Brightness** allows you to reduce the this brightness, and hence make the display darker. The intensity of light emitted by the display can be reduced from 100% to 0% in steps of 10.

Related topics

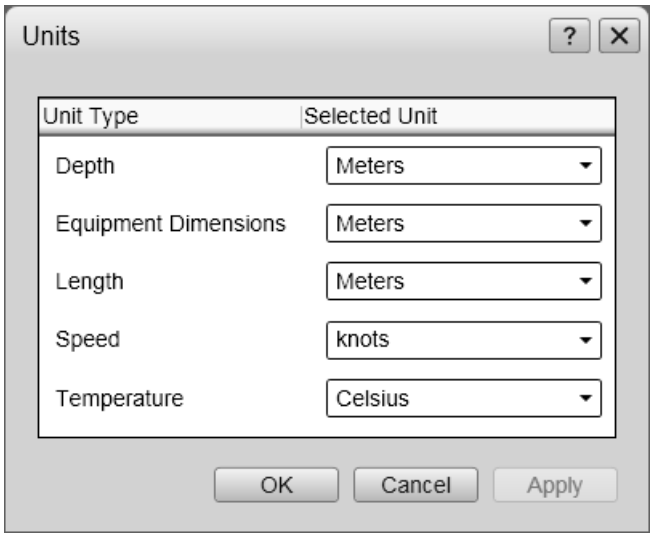
- *How to choose screen brightness* on page 70
- *Palette* on page 131.

Units

The **Units** dialog is opened by clicking the **Units** button on the **Display** menu.

Purpose

The purpose of the **Units** dialog is to control the unit of measurements used by the PI50.



Description

The PI50 is prepared to work with several standards for units of measurements.

Use the **Units** dialog to set up the various units of measurements you wish to work with. Normally, you will only need to define these once.

Use the spin boxes to make the selections.

Parameters

- **Depth**: Choose the unit of measurement for depth.
- **Equipment Dimensions**: Choose the unit of measurement for the equipment dimensions.
- **Length**: Choose the unit of measurement for length.
- **Speed**: Choose the unit of measurement for speed.
- **Temperature**: Choose the unit of measurement for temperature.

Related topics

- *How to select measurement units* on page 70

Language

The **Language** function is opened by clicking the **Language** button on the **Display** menu.

Purpose

The purpose of the **Language** function is to select the language to be used on the menus.

Description

The menu buttons on the PI50 can be provided in several different languages. Use this function to select the language you wish to use. With a few exceptions, the chosen language will also be used for all other texts on the PI50.

Note that the on-line help may not be available for the language you choose.

Parameters

- **Language**: The chosen language will be used on menus and dialogs, but not necessarily on the on-line help.

Related topics

- *How to select menu language* on page 69

Status Display

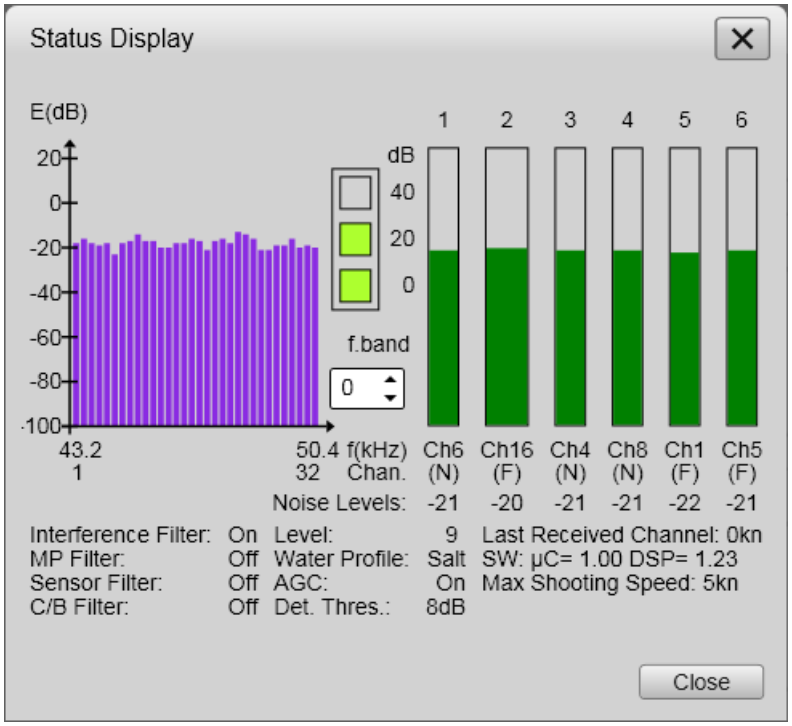
The **Status Display** dialog is opened by clicking the **Status Display** button on the **Display** menu.

Purpose

The **Status Display** provides an overview of the present hydro-acoustical conditions.

Description

The **Status Display** shows sensor data, signal thresholds and background noise levels providing an overview of present hydro-acoustical conditions and the margin for reliable signal detection. Other information displayed includes cable status and software version. You can use the information provided by the **Status Display** to check the operational quality of the PI50 system. Note that some of the information provided by the **Status Display** assumes that you have the relevant sensors connected to, and operational on, your PI50 system.



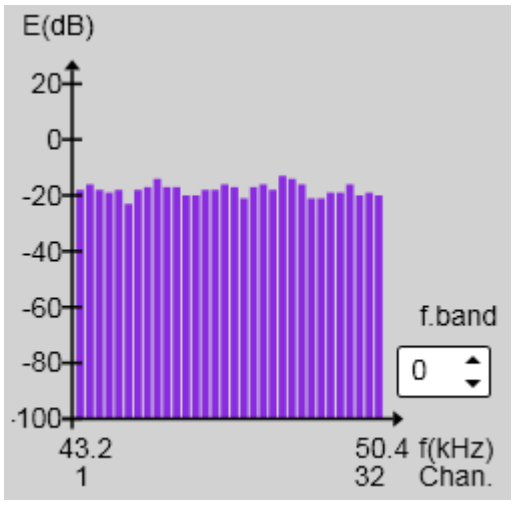
The **Status Display** is divided into "information fields", each providing information:

- **Frequency spectrum** for noise monitoring
- **Manual Gain indicator** to reflect the current receiver gain
- **Sensor gain indicators** for the current sensors
- **Status field** with software information and parameter settings

Status Display; Frequency spectrum

The **Frequency spectrum** graph provides you with information about the background noise and the signal strength of the frequency band or channel number selected. Each vertical bar represents the background noise for the given frequency or channel, and the level is measured continuously.

During normal operation, each frequency bar should indicate approximately –20 dB.



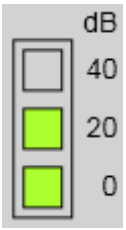
This function is very useful if you have too much noise and this makes the communication with the sensor unreliable. Switch off as much electrical, mechanical and acoustic gear and equipment as possible. Then, switch the systems on again one by one while keeping an eye on the frequency spectrum. When the "noisy" system is activated, it is most likely easy to see!

Note that the frequency spectrum presentation depends on the **Interference Filter** setting.

→ *Receiver* on page 150

The **f.band** spin box is used to change the bandwidth in the graph.

Status Display; Manual Gain indicator



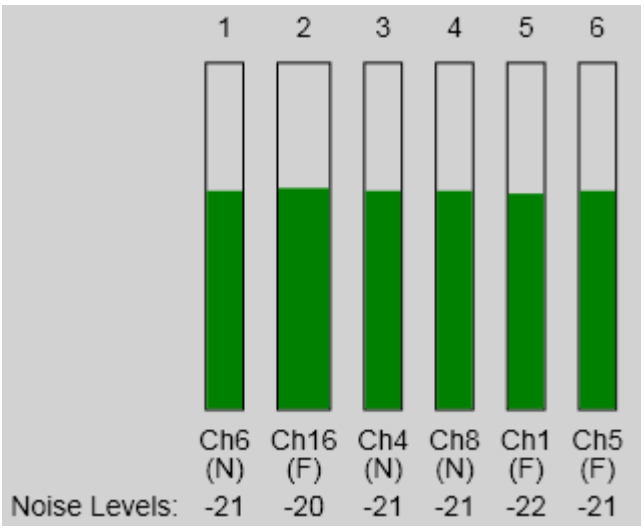
The gain indicator located in the middle of the **Status Display** dialog visualises the receiver gain currently selected in the **Receiver** dialog.

In the **Receiver** dialog, the **Manual Gain** can be set to *Low*, *Medium* or *High*, which correspond to 0, 20 and 40 dB.

→ *Receiver* on page 150

Status Display; Sensor gain indicators

There are six gain indicators, one for each of the current sensors.



At the top of each indicator you can see sensor number. At the bottom you can see the sensor's communication channel, the current update rate, and the noise level.

- Green colour indicates that the reception of signals and noise is within normal specifications.
- Red colour indicates that the received signal exceeds the minimum level required for reception, this is therefore not an error message.

For the technical minded: When no sensors have been deployed, the indicators will present the mean noise level. This is the noise in the surrounding water, caused by mechanical, electrical, acoustic and natural disturbances. This noise level should be as low as possible. When a sensor in the water transmits its information back to the PI50, this is indicated as the green indicator extends above the mean noise level. In order for the reception circuitry to accept and recognize the signal, it must be stronger than a predefined minimum level. The level is normally referred to as the "Detection Level". If the signal is stronger than the detection level, the indicator bar will change colour to red.

Status Display; Status field

The **Status field** provides an overview of key parameters. These parameters are all defined in the **Receiver** dialog available on the **Setup** menu. Some key filters are also available as separate functions.

→ *Receiver* on page 150

- **Interference Filter**: This is a presentation of the current setting of the filter.
- **MP (Multipath) Filter**: This is a presentation of the current status of the filter. You can also set this filter level using the **Multipath Filter** button on the **Operation** menu.

  → *Multipath Filter* on page 128

- **Sensor Filter**: This is a presentation of the current status of the filter. You can also set this filter level using the **Sensor Filter** button on the **Operation** menu.

  → *Sensor Filter* on page 126

- **C/B (Catch/Bottom) Filter**: This is a presentation of the current status of the filter. You can also set this filter level using the **Catch/Bottom Filter** button on the **Operation** menu.

  → *Catch/Bottom Filter* on page 127

- **Level**: This is a presentation of the current level of the filter.
- **Water Profile**: This is a presentation of the currently selected water profile (salt or fresh water).
- **AGC**: This is a presentation of the currently selected AGC (Automatic Gain Control) setting.
- **Det.Thresh.**: This is a presentation of the currently selected **Detection Threshold** level.
- **Last Received Channel**: This entry shows you which of the sensors that last provided information to the PI50.
- **SW**: This is a presentation of the software versions currently in use in the PI50 receiver.

  µC is the software version in the micro-controller.

  DSP is the software version in the digital signal processor.
- **Max. Shooting Speed**: This is a presentation of the currently selected setting for maximum shooting speed.

Trend History Length

The **Trend History Length** function is opened by clicking the **Trend History Length** button on the **Display** menu.

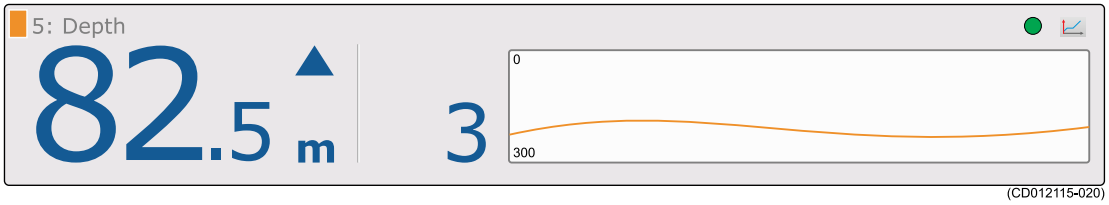
Purpose

The **Trend History Length** function allows you to adjust the horizontal resolution of the history fields.

Description

The **Trend History Length** parameter controls the horizontal resolution of the history fields. The value is given in minutes, and you can select any value between 5 and 1440 minutes. If you try to enter a larger or smaller value, the text border will be red, and you will not be permitted to enter the value. To change the horizontal resolution, click either side of the button, or on the middle to open a text field. If you have a keyboard connected to the PI50 computer, you can enter the requested value directly, and press the **Enter** key.

In the following PI Depth sensor presentation, the history field, with the historic sensor data presented as a curve, is seen on the right hand side.

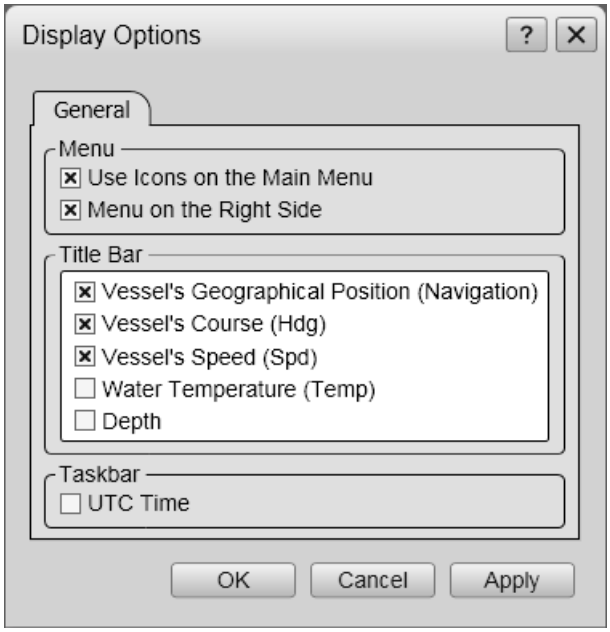


Display Options

The **Display Options** dialog is opened by clicking the **Display Options** button on the **Display** menu.

Purpose

The purpose of the **Display Options** dialog is to control the location of the menu, and which information to be provided on the **Title Bar** and the **Taskbar**.



Description

The **Display Options** dialog provides three fields to control the appearance of the **Main** menu buttons (with or without icons), the location of the menu system (left or right side), and which information that shall be displayed on the **Title Bar**.

The settings you choose have no effect on the overall performance of the PI50.

Parameters

- **Use Icons on the Main Menu**: This options allows you to choose between text and icons on the **Main** menu buttons.
- **Menu on the Right Side**: Click this option to place the menu on the right hand side of the display presentation.
- **Title Bar**:

– **Vessel's Geographical Position**:

Click this option to display the current geographical position on the **Title Bar**. The information must be provided by a navigation system connected to the PI50.

Note

*The navigational information provided on the PI50 **Title Bar** must not be used for vessel navigation!*

– **Vessel's Course**:

Click this option to display the vessel's current course on the **Title Bar**. The information must be provided by a course gyro or a navigation system connected to the PI50.

– **Vessel's Speed**:

Click this option to display the current speed on the **Title Bar**. The information must be provided by a speed log or a navigation system connected to the PI50.

– **Water Temperature**:

Click this option to display the current water temperature on the **Title Bar**. The information must be provided by an external sensor connected to the PI50.

Note

Presently, the PI50 does not support this functionality.

– **Depth**:

Click this option to display the bottom depth on the **Title Bar**. The information must be provided by an echo sounder connected to the PI50.

- **UTC Time**: Click this option to see UTC time at the bottom right corner of the display presentation.

> Coordinated Universal Time (UTC) is a time standard based on International Atomic Time (TAI) with leap seconds added at irregular intervals to compensate for the Earth's slowing rotation. Leap seconds are used to allow UTC to closely track UT1, which is mean solar time at the Royal Observatory, Greenwich. The difference between UTC and UT1 is not allowed to exceed 0.9 seconds, so if high precision is not required the general term Universal Time (UT) may be used. In casual use, Greenwich Mean Time (GMT) can be considered equivalent to UTC or UT1 when fractions of a second are not important.
>
> *— Wikipedia, October 1009*

Screen Captures

The **Screen Captures** function is opened by clicking the **Screen Captures** button on the **Display** menu.

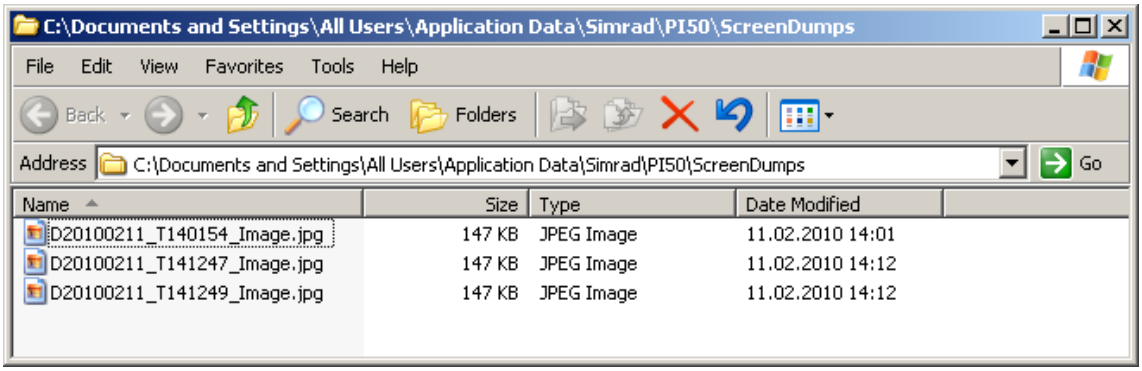
Purpose

The **Screen Captures** function allows you to access the screen captures you have created using the **Screen Capture** function on the **Title Bar**.

Description

Every time you click the **Screen Capture** icon on the **Title Bar**, a copy of the entire current PI50 presentation is saved as a JPG file on the hard disk. When you click the **Screen Captures** button, an operating system window opens to access the file folder with these files. Within this window, you can use the operating system functionality to delete, copy, or rename[6] these file.

The file folder may look like this (Windows XP).



Related topics

- *How to access the log files* on page 102

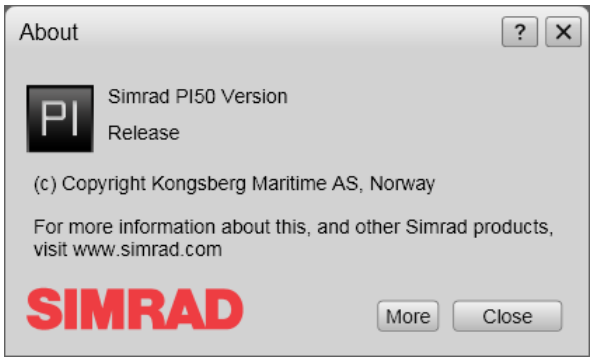
About

The **About** dialog is opened by clicking the **About** button on the **Display** menu.

Purpose

The purpose of the **About** dialog is provide you with the current PI50 software version.

6. You can only rename files if you have a keyboard connected to your PI50 computer.



Description

Every PI50 software release is identified with a unique version and date. This information is provided by the **About** dialog. The dialog also provides access to a separate list of all the PI50 software modules and their versions. This information is not intended for operational use.

Parameters

- **Software version**: This is the current software version of the PI50 running on your computer.

  Note that the software versions for the PI50 receiver (micro-controller and digital signal processor) are shown in the **Status Display** dialog.

  → *Status Display* on page 133

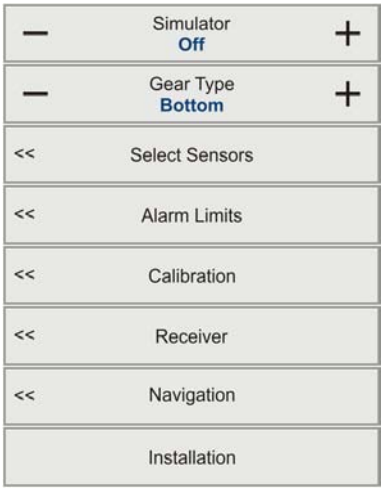
- **Release**: This is the date the software version was released.
- **More**: This option opens a dedicated dialog to investigate the software versions of the various modules used by the PI50 application. The information is only provided for maintenance and software debugging purposes.

Related topics

- *Software procedures* on page 104
- *Status Display* on page 133

Setup menu; functions and dialogs

The following functions and parameters are available from the **Setup** menu.



How to open the Setup menu

1 Click once on the icon under the **Main** menu to open the **Setup** menu

2 Click one more time on the icon to close the menu.

- The **Simulator** will provide artificial data to support hand-on PI50 training.

  → *Simulator* on page 141
- The **Gear Type** function allows you to set up the PI50 to work with either a pelagic or a bottom trawl.

