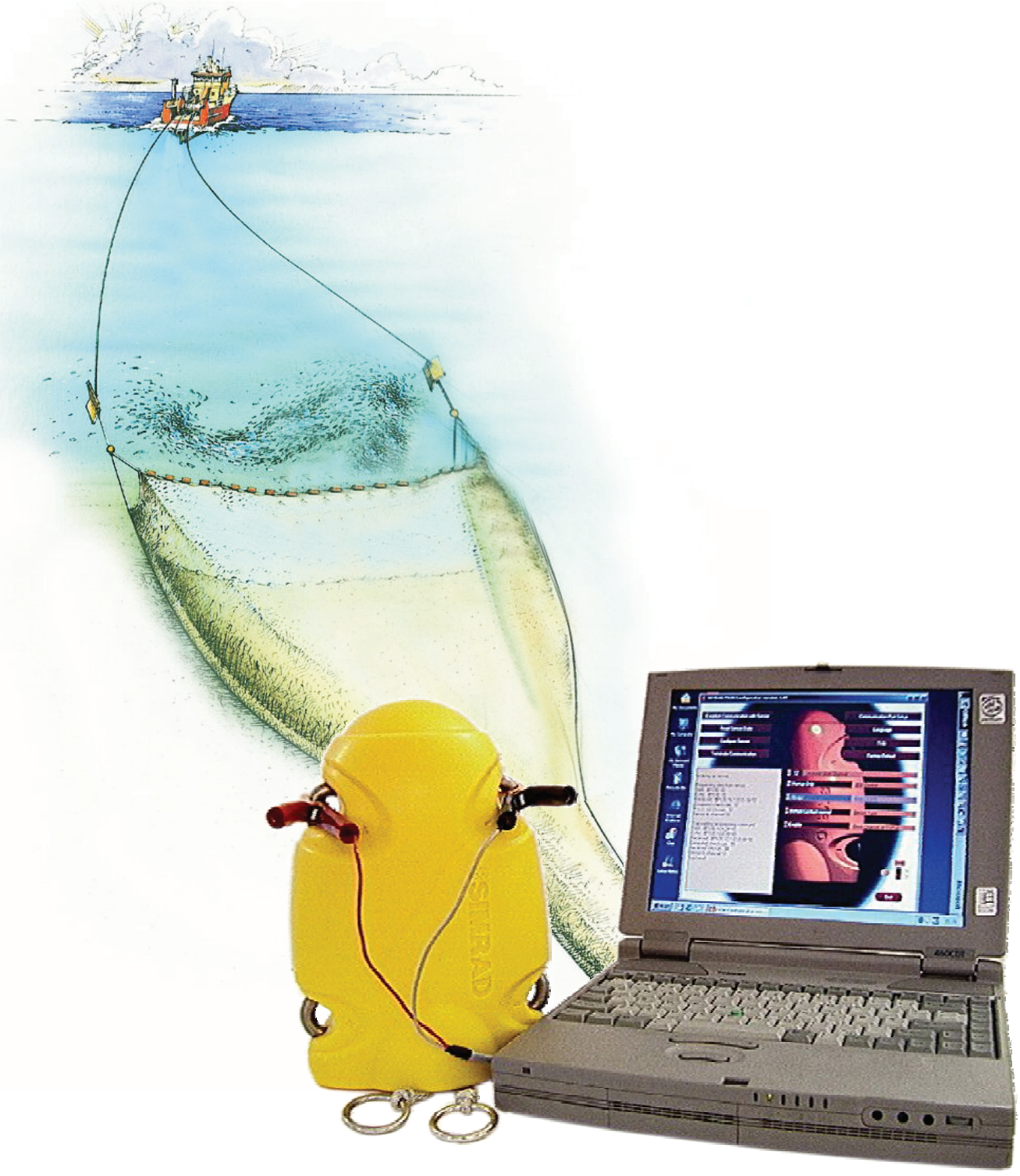
Operator manual

Simrad PI Configurator

“User” mode



KONGSBERG

Simrad PI Configurator

Operator manual

Release 4.3.X

This manual provides you with the basic information required to install and use the Simrad PI Configurator utility.

Programming mode: User

164924/D

History

Document number: 164924 / ISBN-13: 978-82-8066-040-4		
Rev.A	01.03. 2004	First version.
Rev.B	01.11.2005	Revised for SW version 3.40
Rev.C	01.01.2008	Revised for SW version 4.0x
Rev.D	31.05.2010	Revised for SW version 4.3.X.

Disclaimer
Kongsberg Maritime AS endeavours to ensure that all information in this document is correct and fairly stated, but does not accept liability for any errors or omissions.

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.
Kongsberg Maritime AS disclaims any responsibility for damage or injury caused by improper installation, use or maintenance of the equipment.

Support information
If you require maintenance or repair, contact your local dealer. You can also contact us using the following address: contact@simrad.com. If you need information about our other products, visit our web site. On the web site you will also find a list of our dealers and distributors.

Kongsberg Maritime AS
www.kongsberg.com

Table of contents

Introduction

The purpose of the PI Configurator utility is to be