  → *Gear Type* on page 142
- The **Select Sensors** dialog allows you to define which sensors you will use to monitor your gear.

  → *Select Sensors* on page 142
- The **Alarm Limits** dialog allows you to define alarms related to the information provided by the sensors.

  → *Alarm Limits* on page 148
- The **Calibration** dialog allows you to start automatic calibration of the depth sensors.

  → *Calibration* on page 149
- The **Receiver** dialog allows you to set up the detailed communication parameters, and to “fine tune” the receiver circuitry for optimal performance in various sea conditions and for various gear types.

  → *Receiver* on page 150
- The **Navigation** dialog controls how the PI50 receives information from external peripherals, such as navigation and compass gyro systems.

  → *Navigation* on page 153
- The **Installation** button opens a sub-menu with two choices. You can set up the inputs and outputs from peripheral devices, and administrate the software license.

  → *Installation* on page 157

Simulator

The **Simulator** function is available by clicking the **Simulator** button on the **Setup** menu.

Purpose

The **Simulator** will provide artificial data to support hand-on PI50 training.

Description

The PI50 offers a built-in simulator that will create artificial sensor data. It will create this data to match any sensor configuration. The feature is useful for system testing and familiarization. Default setting for the built-in simulator is *Off*. In order to start the simulator, click the right side (+), or on the middle of the button, and click **On**.

Note

When the built-in simulator is switched on, the PI50 will not read any data from the sensors. The simulator must therefore not be used during trawling or seining with sensors in the water.

Gear Type

The **Gear Type** function is available by clicking the **Gear Type** button on the **Setup** menu.

Purpose

The **Gear Type** function allows you to set up the PI50 to work with either a pelagic or a bottom trawl.

Description

This parameter is only used to set the alarm system to detect the activation of the Bottom Contact sensor.

- When set to *Pelagic*, the alarm will be triggered when the Bottom Contact sensor is disengaged, as this means that the footrope hits the bottom.
- When set to *Bottom*, the alarm will be triggered when the Bottom Contact sensor is engaged, as this means that the footrope lifts up from the bottom.

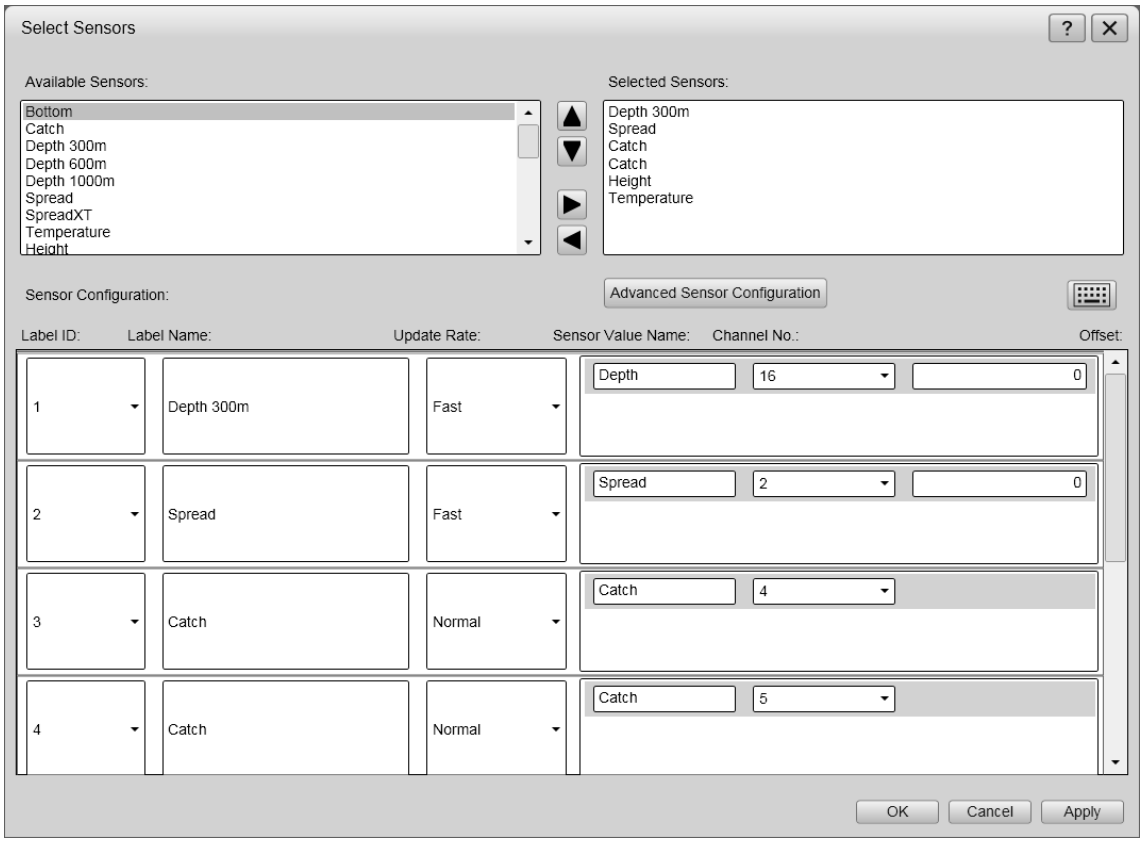
In order to select gear, click either side of the button, or on the middle of the button to select from the menu.

Select Sensors

The **Select Sensors** dialog is opened by clicking the **Select Sensors** button on the **Setup** menu.

Purpose

The **Select Sensors** dialog allows you to define which sensors you will use to monitor your gear.



Description

A large range of different sensors may be connected to the PI50 system, but only a limited number of sensors may be used simultaneously. The **Select Sensors** dialog is used to select which sensors to use, define the frequency channels you wish to receive the information on, and how often this information shall be received (update rate).

Note

*It is very important that the **Channel number** and **Update Rate** parameters defined for each sensor in the **Select Sensors** dialog matches the corresponding parameters programmed into the sensor. If these vital parameters do not match, you will not receive information from the sensor.*

The **Select Sensors** dialog is divided into several functional parts:

- **Available Sensors**: This part lists all sensors.
- **Selected Sensors**: This part lists all sensors selected for use.
- **Sensor Configuration**: This part allows you to set up the sensor parameters for use. Tow modes are available.

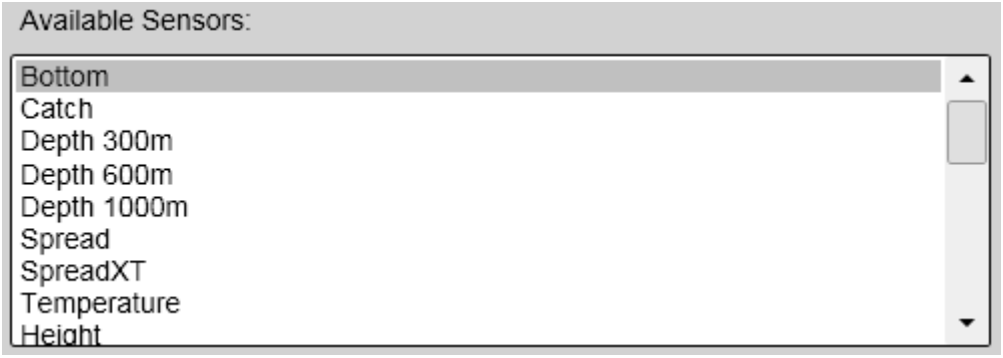
– *Standard mode*
– *Advanced mode*

Related topics

- *How to select and set up the sensors* on page 72
- *How to calibrate the depth sensors* on page 27

Select Sensors; Available Sensors

The top left part of the **Select Sensors** dialog lists all the available sensors. The entire range of PI sensors is listed.



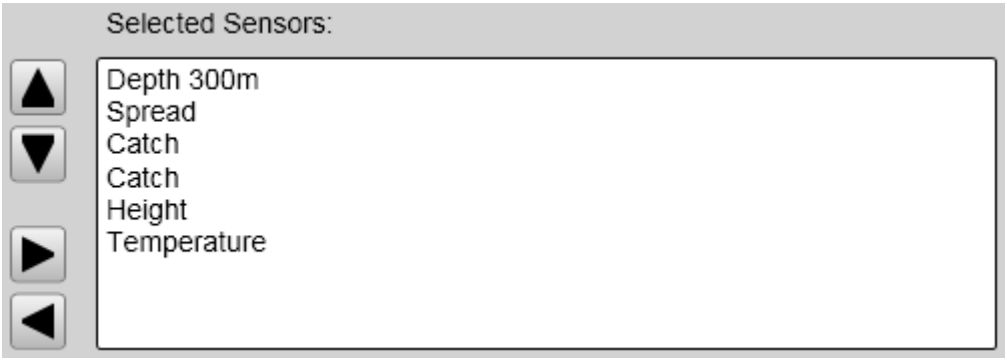
Note

If new sensor types are added to the PI family, you need to upgrade the PI50 software to put them to use.

To add a sensor to the **Selected Sensors** list, click on it, and then click the "right arrow" button. The same sensor will automatically be added to the **Sensor Configuration** list.

Select Sensors; Selected Sensors

The top right part of the **Select Sensors** dialog lists all the sensors currently selected for use by the PI50 system. The order of the sensors in the **Selected Sensors** is automatically reflected into the **Sensor Configuration** list.



To delete a sensor from the **Selected Sensors** list, click on it, and then click the "left arrow" button. The same sensor will automatically be deleted from the **Sensor Configuration** list.


To change the order of the sensors inside the **Selected Sensors** list, click on a sensor, and then click either the "up arrow" or the "down arrow" button. When the arrow is moved up or down the **Selected Sensors** list, it is also moved accordingly in the **Sensor Configuration** list, and in the list of sensor views.

Related topics

- *How to control the order of the sensor views* on page 70

Select Sensors; Sensor Configuration

The whole bottom part of the **Select Sensors** dialog is used to define the sensor parameters. Two modes of configuration are available.

- *Standard mode*
- *Advanced mode*

By default, the *Standard mode* is shown. To access the advanced mode, click the **Advanced Sensor Configuration** button.

Note

All parameters must be set up individually for each sensor in use.

Parameters

- **Label ID**: This number is used to identify the sensor.

  The ID must be unique for each sensor, and we recommend that you let it match the physical label placed on the sensor. The number you choose will be used in the Sensor view.

→ *Sensor views* on page 39

- **Label Name**: By default, the **Label Name** is the same as the sensor name listed with the **Available sensors**. If you have a keyboard connected to the PI50 computer, you can click in the field, and enter another name.

  The **Label Name** is only shown in this dialog.

- **Update Rate**: This parameter i used to select the sensor's update rate.

  This is how often the PI50 can expect to receive information from the sensor.

  → *Changing the update rate* on page 191

  Note

  *The **Update Rate** parameter is vital. The update rate you choose here must comply to the update rate programmed into the sensor. If these do not match, the communication will not work.*

  The default update rates for the various sensors are listed in chapter *PI50 Sensors*.

  → *Default communication channels and update rates* on page 190

  To change the channel number on the sensor, use the PI Configurator utility.

  → *PI Configurator* on page 192

- **Sensor Value Name**: By default, the **Sensor Value Name** is the same as the sensor name listed in the **Available Sensors** list. If you have a keyboard connected to the PI50 computer, you can click in the field, and enter another name. You can also open the on-screen keyboard.

  The **Sensor Value Name** is used in the Sensor views. If you are setting up a dual sensor, you can enter two different names.

  → *Sensor views* on page 39

  Example: If you have three PI Catch sensors on your trawl, you can name them "Catch Rear", "Catch Middle" and "Catch Forward".

- **Channel Number**: This is the communication channel used between the sensor and the PI50 system.

  Note

  *The **Channel Number** parameter is vital. The communication channel number you choose here must comply to the channel number programmed into the sensor. If these do not match, the communication will not work. By default, the channel number will match the factory setting.*

  If you use more than one sensors of the same type, the channel number of one of the sensors must be changed to make it unique for the sensor. This must be changed both in the actual sensor, and in the **Select Sensors** dialog during configuration.

  The default communication channels for the various sensors are listed in chapter *PI50 Sensors*.

  To change the channel number on the sensor, use the PI Configurator utility.

  → *Default communication channels and update rates* on page 190

→ *Changing a communication channel* on page 191

→ *PI Configurator* on page 192

- **Offset**: Each sensor measuring spread and depth will have an offset value.

  The offset value for the depth sensors are determined during calibration.

  → *How to calibrate the depth sensors* on page 27

  → *Calibration* on page 149

  The offset value for the spread sensor must be entered manually based on your knowledge about the physical locations of the sensors and the properties of the gear.

Tip

If you have several sensor configurations dedicated for different gears or different tasks, we strongly recommend that you save these for future use.

→ *How to save the current user settings* on page 67

→ *User Settings* on page 121

Select Sensors; Advanced Sensor Configuration

To access the advanced configuration mode, click the **Advanced Sensor Configuration** button. Certain sensor parameters will be expanded to add additional information.

Parameters

- **PI Height**: You can enter the trawl opening. This will allow the PI50 system to draw the size of the trawl opening.
- **PI Depth**: You can add the information from the PI Height sensor to the information from a PI Depth sensor. This will allow the PI50 system to calculate the total water depth. Naturally, this depth will only be correct if the two sensors are mounted next to each other on the gear.
- **PI Spread**: You can connect the PI Spread sensor to a PI Depth sensor mounted on the starboard and/or port trawl door. If you have a Depth sensor located on each trawl door, this will provide you with the vertical geometry, that is the difference in depth between the trawl doors.
- **PI Spread/Depth**: You can connect a second PI Depth sensor mounted on the other door to obtain the same functionality as with a PI Spread/PI Depth combination.

Related topics

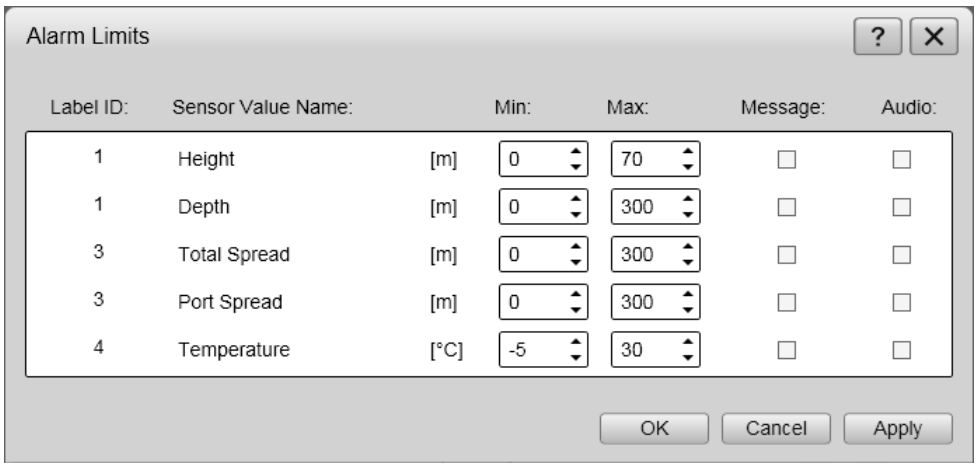
- *PI Depth trend view* on page 58
- *PI Height trend view* on page 59
- *Vertical geometry view* on page 56
- *How to set up spread and depth sensors to measure vertical geometry* on page 96
- *How to set up depth and height sensors to measure total water depth* on page 98
- *How to set up the height sensor to show the trawl opening* on page 98

Alarm Limits

The **Alarm Limits** dialog is opened from the **Alarm Limits** button on the **Setup** menu.

Purpose

The **Alarm Limits** dialog allows you to define alarms related to the information provided by the sensors.



Description

The **Alarm Limits** dialog is dynamic. It will thus list the sensors that you are currently using on your PI50 system, and the sensors listed will automatically change to suit your individual configuration. The dialog provided here is only an example.

Each sensor has an individual alarm setting. To enable an alarm, you must define minimum and maximum limits within the sensor's range, and click to enable message and/or audio notification. If the alarm is triggered, an audible signal may thus be provided, and/or you will receive a message indicating which sensor that caused the alarm. Once an alarm has been triggered, it is automatically disabled after 20 seconds. After this time it may be triggered again unless the alarm situation has been rectified, or you have disabled the alarm.

The alarm settings you specify are automatically saved for the current session. If you also wish to keep them for future use – with the sensor configuration you have specified – click the **User Setting** button to save.

→ *User Settings* on page 121

The Bottom Contact and Catch sensors can only provide alarms when they are activated.

Parameters

1 **Label ID**: This is the identification number provided in the **Select Sensors** dialog.

→ *Select Sensors* on page 142

2 **Sensor Value Name**: This is the sensor name that you entered in the **Select Sensors** dialog to identify the sensor.

The current unit of measure is shown after the sensor name.

→ *Select Sensors* on page 142

3 **Min/Max**: Minimum and maximum alarm limits.

These parameters are only provided for sensors that offer such measurements. To change the values, use the spin boxes provided.

4 **Message**: Click to enable a message when the alarm is triggered.

5 **Audio**: Click to enable an audible warning in addition to the visual message.

Related topics

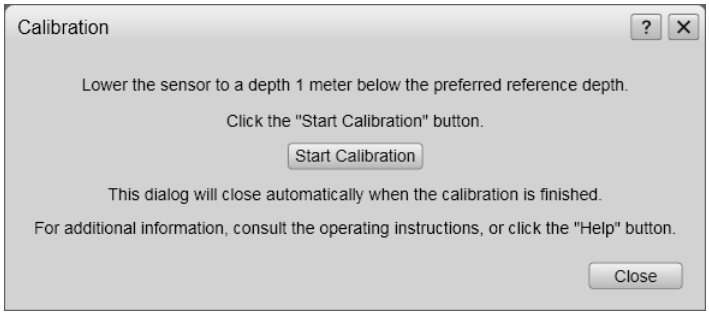
- *How to read and acknowledge alarms and messages* on page 101
- *How to set up sensor alarms* on page 101
- *Select Sensors* on page 142

Calibration

The **Calibration** dialog is opened by clicking the **Calibration** button on the **Setup** menu.

Purpose

The **Calibration** dialog allows you to start automatic calibration of the depth sensors.



Description

The purpose of the calibration is to make sure that the depth information provided by each of these sensors is correct. We recommend that you do this calibration at regular intervals, for example twice a year, or just before each new trip.

The following sensors are subject to calibration:

- Depth
- Spread/Depth
- Remote/Depth

Parameters

- **Start Calibration**: Click this button to initiate the calibration process. The process is automatic.

Related topics

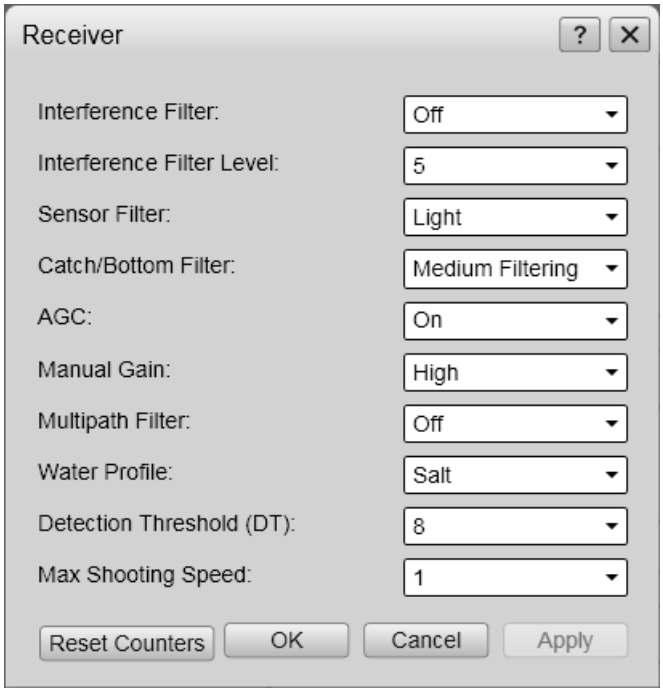
- *How to calibrate the depth sensors* on page 93
- *Select Sensors* on page 142

Receiver

The **Receiver** dialog is opened by clicking the **Receiver** button on the **Setup** menu.

Purpose

The **Receiver** dialog allows you to set up the detailed communication parameters, and to "fine tune" the receiver circuitry for optimal performance in various sea conditions and for various gear types.



Description

These parameters in the **Receiver** dialog are used to establish the communication between the PI50 and the sensors. The **Receiver** parameters have a major influence on the PI50 performance. The default settings are those we have found to be the best for general use, but for individual installations other specific settings may enhance the performance.

Parameters

- **Interference filter**: Use this parameter to switch the filter on or off.

  When the interference filter is switched on it will remove interference (noise and false echoes) from other echo sounders and sonars in the vicinity of your own vessel. The default setting is *Off*.

  The current filter status can be monitored in the **Status Display** dialog.

  → *Status Display* on page 133

- **Interference filter level**: This parameter controls the filter strength.

  The filter is by default switched On and set to level 9. With this setting, it will tend to give priority to stronger signals. If you wish to use a weaker filter, reduce the level.

  The filter level can be monitored in the **Status Display** dialog.

  → *Status Display* on page 133

- **Sensor filter**: This filter is used to smooth the data reception.

  The PI50 is designed to quickly update data. After the sensors have been submerged, the receiver requires only three consecutive pings from individual sensors to calculate and display their respective information. However, if you experience problems with the reception, you may try this filter.

  – **Off**: The filter is switched off.

  – **Light**: The information from the last four sensor transmissions are averaged. This is the default – and recommended – setting.

  – **Medium**: The information from the last eight sensor transmissions are averaged. This has proven to be a useful setting for trawlers.

  – **Heavy**: The information from the last 16 sensor transmissions are averaged.

    We recommend that you only use *Heavy* filtering if there are large fluctuations in the displayed data, or if the rate of change is small. Reduced filtering is preferable, since this shortens the delay between updating the changes in sensor location, and the corresponding displayed information.

  The filter level can be monitored in the **Status Display** dialog. You can also control the filter individually by means of the **Sensor Filter** button on the **Main** menu.

  → *Status Display* on page 133

  → *Sensor Filter* on page 126

- **Catch/Bottom Filter**: This filter is used to smooth out the information from the PI Catch and PI Bottom Contact sensors.

  When the filter is switched off any change in sensor status will immediately be shown on the display.

  Set to *Light* filtering the change in status must last and remain stable for at least two sensor transmissions before the display is changed. When *Heavy* filtering is applied, the change in status must last and remain stable for at least eight sensor transmissions before the change is shown on the PI50 display.

  – **Off**: The filter is switched off.

  – **Light**: The information provided from the PI Catch and PI Bottom Contact sensors must be stable for at least two consecutive transmissions. If this is not the case, the information is not shown on the PI50 display.

    This is the default – and recommended – setting.

  – **Medium**: The information provided from the PI Catch and PI Bottom Contact sensors must be stable for at least four consecutive transmissions. If this is not the case, the information is not shown on the PI50 display.

  – **Heavy**: The information provided from the PI Catch and PI Bottom Contact sensors must be stable for at least eight consecutive transmissions. If this is not the case, the information is not shown on the PI50 display.

  The filter level can be monitored in the **Status Display** dialog. You can also control the filter individually by means of the **Catch/Bottom Filter** button on the **Main** menu.

  → *Status Display* on page 133

  → *Catch/Bottom Filter* on page 127

- **AGC**: This is the automatic gain control.

  During normal operation, *Off* is the recommended (and default) setting.

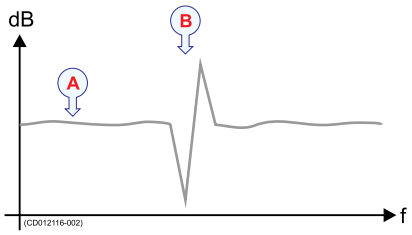
- **Manual gain**: If you decide to switch the AGC off you must set the gain manually.

  The default and recommended setting is *Medium*.

- **Multipath filter**: This is an interference filter.

  The **Multipath Filter** is designed to remedy for reflections, spikes and time-lag in the sensor data. These problems may occur if neighbouring channels are used, or if the PI50 is disturbed by other hydroacoustic systems in use on own or other vessels.

Figure 26 Spikes



A *Stable data reading*

B *Spike caused by reflections, time-lag, reverberation or interference*

When you operate in an areas with substantial reverberation due to the bottom topography, or in shallow waters, you may experience "jumps" or spikes in the data received from the sensors. Such errors can also be caused by other types of hydroacoustic equipment operating on the PI50 frequency range. This filter has been implemented to remedy for such interference problem as well.

  – **Off**: The filter is switched off.

  – **On**: The filter is on. This is the default setting.

  The filter level can be monitored in the **Status Display** dialog. You can also control the filter individually by means of the **Multipath Filter** button on the **Main** menu.

  → *Status Display* on page 133

  → *Multipath Filter* on page 128

- **Water profile**: This parameter sets up the PI50 for operation in fresh or salt water.

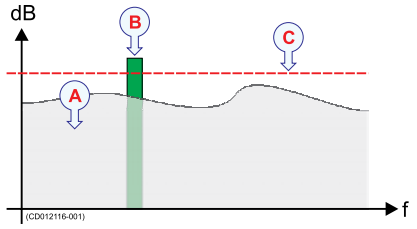
  The current profile can be monitored in the **Status Display** dialog. The default setting is *Salt*.

  → *Status Display* on page 133

- **Detection Threshold (DT)**: This parameter is used to control the threshold level for detection of signals.

  Signals below the threshold level will not be detected, while signals above the threshold will be detected. If threshold level too low this may cause false signals to be detected.

Figure 27 Detection Threshold principle



A *Noise*

B *Signal from sensor*

C *Detection threshold*

Sensor signals below the threshold level will not be detected by the PI50, while signals above the threshold will be detected. If the threshold level is set too low, this may cause false signals to be detected.

The current detection threshold can be monitored in the **Status Display** dialog.

→ *Status Display* on page 133

- **Max shooting speed**: The PI50 has a built in Doppler compensation function which is set up using this parameter. The parameter and related function is however only relevant if sensor data is desired while the purse seine or trawl is being deployed. It has no effect once the vessel is stopped waiting for the net or trawl to sink.

  Note that if you set this parameter too high, you can create a conflict with the channel selection.

  Default value is *1 knot*.

Related topics

- *How to smooth out the bottom and catch readings* on page 94
- *How to smooth out the data reception* on page 95
- *How to adjust the receiver sensitivity* on page 99
- *How to fight interference* on page 100

Navigation

The **Navigation** dialog is opened from the **Navigation** button on the **Setup** menu.

Purpose

The **Navigation** dialog controls how the PI50 receives information from external peripherals, such as navigation and compass gyro systems.

Description

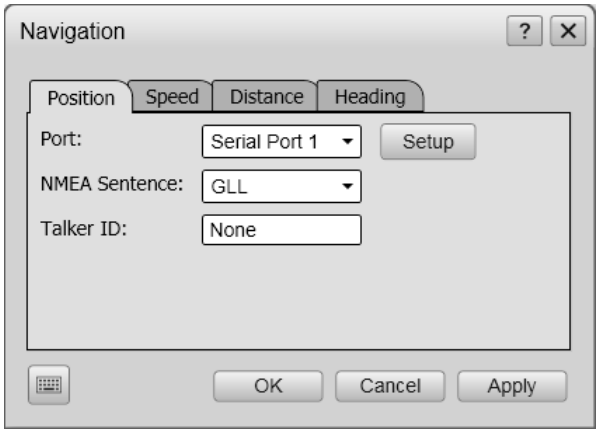
Several external sensors (GPS navigation, gyro compass etc.) may be connected to the PI50 to provide information of the vessel's speed, position, heading and sailed distance. The PI50 must be set up to receive this information. The interface ports must be defined, and the format of the information must be selected. The **Navigation** dialog provides several tabs to set up these parameters.

- **Position**: Set up interface port and parameters for input from positioning system (typically a GPS system).
- **Speed**: Set up interface port and parameters for input from speed log.
- **Distance**: Set up interface port and parameters for input from distance log.
- **Heading**: Set up interface port and parameters for input from a heading sensor, for example a gyro compass.

Related topics

- *LAN Port Setup* on page 163
- *Serial Port Setup* on page 166
- *About the NMEA telegram format* on page 201
- *Telegram formats* on page 200

Navigation; Position tab



Parameters

- **Port**: Select which serial or Ethernet port to use for this communication.
- **Setup**: Once you have selected a serial or Ethernet communication port, click this button to set up the applicable port parameters. The relevant port setup dialog opens.

  → *Serial Port Setup* on page 166

  → *LAN Port Setup* on page 163

- **NMEA Sentence**: Select which NMEA sentence to be used for the communication.
  - **Auto**: The PI50 will read all relevant telegrams. If the specified information is provided to the system on more than one telegram format, a built-in priority list will be used.
  - **GLL**: This telegram is used to transfer latitude and longitude of vessel position, time of position fix and status from a global positioning system (GPS).

    → *GLL Geographical position latitude/longitude* on page 204
  - **GGA**: This telegram contains time, position and fix related data from a global positioning system (GPS).

    → *GGA Global positioning system fix data* on page 205
  - **RMC**: This telegram contains time, date, position, course and speed data provided by a global navigation satellite system (GNSS) receiver.

    → *RMC Recommended minimum specific GNSS data* on page 206
- **Talker ID**: If you wish to specify a dedicated **Talker ID** on the telegram format, it can be selected here.

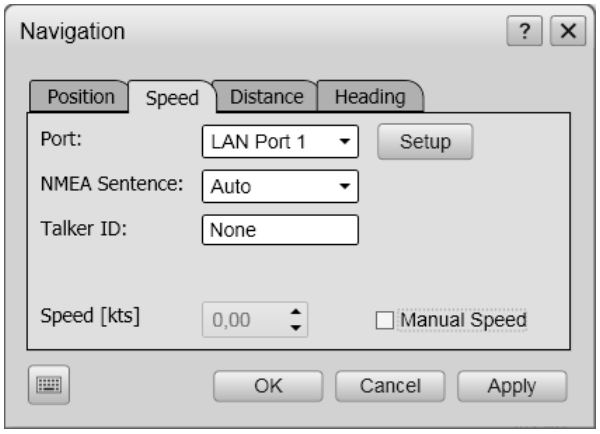
The **Talker ID** is the first two characters in the NMEA sentence. Select *None* to accept all talker identifiers.

→ *About the NMEA telegram format* on page 201

→ *Specification of NMEA telegrams* on page 203

If you do have a keyboard connected to your PI50 system, click the **Keyboard** button at the bottom of the dialog to open an on-screen keyboard.

Navigation; Speed tab



Parameters

- **Port**: Select which serial or Ethernet port to use for this communication.
- **Setup**: Once you have selected a serial or Ethernet communication port, click this button to set up the applicable port parameters. The relevant port setup dialog opens.

  → *Serial Port Setup* on page 166

  → *LAN Port Setup* on page 163

- **NMEA Sentence**: Select which NMEA sentence to be used for the communication.
  - **Auto**: The PI50 will read all relevant telegrams. If the specified information is provided to the system on more than one telegram format, a built-in priority list will be used.
  - **VHW**: This telegram contains the compass heading to which the vessel points and the speed of the vessel relative to the water.

    → *VHW Water speed and heading* on page 207
  - **VTG**: This telegram contains the actual course and speed relative to the ground.

    → *VTG Course over ground & ground speed* on page 207
  - **RMC**: This telegram contains time, date, position, course and speed data provided by a global navigation satellite system (GNSS) receiver.

    → *RMC Recommended minimum specific GNSS data* on page 206
- **Talker ID**: If you wish to specify a dedicated **Talker ID** on the telegram format, it can be selected here.

  The **Talker ID** is the first two characters in the NMEA sentence. Select *None* to accept all talker identifiers.

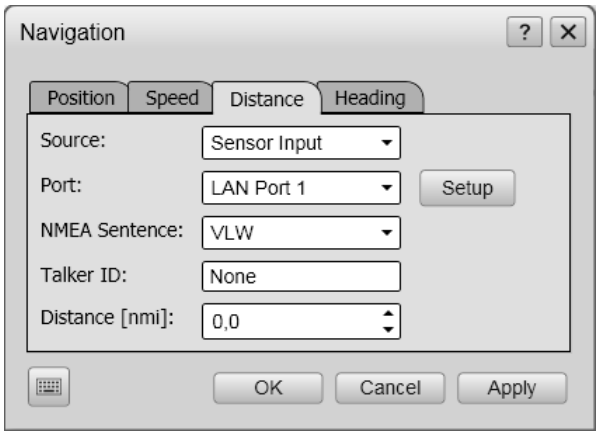
  → *About the NMEA telegram format* on page 201

  → *Specification of NMEA telegrams* on page 203

  If you do have a keyboard connected to your PI50 system, click the **Keyboard** button at the bottom of the dialog to open an on-screen keyboard.

- **Manual speed**: If you do not have input from a speed sensor, or if you wish to enter the vessel's speed manually, you can click this box. When it is enabled, you can enter the speed manually using the spin box.

Navigation; Distance tab



Parameters

- **Port**: Select which serial or Ethernet port to use for this communication.
- **Setup**: Once you have selected a serial or Ethernet communication port, click this button to set up the applicable port parameters. The relevant port setup dialog opens.

  → *Serial Port Setup* on page 166

  → *LAN Port Setup* on page 163

- **Source**: Select the source for the distance information.
  - **None**: No distance information is accepted.
  - **Calculated from Speed**: The distance information is calculated using the speed information received by the PI50. If will always start with the previously calculated distance. If you need to reset this to zero (or any other value), use the **Distance** parameter.
  - **Sensor Input**: The distance information is received using appropriate datagram(s) from an external source.
- **NMEA Sentence**: Select which NMEA sentence to be used for the communication.
  - **VLW**: This telegram contains the distance travelled relative to the water and over the ground.

    → *VLW Dual ground/water distance* on page 208
- **Talker ID**: If you wish to specify a dedicated **Talker ID** on the telegram format, it can be selected here.

  The **Talker ID** is the first two characters in the NMEA sentence. Select *None* to accept all talker identifiers.

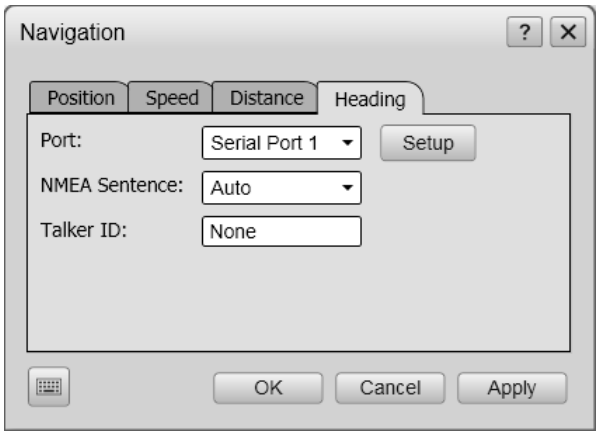
  → *About the NMEA telegram format* on page 201

  → *Specification of NMEA telegrams* on page 203

  If you do have a keyboard connected to your PI50 system, click the **Keyboard** button at the bottom of the dialog to open an on-screen keyboard.
- **Distance**: The current vessel distance can be set manually using the spin box.

  This parameter is not available if **Source** is set to *Sensor Input*. ER DETTE KORREKT?

Navigation; Heading tab



Parameters

- **Port**: Select which serial or Ethernet port to use for this communication.
- **Setup**: Once you have selected a serial or Ethernet communication port, click this button to set up the applicable port parameters. The relevant port setup dialog opens.

  → *Serial Port Setup* on page 166

  → *LAN Port Setup* on page 163

- **NMEA Sentence**: Select which NMEA standard to be used for the communication.
  - **Auto**: The PI50 will read all relevant telegrams. If the specified information is provided to the system on more than one telegram format, a built-in priority list will be used.
  - **HDT**: This telegram is used to transfer heading information from a gyro.

    → *HDT Heading, true* on page 206
  - **HDM**: This telegram contains vessel heading in degrees magnetic.

    → *HDM Heading, magnetic* on page 206
  - **HDG**: This telegram contains the heading from a magnetic sensor, which if corrected for deviation will produce magnetic heading, which if offset by variation will provide true heading.

    → *HDG Heading, deviation and variation* on page 205
  - **VHW**: This telegram contains the compass heading to which the vessel points and the speed of the vessel relative to the water.

    → *VHW Water speed and heading* on page 207
- **Talker ID**: If you wish to specify a dedicated **Talker ID** on the telegram format, it can be selected here.

  The **Talker ID** is the first two characters in the NMEA sentence. Select *None* to accept all talker identifiers.

  → *About the NMEA telegram format* on page 201

  → *Specification of NMEA telegrams* on page 203

  If you do have a keyboard connected to your PI50 system, click the **Keyboard** button at the bottom of the dialog to open an on-screen keyboard.

Installation

The **Installation** menu is opened from the **Installation** button on the **Setup** menu.

The **Installation** menu provides the following options:

- The **I/O Setup** dialog allows you to control the properties of each of the available communication channels on the PI50 computer.

  → *I/O Setup* on page 158

- The purpose of the **Software License** dialog is to allow you to enter a license code (text string) to unlock PI50 functionality. In order to obtain the license code required, contact your dealer.

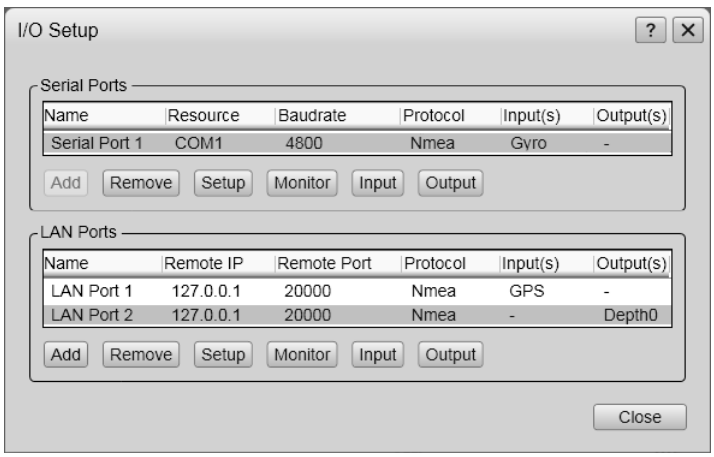
  → *Software License* on page 162

I/O Setup

The **I/O Setup** dialog is opened from the **I/O Setup** button on the **Installation** sub-menu. The **Installation** sub-menu is in turn found on the **Setup** menu.

Purpose

The **I/O Setup** dialog allows you to control the properties of each of the available communication channels on the PI50 computer.



Description

The PI50 software automatically scans the computer to locate and identify Ethernet (LAN) and serial line interfaces.

Once the software has established a list of valid interfaces, you can set up and control the parameters. The **I/O Setup** dialog provides two lists, one for serial ports and one for Ethernet (LAN) ports. You can add and delete ports as permitted by the interface resources provided by the computer, and you can define communication parameters for each individual port.

→ *I/O Setup; Serial ports* on page 159

→ *I/O Setup; LAN (Ethernet) ports* on page 160

Note

*One serial line on the computer (normally Serial Port 1) must be reserved for communication with the PI50 Receiver Unit. In the list of interfaces in the **I/O Setup** dialog, this communication is identified as **PI50**.*

Related topics

- *Add Serial Port* on page 167
- *Serial Port Setup* on page 166
- *LAN Port Setup* on page 163
- *Port Monitor* on page 167
- *Select Inputs* on page 168
- *Select Outputs* on page 170

I/O Setup; Serial ports

Parameters

- **Serial Ports**: This list displays the available serial ports on the computer.

  The list is automatically populated the first time the **I/O Setup** dialog is opened after a PI50 software installation, and will then reflect the initial number of serial ports available on the computer. If you later add interface hardware to your computer, you must click the **Add** button to add the new ports to the list.
- **Name**: This is the given identity of the serial port. By default, the serial ports are numbered.
- **Resource**: This is the communication port on the PI50 computer.
- **Baudrate**: This shows the current baudrate specified for the serial line. Standard baudrate defined for NMEA communication is 4800 baud.
- **Protocol**: This is the current protocol specified for the serial line. Each serial line can receive multiple telegrams simultaneously, provided that the telegrams all use the same protocol. However, only one peripheral device may be physically connected to the port. If you wish to connect several peripheral devices to a single serial port, you must route these through a "mixer". This can be a hardware unit or computer collecting and streaming the telegrams.
- **Input(s)**: This column is used to identify the external sensor (measuring device) currently connected to the port.

  To choose what type of external sensor to import data from, click the **Input** button.
- **Outputs(s)**: This column is used to identify the data that are exported on the port.

  To choose which data to export, click the **Output** button.
- **Add**: Click this button to add a new serial port. This is required if you have added new hardware to the computer, for example by installing an extra interface circuit board. If you have previously released an unused serial port, but wish to bring it back

to PI50 use, you must also click this button. The button is disabled if the computer has no more serial communication ports to offer. If ports are available, a dialog is opened to choose port.

→ *Add Serial Port* on page 167

- **Remove**: Once the PI50 has identified and listed all the available serial lines on the computer, these can not be used by any other software applications on the same computer.

  If the PI50 does not need a specific serial line, it can be released for other use. Click on the applicable port to select it, then click the **Remove** button to delete the port from the list. Note that no acknowledgement is required, the port is removed instantly.

- **Setup**: In order to use a serial line to receive or transmit information, its communication parameters must be set up to match the peripheral device.

  Click one of the listed ports to select it, then click the **Setup** button to set up the port parameters. A dedicated dialog is provided.

  → *Serial Port Setup* on page 166

- **Monitor**: If you suspect that the communication on the port is ineffective, faulty or missing, you can monitor the flow of telegrams.

  Click one of the listed ports to select it, then click the **Monitor** button to observe the data communication on the selected port. A dedicated dialog is provided.

  → *Port Monitor* on page 167

- **Inputs**: When you add a new port, you must define the source of the input data.

  Click the port to select it, then click the **Inputs** button to define which external sensor (measuring device) you wish to import data from. A dedicated dialog is provided.

  → *Select Inputs* on page 168

- **Output**: When you set up a port to export data, you must define the type of data to be sent out.

  Click the port to select it, then click the **Output** button to define what kind of data you wish to export. A dedicated dialog is provided.

  → *Select Outputs* on page 170

I/O Setup; LAN (Ethernet) ports

Parameters

- **LAN Ports**: This list displays the available Ethernet LAN (Local Area Network) ports on the computer. By default, this is one. Each Ethernet interface board on the computer supports any number of network ports.

  To add a new port, you must click the **Add** button to add the new ports to the list.

- **Name**: This is the given identity of the LAN port. By default, the LAN ports are numbered.

- **Remote IP**: This is the Internet Protocol (IP) address of a remote computer.

  If you wish to export information to another computer, you must either define this IP address, or enter IP broadcast address `255.255.255.255`. The broadcast address will

allow all computers connected to the network to receive the information. If only you wish to receive information on the LAN port, you do not need to define this address.

- **Remote port**: If you wish to establish point-to-point communication for data import from a peripheral device on the network, you may need to define the network port on the remote computer.

  To find this port number, consult the documentation for software utility to be used on the remote computer.

- **Protocol**: This is the current protocol specified for the LAN port. Each LAN port can receive multiple telegrams simultaneously, provided that the telegrams all use the same protocol.

- **Input(s)**: This column is used to identify the external sensor (measuring device) currently connected to the port.

  To choose what type of external sensor to import data from, click the **Input** button.

- **Outputs(s)**: This column is used to identify the data that are exported on the port.

  To choose which data to export, click the **Output** button.

- **Add**: Click this button to add a new LAN port.

  This is required if you have added new hardware to the computer, for example by installing an extra Ethernet interface board. If you have previously released an unused LAN port, but wish to bring it back to PI50 use, you must also click this button.

- **Remove**: Once the PI50 has identified and listed all the available LAN ports on the computer, these can not be used by any other software applications on the same computer.

  If the PI50 does not need a specific LAN port, it can be released for other use. Click on the applicable port to select it, then click the **Remove** button to delete the port from the list. Note that no acknowledgement is required, the port is removed instantly.

- **Setup**: In order to use a LAN port to receive or transmit information, its communication parameters must be set up to match the peripheral device.

  Click one of the listed ports to select it, then click the **Setup** button to set up the port parameters. A dedicated dialog is provided.

  → *LAN Port Setup* on page 163

- **Monitor**: If you suspect that the communication on the port is ineffective, faulty or missing, you can monitor the flow of telegrams.

  Click one of the listed ports to select it, then click the **Monitor** button to observe the data communication on the selected port. A dedicated dialog is provided.

  → *Port Monitor* on page 167

- **Inputs**: When you add a new port, you must define the source of the input data.

  Click the port to select it, then click the **Inputs** button to define which external sensor (measuring device) you wish to import data from. A dedicated dialog is provided.

  → *Select Inputs* on page 168

- **Output**: When you set up a port to export data, you must define the type of data to be sent out.

Click the port to select it, then click the **Output** button to define what kind of data you wish to export. A dedicated dialog is provided.

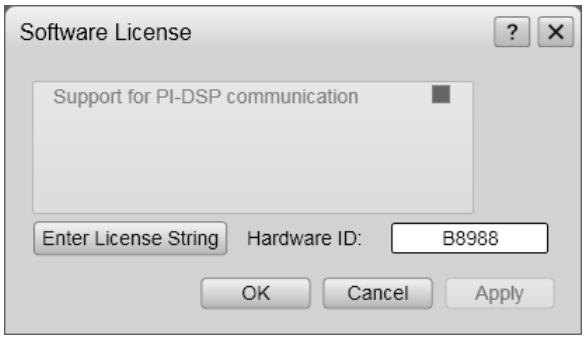
→ *Select Outputs* on page 170

Software License

The **Software License** dialog is opened from the **Software License** button on the **Installation** sub-menu. The **Installation** sub-menu is in turn found on the **Setup** menu.

Purpose

The purpose of the **Software License** dialog is to allow you to enter a license code (text string) to unlock PI50 functionality. In order to obtain the license code required, contact your dealer.



Description

The PI50 requires a software license to operate.

This license allows the PI50 computer to communicate with the receiver.

To order a license, contact your dealer, and provide him with the hardware identification provided by the **Software License** dialog.

When the license key is returned, open the dialog one more time. Click the **Enter License String** button, and type the text string into the dialog that appears. The licence key will automatically unlock the requested functionality.

Parameters

- **List of optional functions**: This list presents the optional functionality that you can obtain for you PI50 system. Functions already available are identified with a dark cross in the right column.
- **Hardware ID**: This field presents a unique identification of the computer.

  Note that the license key(s) obtained are connected to this hardware identification. If the PI50 software is moved to another computer, this second computer will have a different hardware identification, and the license key(s) will not be operational.
- **Enter License String**: Click this button to enter a license string.

  A dedicated dialog opens to accept the license string.

  If you do have a keyboard connected to your PI50 system, click the **Keyboard** button at the bottom of the dialog to open an on-screen keyboard.

Other dialogs and functions

The dialogs described in this section are all opened from within other dialogs. They are thus not opened directly from the menu system.

Topics

- The **LAN Port Setup** dialog allows you to define the parameters for Ethernet (LAN) communication with external sensors (measuring devices) or peripheral systems.

  → *LAN Port Setup* on page 163

- The **Serial Port Setup** dialog allows you to define the parameters for serial communication.

  → *Serial Port Setup* on page 166

- The purpose of the **Add Serial Port** dialog is to allow you to put a free serial port (COM port) on the PI50 computer to use for interface purposes.

  → *Add Serial Port* on page 167

- The **Port Monitor** dialog allows you to study the communication stream on the chosen serial or Ethernet (LAN) port.

  → *Port Monitor* on page 167

- The **Select Inputs** dialog allows you to select information from external sensors (measuring devices) or systems, and connect them to the chosen PI50 Ethernet (LAN) or serial line input.

  → *Select Inputs* on page 168

- The **Select Outputs** dialog allows you to select information to be exported to peripheral systems on the chosen Ethernet (LAN) or serial line output.

  → *Select Outputs* on page 170

- The **Messages** allows you to read and acknowledge messages from the PI50.

  → *Messages* on page 171

- The **PI Data Output** dialog is used to enable the PI telegram that is exported to a peripheral system.

  → *PI Data Output* on page 172

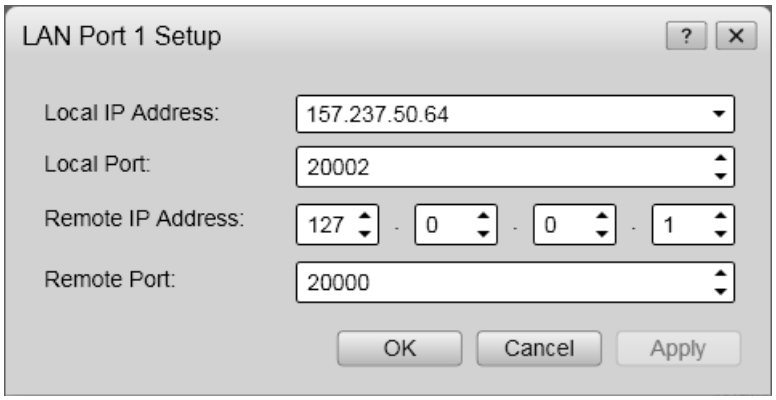
LAN Port Setup

The **LAN Port Setup** dialog is opened from the **LAN Port Setup** button in the following dialogs:

- *Navigation* on page 153
- *I/O Setup* on page 158

Purpose

The **LAN Port Setup** dialog allows you to define the parameters for Ethernet (LAN) communication with external sensors (measuring devices) or peripheral systems.



Description

Ethernet (LAN) communication is an efficient way to connect to external sensors, such as a global positioning system (GPS) to receive navigational data.

In order for this communication port to work, the parameters must be set up properly.

Parameters

- **Local IP Address**: This is the Internet Protocol (IP) address of the local Ethernet interface board.

  In most cases, each Ethernet board has a unique IP address, even when an interface board supports multiple sockets. If you have more than one interface board, you are provided with a list of the available addresses.

- **Local port**: This port is important if you wish to receive information. It must match the port number on the remote computer.

  To find the port number on the remote computer, consult the documentation for the software utility to be used. If the data communication is set up to only transmit information from the PI50, this parameter is not required.

- **Remote IP Address**: Select the Internet Protocol (IP) address for the remote computer.

  If the data communication is set up to receive data only, this parameter is not required. If you wish to set up an output for broadcast, define IP address `255.255.255.255`. This is the default setting.

  If you set the **Communication Mode** to *Point-to-Point*, you need to enter the remote IP address manually.

- **Remote port**: Specify local network port. The PI50 uses this network port to transmit information. The application on the remote computer will “listen” to this port number.

IP addressing and UDP port principles

The Ethernet traffic between the PI50 and external devices, such as sensors or peripheral systems, is made using Internet Protocol (IP) and User Datagram Protocol (UDP) ports.

Internet Protocol (IP) address

An **Internet Protocol (IP)** address is a numerical identification and logical address that is assigned to devices participating in a computer network utilizing the Internet Protocol for communication between its nodes. Although IP addresses are stored as binary numbers, they are usually displayed in human-readable notations, such as 208.77.188.166. The role of the IP address has been characterized as follows: "A name indicates what we seek. An address indicates where it is. A route indicates how to get there”.

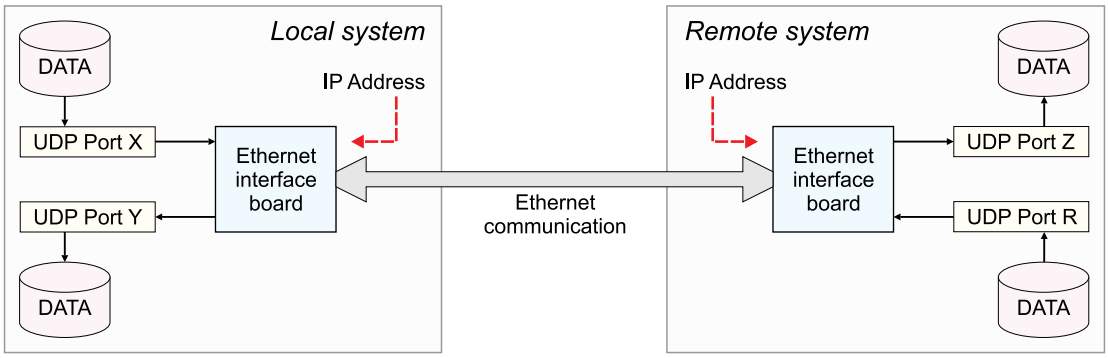
User Datagram Protocol (UDP)

The **User Datagram Protocol (UDP)** is one of the core members of the Internet Protocol Suite, the set of network protocols also used for the Internet. With UDP, computer applications can send messages, in this case referred to as datagrams, to other hosts on an Internet Protocol (IP) network without requiring prior communications to set up special transmission channels or data paths (TCP). UDP is sometimes called the **Universal Datagram Protocol**.

Datagram sockets and ports

UDP applications use datagram **sockets** to establish host-to-host communications. Sockets bind the application to service **ports**, that function as the endpoints of data transmission. A port is a software structure that is identified by the port number, a 16-bit integer value, allowing for port numbers between 0 and 65,535.

Figure 28 IP addressing and UDP port principles



How the IP addresses and ports are set up in the PI50 to transmit data

Note

The PI50 is currently not exporting any data.

1 **Local IP Address**: This IP address is unessential, unless you have more than one Ethernet board on your computer. You must then specify the IP address of the board you wish to use.

2 **Remote IP Address**: If you wish to set up data broadcast to all peripherals on the system, select **Remote IP Address** `255.255.255.255`.

If your transmission is directly aimed at a particular recipient, you must specify its IP address.

3 **Local Port**: The value of the **Local Port** is unessential, and you do not need to specify a value other than the default.

4 **Remote Port**: The PI50 software uses this network port to transmit information. The application on the remote computer will "listen" to this port number. You must then access the application on the remote computer to set up the local port to match.

How the IP addresses and ports are set up in the PI50 to receive data

1 **Local IP Address**: This IP address is unessential. If you have only one Ethernet board, you must use the default value provided. If you have more than one Ethernet board on your computer, or if you use an Ethernet board with multiple IP addresses, you must specify the IP address of the board you wish to use.

2 **Remote IP Address**: If you wish to receive data, this IP address is unessential.

3 **Local Port**: This port must match the port number on the remote computer. To find the port number on the remote computer, consult the documentation for the software utility to be used. If the data communication is set up to only transmit information, this parameter is not required.

4 **Remote Port**: If you set up your PI50 to receive data, this port is unessential. Keep the **Remote Port** default value.

How the IP addresses and ports are set up in the PI50 to communicate in a closed network

1 If the local system (PI50) and the remote system shall communicate point-to-point in a closed network, both IP addresses, as well as both **Local Port** and **Remote Port** values must be defined.

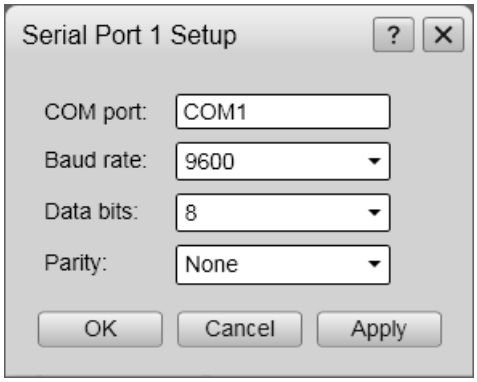
Serial Port Setup

The **Serial Port Setup** dialog is opened from the **Serial Port Setup** button in the following dialogs:

- *Navigation* on page 153
- *I/O Setup* on page 158

Purpose

The **Serial Port Setup** dialog allows you to define the parameters for serial communication.



Description

Serial ports are still a very common method for interface between maritime systems.

It is very important that any serial line between the PI50 and any external system is setup up correctly with identical parameters at each end.

The NMEA[7] standard for serial communication defines standard parameters for such interfaces.

Parameters

- **COM port**: This text fields identifies the current communication port on the computer. You can not change this information.

7. **NMEA** means National Marine Electronics Association. See http://www.nmea.org for more information.

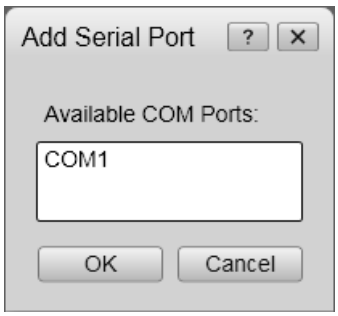
- **Baud rate**: Specify the baudrate for the serial communication.
  Standard baudrate defined for NMEA communication is *4800 baud*.
- **Data bits**: Specify the number of data bits for the serial communication.
  Standard number of data bits defined for NMEA communication is *8*.
- **Parity**: Specify the parity for the serial communication.
  Standard parity defined for NMEA communication is *None*.

Add Serial Port

The **Add Serial Port** dialog is opened from the **Add** button in the **I/O Setup** dialog.

Purpose

The purpose of the **Add Serial Port** dialog is to allow you to put a free serial port (COM port) on the PI50 computer to use for interface purposes.



Description

The **Add Serial Port** automatically searches the PI50 computer to find available serial ports. Those found are listed.

To select a port, click once on its name, and then click **OK**.

Related topics

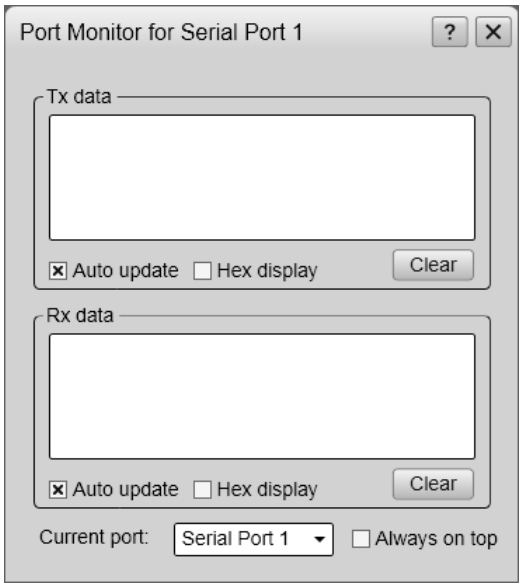
- *I/O Setup* on page 158

Port Monitor

The **Port Monitor** dialog is opened from the **Port Monitor** button in the **Port Management** dialog.

Purpose

The **Port Monitor** dialog allows you to study the communication stream on the chosen serial or Ethernet (LAN) port.



Description

he **Port Monitor** dialog provides one text field for incoming messages (**Rx data**), and one for outgoing (**Tx data**). Use these fields and your own knowledge of the data communication to investigate the telegrams.

Note that the **Port Monitor** dialog is a tool for debugging purposes. It is neither required nor intended for normal operation of the PI50.

Parameters

- **Tx data**: The text window displays the data communication transmitted out from the PI50.
- **Rx data**: The text window is used to display the data communication received by the PI50 from external sensors (measuring devices) or peripheral systems.
- **Auto update**: When this box is selected, the field is constantly updated with new information. If you wish to freeze the information for further investigation, deselect to disable the automatic update.
- **Hex display**: When this box is selected, the information in the text field is shown in hexadecimal format.
- **Clear**: This button clears the text field to allow a fresh stream of communication data.
- **Current port**: If you wish to change your attention to a different serial or LAN port, you can choose the communication port here instead of returning to the **Port Management** dialog.
- **Always on top**: This function places the **Port Monitor** dialog on the top of all other dialogs and system presentations on your desktop.

Related topics

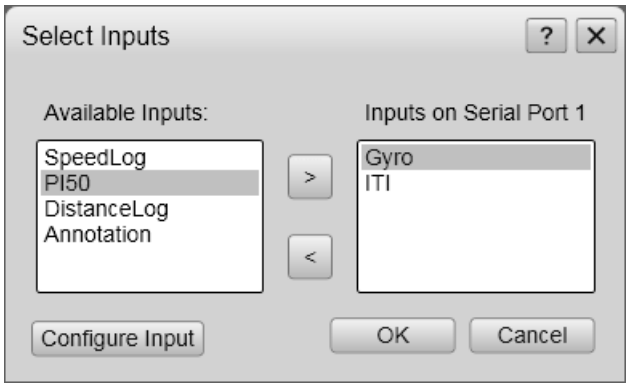
- *I/O Setup* on page 158

Select Inputs

The **Select Inputs** dialog is opened from the **Input** button in the **Port Management** dialog.

Purpose

The **Select Inputs** dialog allows you to select information from external sensors (measuring devices) or systems, and connect them to the chosen PI50 Ethernet (LAN) or serial line input.



Description

In the **Select Inputs** dialog, all available input signals are listed in the left text field.

To add an input, click on it in the left column to select it, and then click the [>] button.

If the input's communication parameters need to be set up, click the input sensor to select it, and then click the **Configure Input** button. If applicable, the relevant dialog will open.

Note that this dialog allows you to add more than one input signal to a serial port. You must be familiar with the type of input signals before you do this. If an input port is set up to receive NMEA serial messages, the same input port can not be used to receive ASCII messages simultaneously.

Parameters

- **Available Inputs**: This field lists the available input signals.

  The available sources are defined in a configuration file on the PI50, and reflects the input sources and file formats the PI50 can support.

  – **GPS**: Global Positioning System

    The following telegram formats are supported:

    * *GLL Geographical position latitude/longitude* on page 204
    * *GGA Global positioning system fix data* on page 205
    * *RMC Recommended minimum specific GNSS data* on page 206

  – **Gyro**: This is input from a peripheral system providing heading information.

    The following telegram formats are supported:

    * *HDG Heading, deviation and variation* on page 205
    * *HDT Heading, true* on page 206
    * *HDM Heading, magnetic* on page 206
    * *VHW Water speed and heading* on page 207

  – **Speed Log**: This is input from a speed log.

    The following telegram formats are supported:

    * *RMC Recommended minimum specific GNSS data* on page 206
    * *VHW Water speed and heading* on page 207
    * *VTG Course over ground & ground speed* on page 207

  – **ITI/FS**: This is input from the Simrad ITI and Simrad FS Series catch monitoring systems.

    The following telegram formats are supported:

– **PI50**: This is input from the Simrad PI44, PI54 and PI50 catch monitoring systems.

  The following telegram formats are supported:

  * *PSIMP-D1 PI Sensor data* on page 209

– **DistanceLog**: This is input from a peripheral system providing information about sailed distance.

  The following telegram formats are supported:

  * *RMC Recommended minimum specific GNSS data* on page 206
  * *VHW Water speed and heading* on page 207
  * *VLW Dual ground/water distance* on page 208
  * *VTG Course over ground & ground speed* on page 207

– **EchoNMEA**: Echo sounder

  The following telegram formats are supported:

- **Selected Inputs**: This field lists the selected input signals to the relevant communication port.
- **Configure Input**: Some of the inputs may be set up by the PI50. To do this, click on the input name, and then this button. When applicable, the relevant setup dialog will open.

Related topics

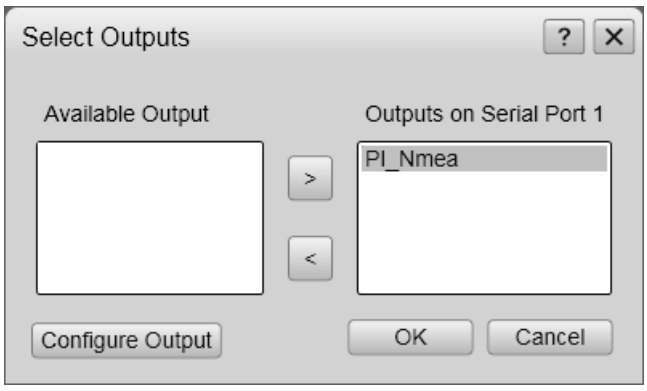
- *Navigation* on page 153
- *I/O Setup* on page 158

Select Outputs

The **Select Inputs** dialog is opened from the **Input** button in the **I/O Setup** dialog.

Purpose

The **Select Outputs** dialog allows you to select information to be exported to peripheral systems on the chosen Ethernet (LAN) or serial line output.



Description

In the **Select Outputs** dialog, all available output signals are listed in the left text field.

To enable an output, click on it in the left column to select it, and then click the [>] button.

If the output's communication parameters can be set up, click the signal name to select it, and then click the **Configure Output** button. If applicable, the relevant dialog will open.

Parameters

- **Available Outputs**: This field lists the available output signals.

  The available sources are defined in a configuration file on the PI50, and reflects the export data and file formats the PI50 can support.

  – **PI NMEA**: Information from Simrad PI catch monitoring system relayed by the PI50

    → *PI Data Output* on page 172

- **Selected Outputs**: This field lists the selected output signals to the relevant communication port.
- **Configure Output**: Some of the outputs may be set up by the PI50. To do this, click on the output name, and then this button. When applicable, the relevant setup dialog will open.

Related topics

- *I/O Setup* on page 158
- *PI Data Output* on page 172

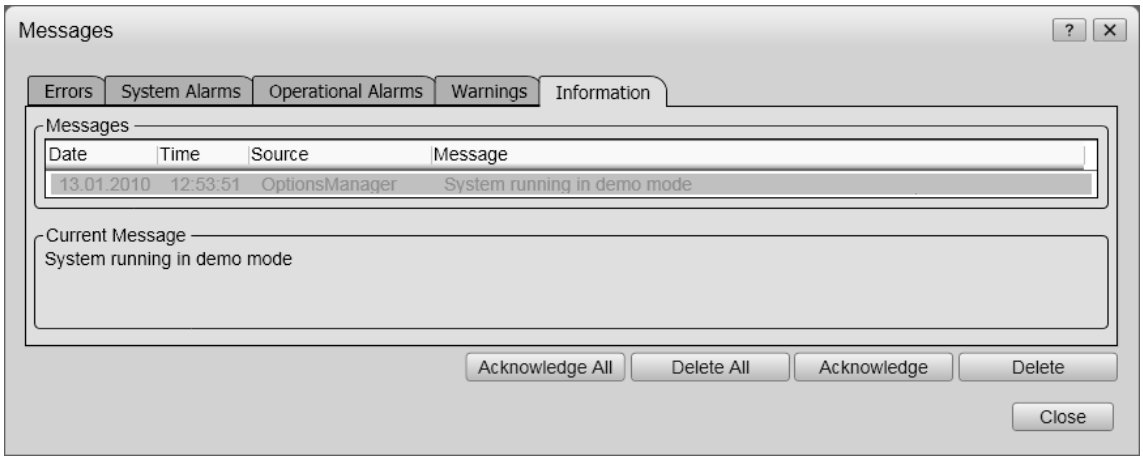
Messages

The **Messages** dialog is opened from the **Messages** icon on the **Taskbar** menu.

When a message is issued by the PI50, this icon will flash.

Purpose

The **Messages** allows you to read and acknowledge messages from the PI50.



Description

The PI50 will issue messages if an error occurs to the system.

Messages could be related to any type of hardware or software error, and even events related to operational conditions. A new message is flagged by means of the **Message** icon on the taskbar. The messages are divided into five types related to their importance.

These five types are:

- **Errors**: These are fatal. Operation of the PI50 can not continue.
- **System alarms**: These are messages related to the PI50 system, or to major software components.
- **Operational alarms**: These are messages related to environment conditions, interface or other non-software events.
- **Warnings**: These are operation warnings.
- **Information**: These messages are notifications of operational events.

The **Messages** dialog will display all messages from the system, and you will be able to read, acknowledge and delete them.

Tip

All messages provided by the PI50 system are stored in logging files on the hard disk. If you experience abnormal behaviour, these files may prove useful for Simrad's support organisation. Observe the procedure provided to copy these logging files to a USB memory stick.

→ *How to access the log files* on page 102

Parameters

- **Tab**: There are five tabs on the **Messages** dialog, one for each message category. Click on the tab to see the list of messages in the applicable category.
- **Current Message**: the text in a message may be longer than the message listing may show. To read the complete message, click on it. The text will be copied into the **Current Message** field.
- **Acknowledge All**: Click to acknowledge all new messages in the current list (tab).
- **Delete All**: Click to delete all the messages in the current list (tab).
- **Acknowledge**: Click to acknowledge the currently selected message.
- **Delete**: Click to delete the currently selected message.

Related topics

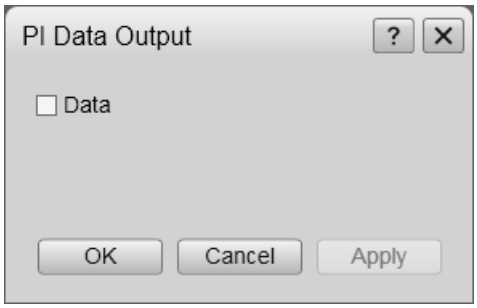
- *How to read and acknowledge alarms and messages* on page 101

PI Data Output

The **PI Data Output** dialog is opened from the **Configure Output** button in the **Select Outputs** dialog.

Purpose

The **PI Data Output** dialog is used to enable the PI telegram that is exported to a peripheral system.



Description

Specialized information can be exported using proprietary telegrams and formats.

Four different telegram formats are currently supported.

Parameters

- **Data**: Click to allow the PI sensor data telegram [Simrad PSIMP-D1] to be exported.
- **Definitions**: Click to allow the PI sensor definition telegram [Simrad PSIMP-F1] to be exported.
- **Configurations**: Click to allow the PI configuration telegram [Simrad PSIMP-C] to be exported.
- **Spectrums**: Click to allow the PI sensor spectrum telegram [Simrad PSIMP-S] to be exported.

Telegram formats

- *PSIMP-D1 PI Sensor data* on page 209

Related topics

- *How to set up the PI sensor data output* on page 107
- *Select Outputs* on page 170

PI50 sensors

This chapter describes the various sensors you can use with the Simrad PI50 Catch monitoring system. It also provides the basic – and important! – information related to sensor configuration, and it explains how to use the sensor chargers.

Topics

- *Sensors overview* on page 174
- *Sensor configuration* on page 190
- *Charging procedures* on page 193

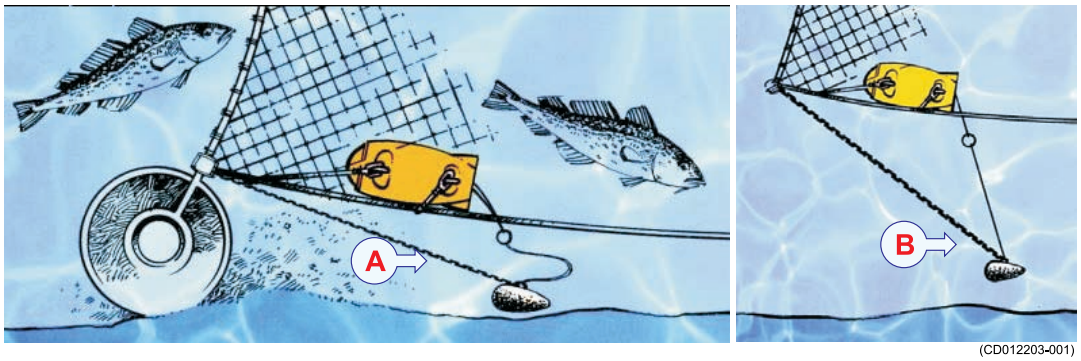
Sensors overview

A large amount of sensors may be used with the Simrad PI50 Catch monitoring system to read important operational parameters from the trawl, purse seine or Danish seine. A complete description of each sensor is provided on Simrad's website http://www.simrad.com and in the individual sensor instruction manuals.

PI Bottom Contact purpose and application

This is an **S-type** PI sensor. To charge this sensor, use the **Simrad PI Charger** or the **Simrad PI MiniCharger**.

Figure 29 PI Bottom Contact application



A *The trawl follows the bottom. The detection wire on the sensor is not released.*

B *The trawl has lifted off the bottom, and the detection wire is released.*

The purpose of the Simrad PI Bottom Contact sensor is to detect if a bottom trawl is accidentally lifted up from the seabed. This will allow fish to escape under the gear.

- On a pelagic trawl, the sensor will notify you if you move the gear too close to the bottom.
- Used on a purse seine you will be notified once the seine reaches the bottom, and this allows you to fish even on a rough bottom.
- On a Danish seine the Simrad PI Bottom Contact sensor will let you know when the net has a stable bottom contact, and when it is time to haul.

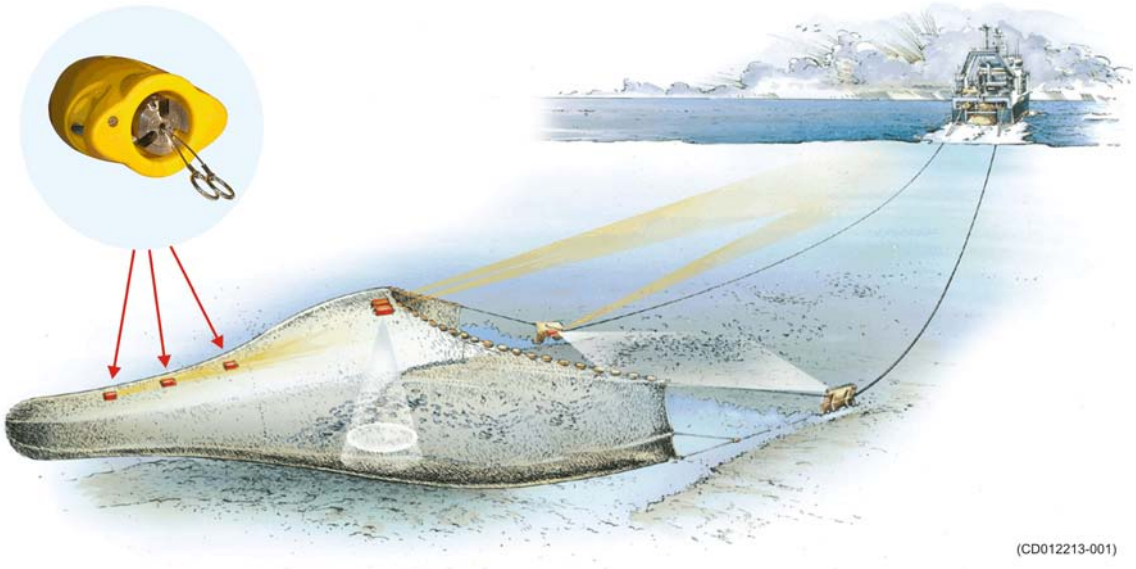
Related topics

- *PI Bottom Contact sensor view* on page 40
- *PI Bottom Contact trend view* on page 57
- *How to set up the PI Bottom Contact sensor* on page 75
- *PI Bottom Contact purpose and application* on page 175

PI Catch purpose and application

This is an **S-type** PI sensor. To charge this sensor, use the **Simrad PI Charger** or the **Simrad PI MiniCharger**.

Figure 30 PI Catch application



Using the Simrad PI Catch sensor, you can easily monitor the filling rate and the amount of catch in the trawl. The sensor simply monitors the expansion of the meshes in the cod-end. Once the volume caught is enough to expand the meshes, they will pull the detector wires and engage the sensor. The sensitivity of the sensor can easily be adjusted by extending the detection rubber bands to span additional meshes.

To monitor the filling rate, we recommend that you use minimum two sensors. Place the first sensor at the far end of the cod-end, it will tell you that the trawl is actually fishing. Place the second sensor closer to the trawl opening. Once the trawl is filled to the chosen location, the sensor is engaged, and you know that it is time to haul.

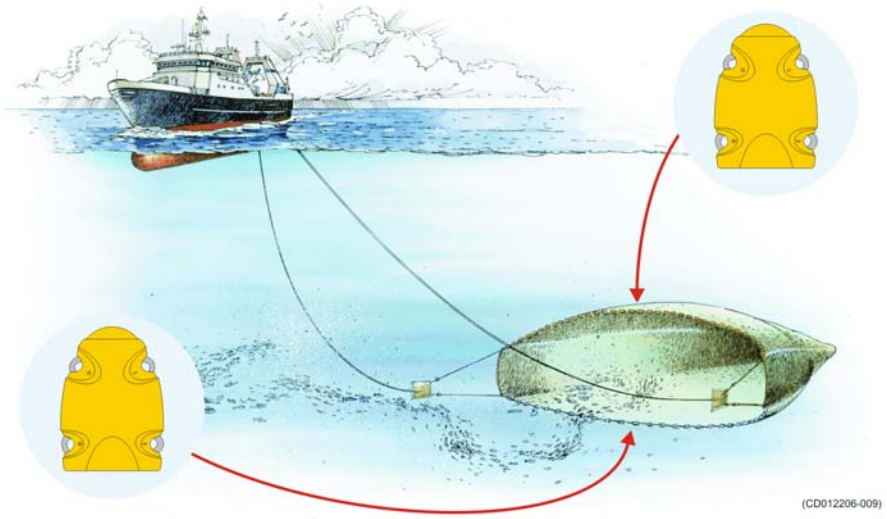
Related topics

- *PI Catch sensor view* on page 41
- *PI Catch trend view* on page 57
- *How to set up the PI Bottom Contact sensor* on page 75
- *PI Catch purpose and application* on page 176

PI Depth purpose and application

This is an **S-type** PI sensor. To charge this sensor, use the **Simrad PI Charger** or the **Simrad PI MiniCharger**.

Figure 31 PI Depth application



The Simrad PI Depth sensor provides information about the current depth and the depth changes of your gear.

- On a bottom trawl, you will use the sensor to achieve full control when shooting, and to position the trawl on the slope.
- During pelagic trawling, you know how important it is to position the trawl relative to the largest concentration of fish. By using a PI Depth sensor, you can monitor the exact depth relative to the surface, and adjust the trawl depth accordingly. Additional depth sensors on the doors will monitor if the doors stay at the same depth.
- During seining, use the PI Depth sensor to monitor the depth of the net, and the descending speed of the net. Then you will know when to start pursing, and which speed to use.
- Mounted on a Danish Seine the PI Depth sensor monitors the sinking speed of the net, and it will tell you when to start hauling once the net has stopped sinking.

Three Depth versions are available. These are set up for maximum depth 300 m, 600 m or 1000 m. The depth range is fixed by the factory, and can not be changed in the PI Configurator utility.

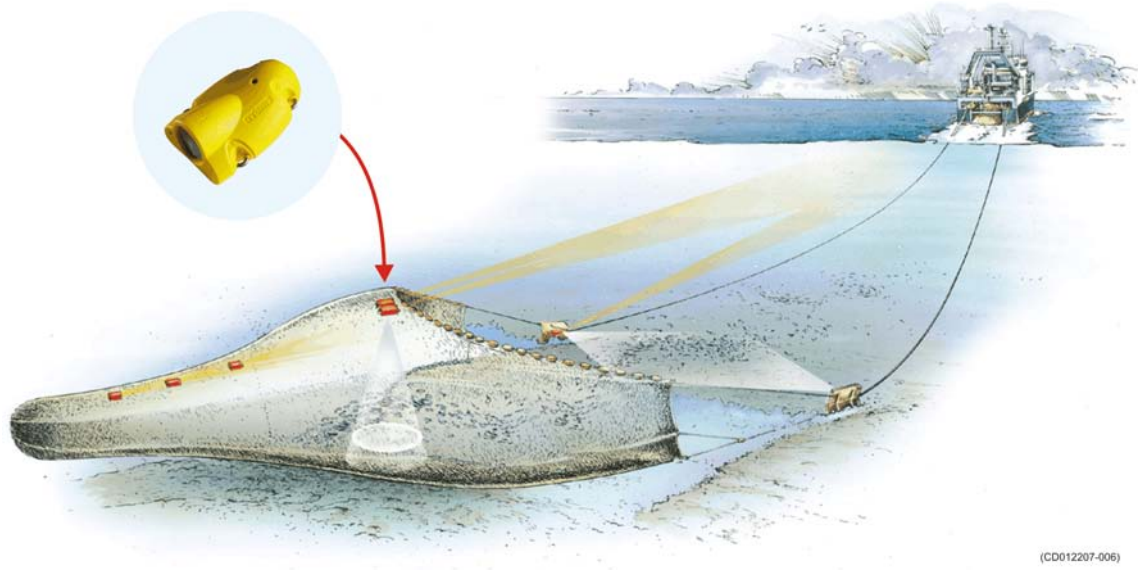
Related topics

- *PI Depth sensor view* on page 42
- *PI Depth trend view* on page 58
- *How to set up the PI Depth sensor* on page 77
- *How to set up spread and depth sensors to measure vertical geometry* on page 96
- *How to set up depth and height sensors to measure total water depth* on page 98
- *PI Depth purpose and application* on page 177

PI Height purpose and application

This is an **L-type** PI sensor. To charge this sensor, use the **Simrad PI Charger** or the **Simrad PI MaxiCharger**.

Figure 32 PI Height application



The Simrad PI Height sensor measures the height over the bottom, that is the distance from the bottom and up to wherever the sensor is located. This provides you with a valuable range of applications for bottom and pelagic trawling.

- On a bottom trawl, place the sensor behind the headrope. From this position it will tell you the height of the trawl opening. This allows you to adjust you equipment immediately if the opening is reduced, and you will avoid losing catch.
- On a pelagic trawl, place the sensor behind the footrope. You will then know at once if the trawl approaches the bottom. If you use a second sensor behind the headrope, the difference between the two measurements will give you the height of the trawl opening.

The sensor contains a small echo sounder to measure the height above the bottom.

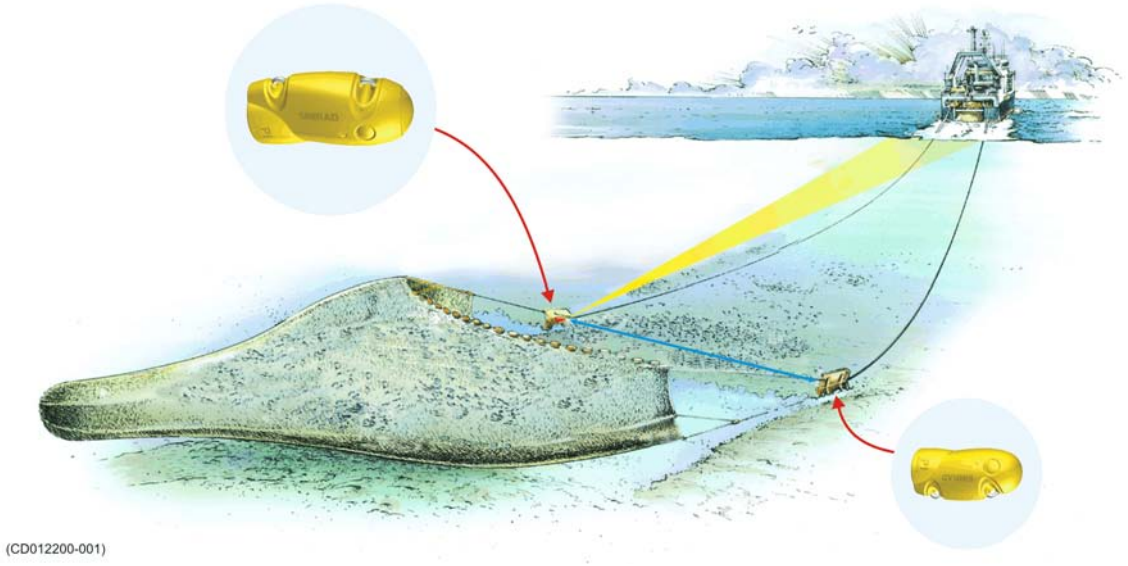
Related topics

- *PI Height sensor view* on page 43
- *PI Height trend view* on page 59
- *How to set up the PI Height sensor* on page 79
- *How to set up depth and height sensors to measure total water depth* on page 98
- *How to set up the height sensor to show the trawl opening* on page 98
- *PI Height purpose and application* on page 178

PI Spread purpose and application

This is an **L-type** PI sensor. To charge this sensor, use the **Simrad PI Charger** or the **Simrad PI MaxiCharger**.

Figure 33 PI Spread application



The purpose of the Simrad PI Spread sensor system is to measure the distance between the two trawl doors. The PI Spread sensor will always require a PI Remote sensor on the other door to carry out this measurement. The PI Spread sensor system has been developed to be used on both bottom and pelagic trawls.

- Use a PI Spread sensor on the port door and a PI Remote sensor on the starboard door.
- The two sensors communicate using a special transverse acoustic link.
- Using this link the PI Spread sensor measures the exact distance between the two sensors.

Two Spread versions are available. These are set up for standard or extended (XT) spread range. This configuration can be changed in the PI Configurator utility.

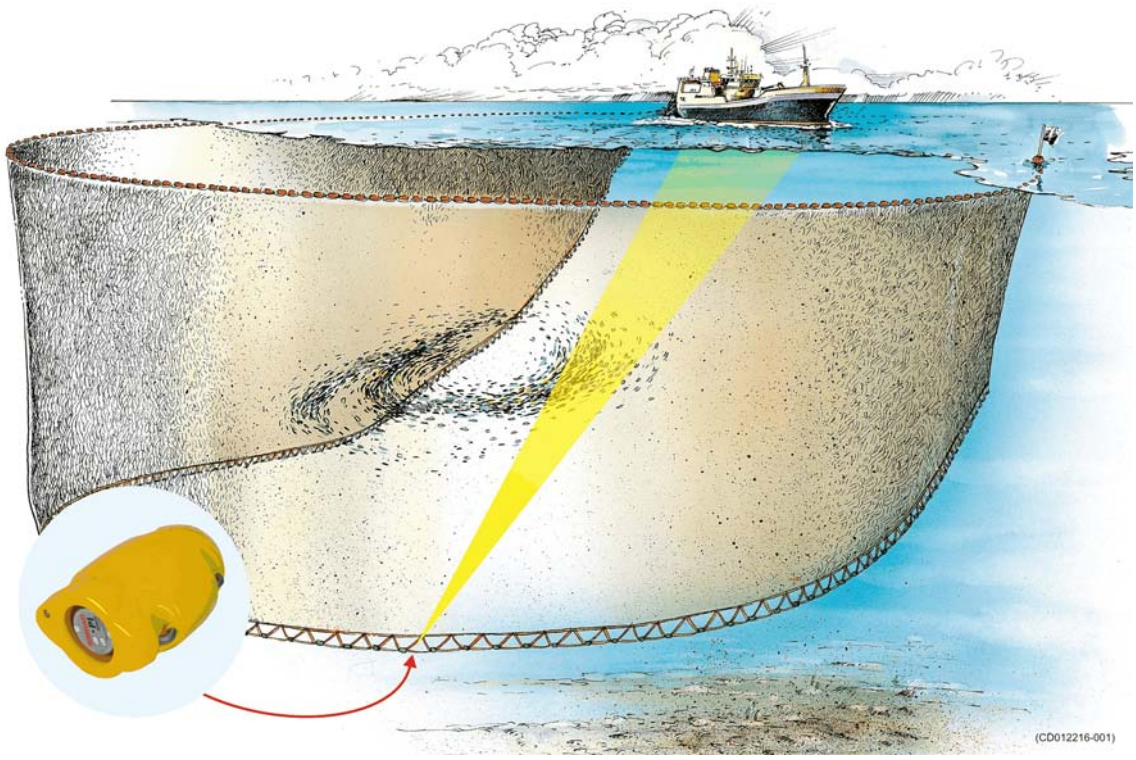
Related topics

- *PI Spread sensor view* on page 44
- *PI Spread trend view* on page 59
- *How to set up the PI Spread sensor* on page 80
- *How to set up spread and depth sensors to measure vertical geometry* on page 96
- *PI Spread purpose and application* on page 179

PI Temperature purpose and application

This is an **S-type** PI sensor. To charge this sensor, use the **Simrad PI Charger** or the **Simrad PI MiniCharger**.

Figure 34 PI Temperature application



The Simrad PI Temperature sensor tells you the exact sea water temperature while you are fishing.

The water temperature is an important parameter. Fish and bait are temperature sensitive, and they are normally found within specific temperature zones for feeding and spawning. However, the temperature layers in the water are constantly changing, and for this reason the temperature must be monitored constantly.

Related topics

- *PI Temperature sensor view* on page 45
- *PI Temperature trend view* on page 60
- *How to set up the PI Temperature sensor* on page 82
- *PI Temperature purpose and application* on page 180

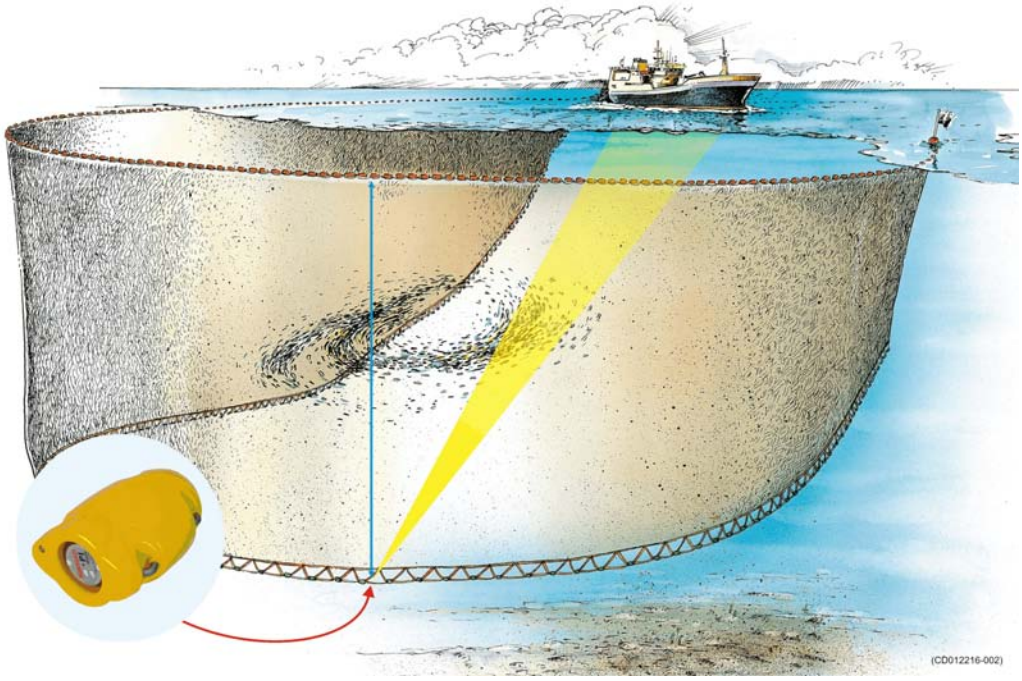
PI Temperature/Depth purpose and application

This is an **L-type** PI sensor. To charge this sensor, use the **Simrad PI Charger** or the **Simrad PI MaxiCharger**.

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.

Figure 35 PI Temperature/Depth application



The purpose of the Simrad PI Temperature/Depth dual sensor is to achieve accurate measurements of both the water depth and the temperature.

The PI Temperature/Depth sensor thus contains both a pressure sensor to measure the water depth, and a temperature sensor to measure the temperature. The sensor has been developed to be used on both bottom and pelagic trawls, as well as seines.

On a trawl, she sensor is normally installed on the headrope or footrope.

Three versions of the sensor are available. These are set up for maximum depth 300 m, 600 m or 1000 m.

Related topics

- *PI Temperature/Depth sensor view* on page 46
- *PI Temperature/Depth trend view* on page 60
- *How to set up the PI Temperature/Depth sensor* on page 83
- *PI Temperature/Depth purpose and application* on page 181

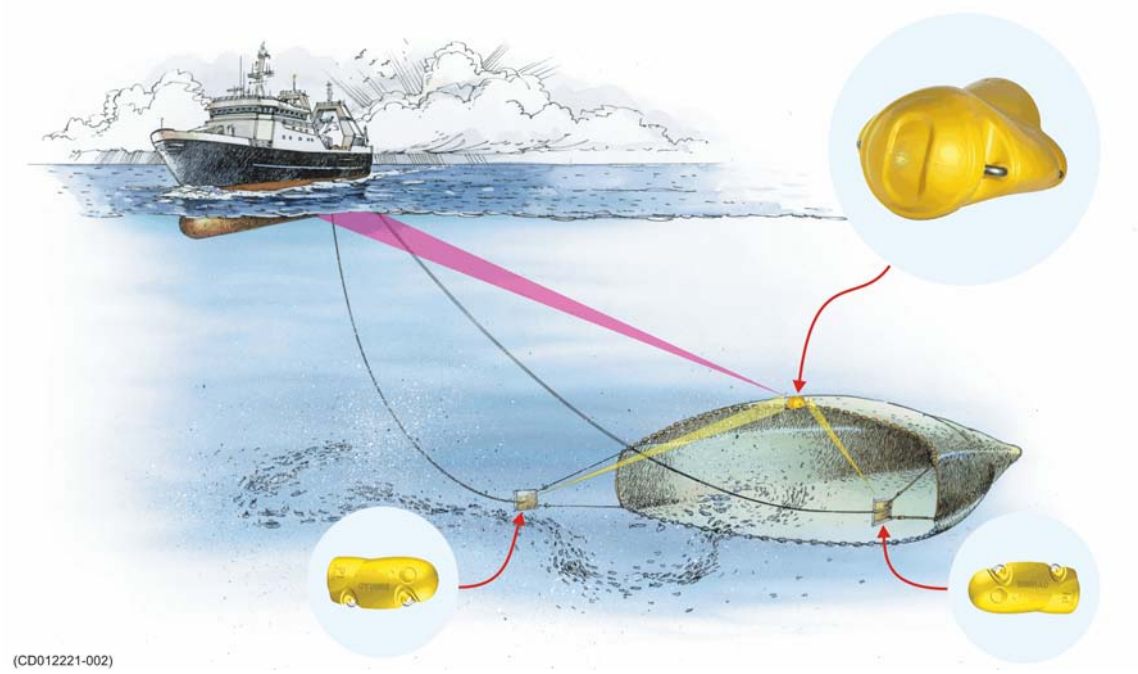
PI Geometry purpose and application

This is an **L-type** PI sensor. To charge this sensor, use the **Simrad PI Charger** or the **Simrad PI MaxiCharger**.

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.

Figure 36 PI Geometry application



The purpose of the Simrad PI Geometry sensor system is to monitor the geometry of your trawl or danish seine.

This is achieved by making accurate measurements of the distances between the centre of the headrope above the trawl opening (or the footrope at the bottom) and each of the trawl doors or wing ends. If these distances are not identical the trawl (or danish seine) will be skewed and unbalanced, and this reduces the catch efficiency.

The Simrad PI Geometry sensor system has been developed to be used on both bottom and pelagic trawls, as well as pair trawls and danish seiners. In addition to the PI Geometry sensor, the system uses two PI Mini-R transponders. These are mounted on the trawl doors (or trawl wings).

Several PI Geometry configurations are available.

- **PI Geometry**: This is the standard configuration. Both distance measurements, as well as the difference between them, are transmitted by the sensor. This standard range configuration is used when the distance between the sensor and the trawl doors is below 300 meters, and will provide the best accuracy for shorter distances.

- **PI Geometry XT**: Extended range version. The **XT** configuration can be used for maximum distances up to 600 meters. The **XT** configuration does not provide the same accuracy as the standard configuration. Use this only if the standard configuration can not be used. All three measurements are transmitted by the sensor.
- **PI Geometry Differential**: Standard range. Only the difference between the two measurements are transmitted by the sensor. This saves battery, and it will only require one channel on the host PI system.

To change configuration, use the **PI Configurator** application.

Related topics

- *PI Geometry sensor view* on page 47
- *PI Geometry trend view* on page 61
- *How to set up the PI Geometry sensor* on page 85
- *PI Geometry purpose and application* on page 182

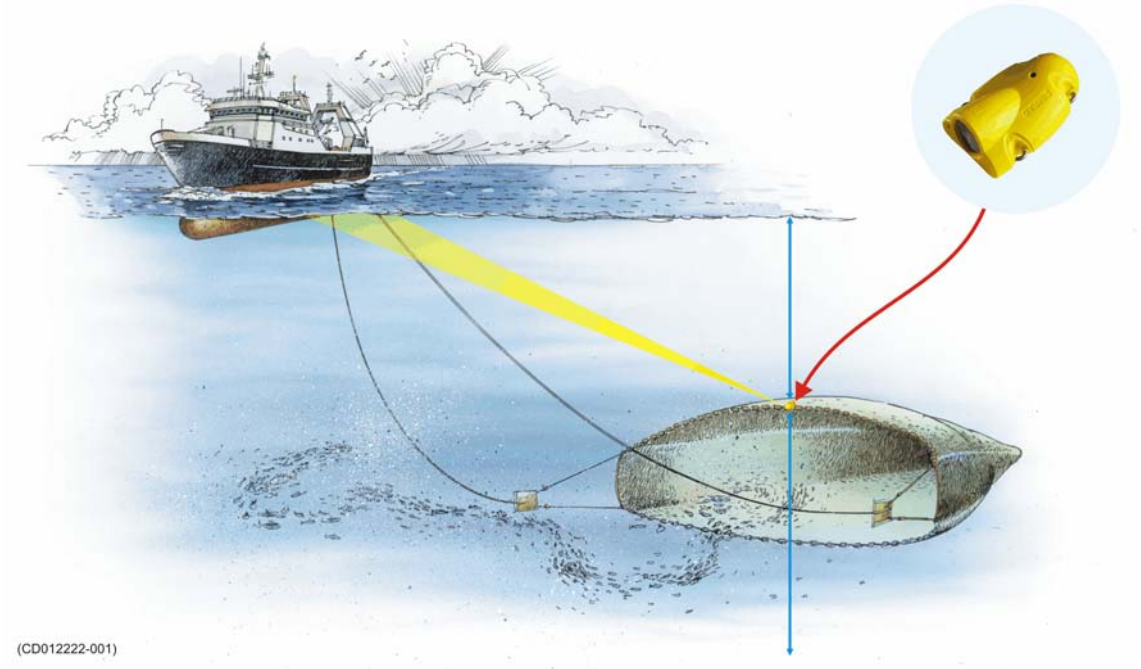
PI Height/Depth purpose and application

This is an **L-type** PI sensor. To charge this sensor, use the **Simrad PI Charger** or the **Simrad PI MaxiCharger**.

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.

Figure 37 PI Height/Depth application



The purpose of the Simrad PI Height/Depth dual sensor is to achieve accurate measurements of both the water depth and the distance from the sensor and down to the bottom.

The PI Spread/Depth sensor thus contains both a pressure sensor to measure the water depth, and a small echo sounder to measure the height above the bottom. The PI Spread/Depth sensor has been developed to be used on both bottom and pelagic trawls.

The sensor is normally installed on the headrope or footrope.

Three versions of the sensor are available. These are set up for maximum depth 300 m, 600 m or 1000 m.

Related topics

- *PI Height/Depth sensor view* on page 49
- *PI Height/Depth trend view* on page 62
- *How to set up the PI Height/Depth sensor* on page 86
- *PI Height/Depth purpose and application* on page 184

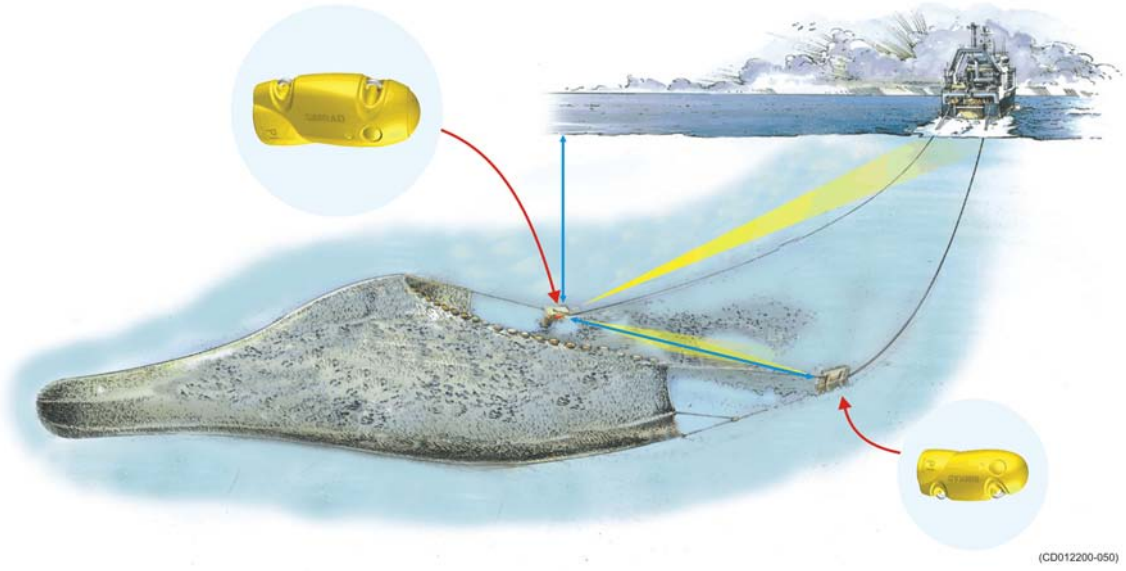
PI Spread/Depth purpose and application

This is an **L-type** PI sensor. To charge this sensor, use the **Simrad PI Charger** or the **Simrad PI MaxiCharger**.

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.

Figure 38 PI Spread/Depth application



The purpose of the Simrad PI Spread/Depth dual sensor is to achieve accurate measurements of both the water depth and the distance between the two trawl doors.

The PI Spread/Depth sensor thus contains both a pressure sensor to measure the water depth, and a spread sensor to measure the distance to the Remote sensor on the other trawl door. The PI Spread/Depth sensor has been developed to be used on both bottom and pelagic trawls.

The sensor is normally installed on the port trawl door using an adapter.

Six versions of the sensor are available. These are set up for standard or extended spread range, and maximum depth 300 m, 600 m or 1000 m.

Related topics

- *PI Spread/Depth sensor view* on page 50
- *PI Spread/Depth trend view* on page 62
- *How to set up the PI Spread/Depth sensor* on page 88
- *PI Spread/Depth purpose and application* on page 185

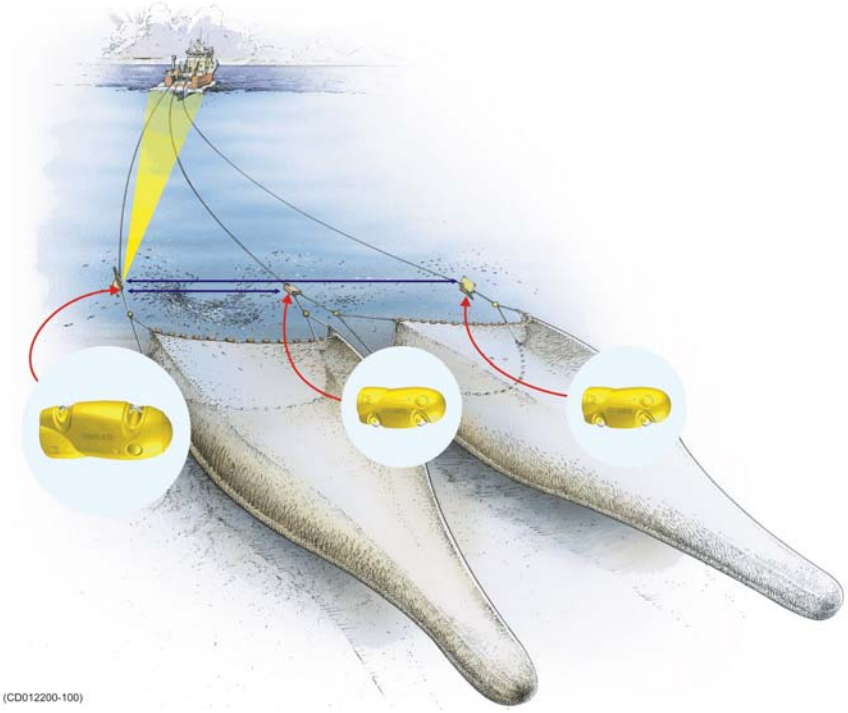
PI Twin Spread purpose and application

This is an **L-type** PI sensor. To charge this sensor, use the **Simrad PI Charger** or the **Simrad PI MaxiCharger**.

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.

Figure 39 PI Twin Spread application



The purpose of the Simrad PI Twin Spread sensor system is to measure the distances between the two trawl openings on a dual bottom or pelagic trawl. A PI Spread sensor is mounted on the port door, while two PI Remote sensors are placed on the centre clump and on the starboard door.

The three sensors communicate using special transverse acoustic links. Using these links the PI Spread sensor measures the exact distance between the three sensors.

Related topics

- *PI Twin Spread sensor view* on page 52
- *PI Twin Spread trend view* on page 62
- *How to set up the PI Twin Spread sensor* on page 89
- *PI Twin Spread purpose and application* on page 186

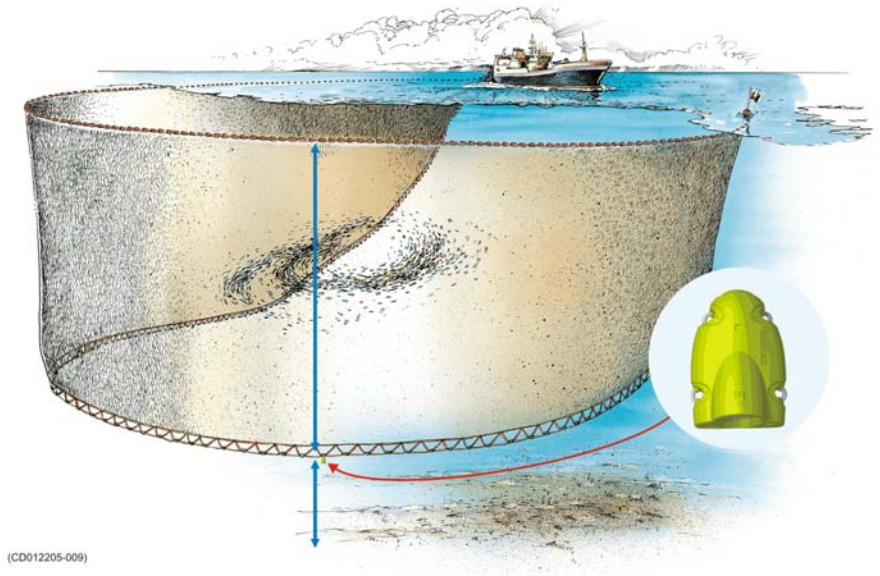
PI SeineSounder purpose and application

This is an **L-type** PI sensor. To charge this sensor, use the **Simrad PI Charger** or the **Simrad PI MaxiCharger**.

Note

This is a "dual" sensor. It will seize two communication channels on the PI50.

Figure 40 PI SeineSounder application



The purpose of the Simrad PI SeineSounder dual sensor is to achieve accurate measurements of both the water depth and the height above the seabed with a single sensor.

The PI SeineSounder thus contains both a pressure sensor to measure the water depth, and an echo sounder with two transducers to measure the height above the seabed.

The Simrad PI SeineSounder has been developed to be used on both bottom and pelagic trawls and on purse and Danish seiners. The sensor must be installed in two different ways depending on the application. On a trawl, it is mounted horizontally behind the headrope. On a purse seine, it is mounted vertically below the footrope.

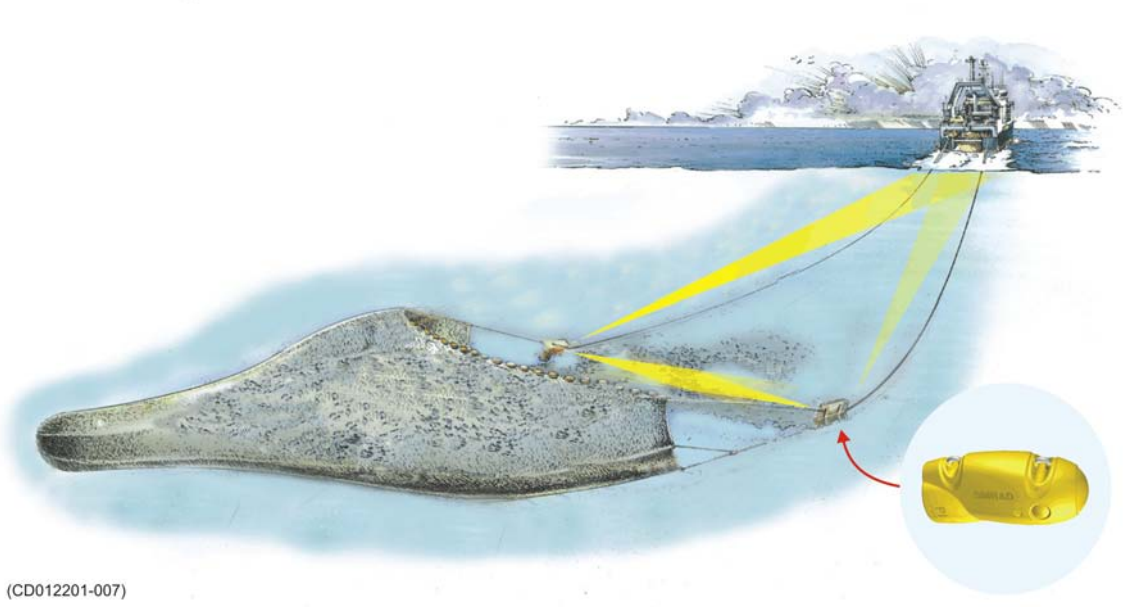
Related topics

- *PI SeineSounder sensor view* on page 54
- *PI SeineSounder trend view* on page 63
- *How to set up the PI SeineSounder sensor* on page 91
- *PI SeineSounder purpose and application* on page 187

PI Remote/Depth purpose and application

This is an **L-type** PI sensor. To charge this sensor, use the **Simrad PI Charger** or the **Simrad PI MaxiCharger**.

Figure 41 PI Remote/Depth application



The purpose of the Simrad PI Remote/Depth dual sensor is to achieve accurate measurements of the water depth, while at the same time communicate with the PI Spread or PI Spread/Depth sensor to measure the distance between the two trawl doors.

In order to measure the distance, it must be installed in a pair with a PI Spread or PI Spread/Depth sensor.

The PI Remote/Depth sensor has been developed to be used on both bottom and pelagic trawls. The sensor is normally installed on the starboard trawl door using an adapter.

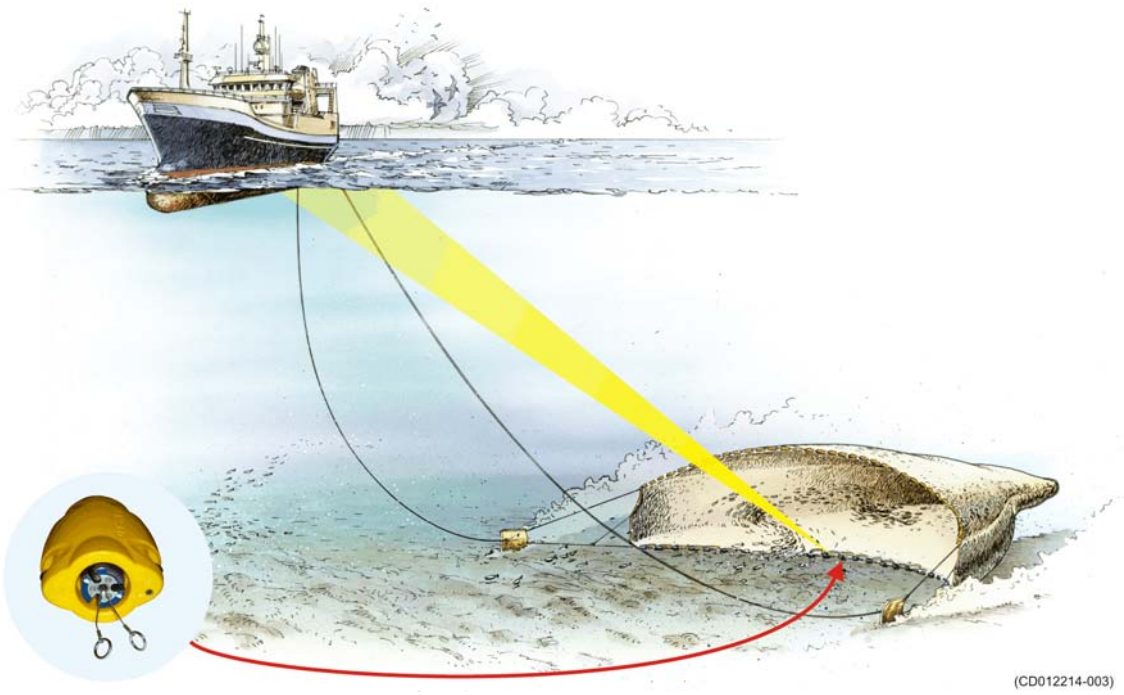
Related topics

- *PI Remote/Depth sensor view* on page 55
- *PI Remote/Depth trend view* on page 63
- *How to set up the PI Remote/Depth sensor* on page 91
- *PI Remote/Depth purpose and application* on page 188

PI Rip purpose and application

This is an **S-type** PI sensor. To charge this sensor, use the **Simrad PI Charger** or the **Simrad PI MiniCharger**.

Figure 42 PI Rip application



The PI Rip sensor will let you know immediately if your net is torn apart.

The Simrad PI Rip sensor is identical to the PI Catch sensor, but uses other rubber band sensors. It can thus be regarded as a second application for the Simrad PI Catch sensor.

Place the sensor on the trawl belly behind the footrope, and use it to detect if the trawl is damaged by rocks or other items on the bottom. If this is detected, you can immediately adjust the gear to minimise the damage.

Related topics

- *PI Rip sensor view* on page 55
- *PI Rip trend view* on page 63
- *How to set up the PI Rip sensor* on page 92
- *PI Rip purpose and application* on page 189

Sensor configuration

In order to allow the information from the various sensors to be accepted and understood by the PI catch monitoring system, the PI receiver must be set up correctly. This means that you must tell the receiver that the sensor exists by entering the sensor type, communication channels and update rate.

Note

The transmission parameters defined in the sensor must correspond to the receiver parameters in the PI system, otherwise the communication will not work. To change the sensor setup (channel selection and update rate), use the PI Configurator utility. See PI Configurator on page 192.

All sensors are provided from Simrad with factory default channels and update rates. Refer to the table in section *Default communication channels and update rates* on page 190.

Default communication channels and update rates

See the table below for the initial values for the communication channels and update rates for the various sensors.

Table 1 Default communication channels and update rates

Sensor	Com.channel(s)	Update rate
PI Bottom Contact	6	Normal
PI Catch	4	Normal
PI Depth	Depth 300M: 16 Depth 600M: 12 Depth 1000M: 10	Fast
PI Height	14	Normal
PI Height/Depth	Depth 300M: 5 Depth 600M: 9 Depth 1000M: 1 Height: 14	Normal
PI Remote/Depth	Depth 300M: 11 Depth 600M: 15 Depth 1000M: 13	Normal
PI Spread	2	Normal
PI Spread/Depth	Depth 300M: 16 Depth 600M: 12 Depth 1000M: 10 Spread: 2	Normal
PI Twin Spread	2 and 7	Normal
PI Temperature	8	Normal

Table 1 Default communication channels and update rates (cont'd.)

Sensor	Com.channel(s)	Update rate
PI Geometry	Standard: 1 and 3 XT: 1 and 3 DF: 1	Normal
PI SeineSounder	Depth 300M: 3 Depth 600M: 9 Depth 1000M: 1 Height: 14	Fast Fast Normal Same as depth

Changing a communication channel

It may be required to change one or more communication channels, and there may be many reasons for this.

- You have more than one of each sensor. For example, if you have three temperature sensors, they MUST communicate on three different channels.
- Other vessels near your use the same PI catch monitoring system (or a similar), and they have one or more of their sensors set up to the same communication channels as you have. This will create interference, as you will "read" each others sensors.
- If your sensors are set up to use communication channels too close to each other (for example, you have chosen channels 4, 5 and 6), this will limit the vessel speed. The reason for this is the Doppler effect. If the speed is too high, the Doppler will cause the transmission frequencies to change so much that they overlap, and this will create interference. The PI system will provide a warning if this is about to happen! You must then either change to other communication channels further apart, or reduce the maximum shooting speed.
- If you operate at the maximum range of the sensors, you may be able to increase this range slightly if you use lower communication channels. This is because the lower communication channels use lower transmission frequencies.

All sensors are provided from Simrad with a default communication channel. In some cases you may find that the chosen channel does not suit your operational needs, for example if you have more than one sensor of any given type. This is a decision you have to make depending on how many sensors you use, and how many of these that are identical.

→ *Default communication channels and update rates* on page 190

Changing the update rate

It may be required to change the update rate on a sensor, that is how often it sends information back to the PI catch monitoring system. A high update rate will give frequent information updates, but the sensor will use more battery power. If you need your batteries to last as long as possible, you must consider lowering the update rate.

- A low update rate will provide you with fewer information updates, but the battery will last very long.

- A high update rate will give you frequent information updates, but the battery will run out faster.

All sensors are provided from Simrad with a default update rate setting. In some cases you may find that this update rate does not suit your operational needs. This is a decision you have to make depending on the local fishing conditions.

→ *Default communication channels and update rates* on page 190

PI Configurator

Simrad has developed a dedicated computer utility to change the sensor configurations. By means of an ordinary desktop computer and a few special cables you can do this job yourself. If you do not require frequent configurations, you can also contact you local dealer for assistance. Contact your dealer for more information.

Charging procedures

This section explains how you shall recharge the battery in the Simrad PI Sensors.

WARNING

Charging a sensor at sub zero temperature might develop explosive gases representing a potential danger. Simrad assumes no liability for improper charging, or the use of other chargers than those approved by us.

Battery handling

Operational time and service life of the sensor's NiCd battery depends on proper use and regular charging. Observe the following precautions, as these will have an influence on the battery performance.

- Observe the charging temperatures.
- Charge sensors regularly. Avoid draining the sensor battery completely before charging.
- Charge the sensor battery before storage, and at three-month intervals under long-term storage.
- Operational life may be initially reduced after long-term storage or charging for a long time.
- Sensors are not damaged by being left attached to a charger for several days. However, do not store the sensor for extended periods under charge.

We recommend that a wooden box is made to keep the sensor in a secure place during charging and storage. Make openings in the bottom to drain for sea water.

How to use the Simrad PI Charger

Figure 43 The PI Charger set up to charge a PI sensor

The Simrad PI Charger is an intelligent battery charger for fast and secure charging of all PS and PI sensors. The charger will automatically set up the correct charging current depending on the sensor type and the battery temperature. A "fuel meter" shows the status of the battery during the charge.

Even though the PI Charger is designed for fast charging of the PI sensors, it can also charge the PS sensors, but only at normal charge rate.

Daily operation

1 Attach the charging clamps to the sensor as follows:

- Red clamp: Positive (+) fastening lug
- Black clamp: Negative (–) fastening lug
- On every sensor the polarity of the fastening lugs are engraved on the sensor body using + and – characters.

2 Ensure that mounting materials do not short circuit the charging lugs.

- This may be ropes, wires, chains or other items that obstruct or short circuit the electrical connections.

3 When the charger is connected to the sensor, check the charger lamps.

- Once connected, the charger will identify whether the sensor connected can be fast charged or not. This is shown by the yellow lamps. If the top lamp flashes rapidly, the sensor is fast charged.
- If your sensor can be fast charged, the charger will also check the internal temperature of the sensor. The temperature is shown on the "thermometer" on the charger's front panel. If you charge a sensor that can not be fast charged, this "thermometer" does not work.

4 Observe the charge times and temperature limitations!

- **Fast charge:** The PI Charger will first recharge the sensor battery for approximately one hour to reach 70% battery capacity, then approximately three hours to reach 100% capacity. Once fully charged, a constant trickle charge will compensate for self discharging.

Note

Fast charging only applies to PI sensors!

- **Normal charge:** The PI Charger will first recharge the sensor battery for 16 hours for full battery capacity. This mode applies for charging PI sensors outside specified temperature range, and for all PS sensors.
- Charging must only take place within the specified temperature range. For best results, keep the ambient temperature between +10 and +25°C.

Note

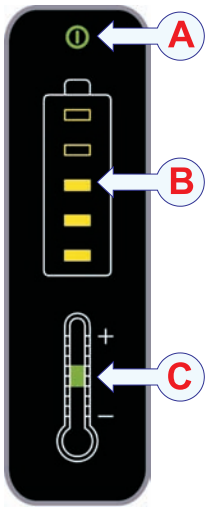
Do not charge sensors in temperatures above +50°C or below 0°C!

WARNING

Charging a sensor at sub zero temperature might develop explosive gases representing a potential danger. Simrad assumes no liability for improper charging, or the use of other chargers than those approved by us.

Indicators

Figure 44 PI Charger indicators



A *+12 to 32 Vdc connected*

B *"Fuel meter", the number of LEDs illuminated shows the current charging status.*

A complete charging cycle is indicated with all "full" battery. Charging is indicated as follows:

- **Fast flashing**: Fast charging in progress
- **Slow flashing**: Normal charging in progress
- **On/off every four seconds**: Trickle charging in progress

C *Battery temperature indicators during fast charging of PI sensors:*

- **Green**: Battery temperature between +5 and +40°C. Fast charge is enabled.
- **Green** and **Blue**: Battery temperature between 0 and +5°C. Fast charge is disabled, normal charge is used.
- **Green** and **Red**: Battery temperature between +40 and +50°C. Fast charge disabled, normal charge is used.
- **Blue**: Battery temperature is below 0°C. No charging takes place.
- **Red**: Battery temperature is above +50°C. No charging takes place.

Automatic configuration

The charger communicates with the sensor at regular intervals. The fast charge cycle is controlled by data exchanged between the PI sensor and the charger, and a series of safety mechanisms controls the termination of the fast charging current.

The PS sensors do not communicate with the charger. A constant charge current of 58 mA is then set up by the charger regardless of the battery temperature.

How to use the Simrad PI MaxiCharger

Figure 45 Simrad PI MaxiCharger

The Simrad PI MaxiCharger is a plain battery charger to be used with large PI sensors. These are:

- PI Spread
- PI Height
- PI SeineSounder
- PI Spread/Depth
- PI Remote/Depth
- PI Geometry

WARNING

<u>Do not</u> use the PI MaxiCharger on any other PI or PS sensors than those listed here! The large charging current may damage the battery!

The Simrad PI MaxiCharger is provided with a small booklet from the manufacturer (Mascot). Read this booklet before you put the charger to work!

WARNING

Charging a sensor at sub zero temperature might develop explosive gases representing a potential danger. Simrad assumes no liability for improper charging, or the use of other chargers than those approved by us.

Daily operation of the PI MaxiCharger

1 Connect the charger to 230 Vac, and check that the charger lamp is lit in yellow.

2 Ensure that mounting materials do not short circuit the charging lugs.

- This may be ropes, wires, chains or other items that obstruct or short circuit the electrical connections.

3 Attach the charging clamps to the sensor as follows:

- Red clamp: Positive (+) fastening lug
- Black clamp: Negative (–) fastening lug
- On every sensor the polarity of the fastening lugs are engraved on the sensor body using + and – characters.

4 When the charger is connected to the sensor, check the charger lamps.

- After a few seconds, the lamp on the charger will change from yellow to orange/red. This means that fast charging is in progress.
- When the battery in the sensor has reached 90% capacity the lamp will change from orange/red to green with short yellow flashes. This means that top charging is in progress.
- When the battery is fully charged, the lamp turns steady green. Trickle charging is now active. You can safely allow trickle charging for long periods of time.

PI MaxiCharger indicators

The charger is only equipped with a single indicator lamp, this lamp will however change colour to show the status of the charging process.

- **Yellow**: The charger is connected to 230 Vac, it has not been connected to the sensor, and it is ready for use.
- **Orange/Red**: The charger is connected to a sensor, and fast charging is in progress.
- **Green with short yellow flashes**: Top charging is in progress.
- **Green**: Trickle charging is in progress.

How to use the Simrad PI MiniCharger

Figure 46 Simrad PI MiniCharger

The Simrad PI MiniCharger is a plain battery charger to be used with the S-Type PI sensors. These are:

- PI Bottom Contact
- PI Catch
- PI Depth
- PI Temperature
- PI Remote (small version)
- PI Mini-R responder

WARNING

Charging a sensor at sub zero temperature might develop explosive gases representing a potential danger. Simrad assumes no liability for improper charging, or the use of other chargers than those approved by us.

Caution

The Simrad PI MiniCharger is designed to charge the S-Type sensors. You may charge the L-Type sensors too, but due to the small charge current, this will not be efficient.

The Simrad PI MiniCharger is provided with a small booklet from the manufacturer (Mascot). Read this booklet before you put the charger to work!

Daily operation of the PI MiniCharger

1 Connect the charger to 230 Vac, and check that the charger lamp is lit in yellow.

2 Ensure that mounting materials do not short circuit the charging lugs.
- This may be ropes, wires, chains or other items that obstruct or short circuit the electrical connections.

3 Attach the charging clamps to the sensor as follows:
- Red clamp: Positive (+) fastening lug
- Black clamp: Negative (–) fastening lug
- On every sensor the polarity of the fastening lugs are engraved on the sensor body using + and – characters.

4 When the charger is connected to the sensor, check the charger lamps.
- After a few seconds, the lamp on the charger will change from yellow to orange/red. This means that fast charging is in progress.
- When the battery in the sensor has reached 90% capacity the lamp will change from orange/red to green with short yellow flashes. This means that top charging is in progress.
- When the battery is fully charged, the lamp turns steady green. Trickle charging is now active. You can safely allow trickle charging for long periods of time.

PI MiniCharger indicators

The charger is only equipped with a single indicator lamp, this lamp will however change colour to show the status of the charging process.

- **Yellow**: The charger is connected to 230 Vac, it has not been connected to the sensor, and it is ready for use.
- **Orange/Red**: The charger is connected to a sensor, and fast charging is in progress.
- **Green with short yellow flashes**: Top charging is in progress.
- **Green**: Trickle charging is in progress.

How to use the Simrad PS Charger

Figure 47 The PS Charger set up to charge a sensor

The Simrad PS Charger is an battery charger for secure charging of the PS and PI sensors. It can be used on the following sensors:

- All PS Sensors
- PI Bottom Contact
- PI Catch
- PI Depth
- PI Temperature
- PI Remote (small version)

The Simrad PS Charger can not be used to charge the PI sensors not listed here.

Even though the PS Charger is designed for charging the PS sensors, it can also charge the PI sensors, but only at normal charge rate.

WARNING

Charging a sensor at sub zero temperature might develop explosive gases representing a potential danger. Simrad assumes no liability for improper charging, or the use of other chargers than those approved by us.

Daily operation

Observe the following procedure for daily operation.

1 Connect the charger to 230 Vac or 115 Vac.

The AC voltage required by the charger is printed on the panel.

2 Attach the charging clamps to the sensor as follows:

- Red clamp: Positive (+) fastening lug
- Black clamp: Negative (–) fastening lug
- On every sensor the polarity of the fastening lugs are engraved on the sensor body using + and – characters.

3 Ensure that mounting materials do not short circuit the charging lugs.

- This may be ropes, wires, chains or other items that obstruct or short circuit the electrical connections.

4 When the charger is connected to the sensor, check the charger lamps.

- It will flash once every four seconds during charging.

5 Observe the charge times and temperature limitations!

- ~16 hours for full battery capacity.
- Charging must only take place within the specified temperature range. For best results, keep the ambient temperature between +10 and +25°C.

Note

Do not charge sensors in temperatures above +50°C or below 0°C!

Battery depleted frequently

If the charger lamp is illuminated, but the sensor lamp does not flash every four seconds, the battery is not being charged properly. Most likely, this is because the sensor was not switched off when the charger was connected.

To correct, charge the sensor for ten minutes, then disconnect the alligator clips. Use a small wire, and make contact between the water switch sensor and one of the fastening lugs. This will cause the sensor to flash its start-up code. If not, wash the sensor in fresh water to disengage the water switch.

Telegram formats

All telegram formats used to provided interfaces to and from the Simrad PI50 Catch monitoring are described in detail in this appendix.

Topics

- *About the NMEA telegram format* on page 201
- *Specification of NMEA telegrams* on page 203
- *Proprietary telegrams and formats* on page 209

About the NMEA telegram format

The Simrad PI50 can send and receive information to and from several different peripherals. All transmissions take place as **telegrams** with data sentences. Each telegram has a defined format and length.

The **NMEA 0183** standard is the most common protocol used to receive and transmit data to and from peripheral sensors. A parametric sentence structure is used for all NMEA data. The sentence start with a “$” delimiter, and represent the majority of approved sentences defined by the standard. This sentence structure, with delimited and defined data files, is the preferred method for conveying information.

For more information about the NMEA standard, the format and the data sentences, refer to their official publications. Their document *NMEA 1083 - Standard for interfacing marine electronic devices* explains the formats in detail. The document can be obtained from http://www.nmea.org.

About NMEA

The *National Marine Electronics Association (NMEA)* has defined communication standards for maritime electronic equipment, and the PI50 echo sounder conforms to these standards. The most common standard is *NMEA 0183*, and the National Marine Electronics Association describes it as follows:

> The NMEA 0183 Interface Standard defines electrical signal requirements, data transmission protocol and time, and specific sentence formats for a 4800 baud serial data bus. Each bus may have only one talker but many listeners.
>
> — *National Marine Electronics Association*

For more information about the National Marine Electronics Association and the NMEA 0183 standard, refer to the organization’s web site at http://www.nmea.org.

Telegrams

To move information between two electronic units, the data are collected in **telegrams**. The content (protocol) of each telegram is defined by the NMEA standard, and several telegram types exist to allow different type of data to be distributed.

The phrase **datagram** is also frequently used about this communication method.

Unless you wish to write your own software, you do not need to know how these telegrams are designed. However, whenever you set up equipment interfaces, you need to ensure that each system on your communication line is set up to send and receive the same telegram. The standard allows one system to send data (a “talker") and several others to receive data simultaneously ("listeners") on the same line. Therefore, you must ensure that all products receiving data on a communication line is set up to receive the same telegram(s) that the transmitting product provides.

Standard NMEA 0183 communication parameters

The communication parameters defined for **NMEA 0183** are:

- **Baudrate**: 4800 bits per second
- **Data bits**: 8
- **Parity**: None
- **Stop bits**: One

Some instruments will also offer other parameters and/or choices.

Sentence structure

The following provides a summary explanation of the approved parametric sentence structure.

```
$aaccc,c—c*hh<CR><LF>
```

1 **"$"**: *Start of sentence* (Hex: 24).

2 **aaccc**: *Address field*. The first two characters (**aa**) identifies the *Talker ID*, while the last three characters are the *Sentence formatter* mnemonic code identifying the data type and the string format of the successive fields.

3 **","**: *Field delimiter* (Hex: 2C). This character starts each field except the address and checksum fields. If it is followed by a null field, it is all that remains to indicate no data in the field.

4 **c—c**: *Data sentence block*. This is a series of data fields containing all the data to be transmitted. The data field sentence is fixed and identified by the *Sentence formatter* in the address field. Data fields may be of variable lengths, and they are preceded by the *Field delimiter*.

5 **"*"**: *Checksum delimiter* (Hex: 2A). This delimiter follows the last field of the sentence, and indicates that the following two alphanumerical characters contain the checksum.

6 **hh**: *Checksum*

7 **<CR><LF>**: *Terminates sentence*

Proprietary telegrams

In some proprietary telegrams received from other Kongsberg Maritime equipment, the **$** character is replaced by the **@** character. The checksum field may then not be in use.

Specification of NMEA telegrams

Topics

- *DBS Depth below surface* on page 203
- *GLL Geographical position latitude/longitude* on page 204
- *GGA Global positioning system fix data* on page 205
- *HDG Heading, deviation and variation* on page 205
- *HDM Heading, magnetic* on page 206
- *HDT Heading, true* on page 206
- *RMC Recommended minimum specific GNSS data* on page 206
- *VHW Water speed and heading* on page 207
- *VTG Course over ground & ground speed* on page 207
- *VLW Dual ground/water distance* on page 208

DBS Depth below surface

This telegram contains vessel heading in degrees magnetic. The telegram is no longer recommended for use in new designs.

It is often replaced by the **DPT** telegram.

Format

```
$--DBS,x.x,f,y.y,M,z.z,F*hh<CR><LF>
```

Format description

1 – – = talker identifier

2 **DBS** = telegram identifier

3 **x.x,f** = depth below surface in feet

4 **y.y,M** = depth below surface in meters

5 **z.z,F** = depth below surface in fathoms

GLL Geographical position latitude/longitude

This telegram is used to transfer latitude and longitude of vessel position, time of position fix and status from a global positioning system (GPS).

Format

```
 $--GLL,llll.ll,a,yyyyy.yy,a,
hhmmss.ss,A,a*hh<CR><LF>
```

Format description

1 – – = talker identifier

2 **GLL** = telegram identifier.

3 **llll.ll,a** = latitude north/south, position in degrees, minutes and hundredths. Characters **N** (North) or **S** (South) identifies the bearing.

4 **yyyyy.yy,a** = longitude east/west, position in degrees, minutes and hundredths. Characters **W** (West) or **E** (East) identifies the bearing.

5 **hhmmss.ss** = coordinated universal time (UTC) of position.

6 **A** = status, characters **A** (data valid) or **V** (data not valid) are used.

7 **a** = mode indicator.

GGA Global positioning system fix data

This telegram contains time, position and fix related data from a global positioning system (GPS).

Format

```
$--GGA,hhmmss.ss,llll.ll,a,yyyyy.yy,a,
x,zz,d.d,a.a,M,g.g,M,r.r,cccc*hh<CR><LF>
```

Format description

1 – – = talker identifier

2 **GGA** = telegram identifier

3 **hhmmss.ss** = coordinated universal time (UTC) of position

4 **llll.ll,a** = latitude north/south, position in degrees, minutes and hundredths. Characters **N** (North) or **S** (South) identifies the bearing.

5 **yyyyy.yy,a** = longitude east/west, position in degrees, minutes and hundredths. Characters **W** (West) or **E** (East) identifies the bearing.

6 **x** = GPS quality indicator (refer to the NMEA standard for further details)

7 **zz** = number of satellites in use, 00 to 12, may be different from the number in view

8 **d.d** = horizontal dilution of precision

9 **a.a,M** = altitude related to mean sea level (geoid) in meters

10 **g.g,M** = geoidal separation in meters

11 **r.r** = age of differential GPS data

12 **cccc** = differential reference station identification, 0000 to 1023

HDG Heading, deviation and variation

This telegram contains the heading from a magnetic sensor, which if corrected for deviation will produce magnetic heading, which if offset by variation will provide true heading.

Format

```
$--HDG,x.x,z.z,a,r.r,a*hh<CR><LF>
```

Heading conversions

- To obtain magnetic heading: Add easterly deviation (E) to magnetic sensor reading, or subtract westerly deviation (W) from magnetic sensor reading.
- To obtain true heading: Add easterly variation (E) to magnetic heading, or subtract westerly variation (W) from magnetic heading.

Format description

1 – – = talker identifier

2 **HDG** = telegram identifier

3 **x.x** = magnetic sensor heading, degrees

4 **z.z,a** = magnetic deviation, degrees east/west

5 **r.r,a** = magnetic variation, degrees east/west

HDM Heading, magnetic

This telegram contains vessel heading in degrees magnetic. The telegram is no longer recommended for use in new designs.

It is often replaced by the **HDG** telegram.

Format

```
$--HDM,x.x,M*hh<CR><LF>
```

Format description

1 – – = talker identifier

2 **HDM** = telegram identifier

3 **x.x** = heading in degrees, magnetic

HDT Heading, true

This telegram is used to transfer heading information from a gyro.

Format

```
$--HDT,x.x,T*hh<CR><LF>
```

Format description

1 – – = talker identifier

2 **HDT** = telegram identifier

3 **x.x,T** = heading, degrees true

RMC Recommended minimum specific GNSS data

This telegram contains time, date, position, course and speed data provided by a global navigation satellite system (GNSS) receiver.

Format

```
$--RMC,hhmmss.ss,A,llll.ll,a,yyyyy.yy,a,
x.x,z.z,ddmmyy,r.r,a,a*hh<CR><LF>
```

Format description

1 – – = talker identifier

2 **RMC** = telegram identifier

3 **hhmmss.ss** = coordinated universal time (UTC) of position fix

4 **A** = status, characters **A** (data valid) or **V** (Navigation receiver warning) are used.

5 **llll.ll,a** = latitude nort/south. Characters **N** (North) or **S** (South) identifies the bearing.

6 **yyyyy.yy.a** = longitude east/west. Characters **E** (East) or **W** (West) identifies the bearing.

7 **x.x** = speed over ground, knots

8 **z.z** = course over ground, degrees true

9 **ddmmyy** = date

10 **r.r,a** = magnetic variation, degrees east/west. Characters **E** (East) or **W** (West) identifies the bearing.

11 **a** = mode indicator

VHW Water speed and heading

This telegram contains the compass heading to which the vessel points and the speed of the vessel relative to the water.

Format

```
$--VHW,x.x,T,x.x,M,x.x,N,x.x,K*hh<CR><LF>
```

Format description

1 – – = talker identifier

2 **VHW** = telegram identifier

3 **x.x,T** = heading, degrees true

4 **x.x,M** = heading, degrees magnetic

5 **x.x,N** = speed relative to water, knots, resolution 0.1

6 **x.x,K** = speed relative to water, km/hr, resolution 0.1

VTG Course over ground & ground speed

This telegram contains the actual course and speed relative to the ground.

Format

```
$--VTG,x.x,T,y.y,M,z.z,N,g.g,K,a*hh<CR><LF>
```

Format description

1 – – = talker identifier

2 **VTG** = telegram identifier

3 **x.x,T** = course over ground, degrees true

4 **y.y,M** = course over ground, degrees magnetic

5 **z.z,N** = speed over ground, knots, resolution 0.1

6 **g.g,K** = speed over ground, km/hr, resolution 0.1

7 **a** = mode indicator

VLW Dual ground/water distance

This telegram contains the distance travelled relative to the water and over the ground.

Format

```
$--VLW,x.x,N,y.y,N,z.z,N,g.g,N*hh<CR><LF>
```

Format description

1 – – = talker identifier

2 **VLW** = telegram identifier

3 **x.x,N** = total cumulative water distance, nautical miles.

4 **y.y,N** = water distance since reset, nautical miles.

5 **z.z,N** = total cumulative ground distance, nautical miles.

6 **g.g,N** = ground distance since reset, nautical miles.

Proprietary telegrams and formats

Topics

- *DBS Depth of trawl below surface* on page 209
- *HFB Trawl headrope to footrope and bottom* on page 209
- *PSIMP-D1 PI Sensor data* on page 209

DBS Depth of trawl below surface

This proprietary Simrad telegram contains the depth of the trawl sensor.

Format

```
@IIDBS,,,x.x,M,,<CR><LF>
```

Format description

1 **II** = talker identifier (mandatory)

2 **DBS** = telegram identifier

3 **x.x,M** = depth in meters (0 to 2000)

HFB Trawl headrope to footrope and bottom

This proprietary Simrad telegram contains the distance from the headrope to the footrope, and from the footrope to the bottom.

Format

```
@IIHFB,x.x,M,y.y,M<CR><LF>
```

Format description

1 **II** = talker identifier (mandatory)

2 **HFB** = telegram identifier

3 **x.x,M** = distance from headrope to footrope, meters

4 **y.y, M** = distance from footrope to bottom, meters

PSIMP-D1 PI Sensor data

This proprietary Simrad telegram contains the type and configuration of PS and PI sensors used by the external PI catch monitoring system.

Note

This description is not complete. For further information, contact Simrad.

Format

```
$PSIMP,D1,tt,dd,M,U,SNo,MNo,C,V,CR,Q,
In,SL,NL,G,Cb,error*chksum<CR><LF>
```

Format description

1 **PS** = Talker identifier (mandatory)

2 **IMP** = Telegram identifier

3 **D** = Sentence specifier

4 **tt** = Time of day

5 **dd** = Current date

6 **M** = Measurement type:

- D = Depth
- T = Temperature
- C = Catch
- B = Bottom
- N = No sensor
- M = Marker

7 **U** = unit; M, f or F for depth measurements, C or F for temperature measurements

8 **SNo** = Sensor number

9 **MNo** = Measurement number

10 **C** = channel; the number (1 to 30) of the communication channel for the current data source

11 **V** = value; the magnitude of the current sensor measurement

12 **Cr** = change rate; the magnitude of the current depth or temperature measurement

13 **Q** = quality:

14 **In** = interference:

- 0 = No interference
- 1 = Interference detected

15 **SL** = signal level – the signal level of the telemetry pulse, measured in dB // 1 µPa

16 **NL** = noise level – the average noise level of the current channel, measured in dB // 1 µPa

17 **G** = the current gain; 0, 20 or 40 dB.

18 **Cb** = cable quality:

- 0 = cable is not connected
- 1 = cable is OK
- 2 = a short circuit, or the hydrophone current is too large

19 **error** = error detected – 0 when no error is detected, a number >0 indicates an error condition

20 **chksum** = The checksum field consists of a "*" and two hex digits representing the exclusive OR of all characters between, but not including, the "$" and "*" characters

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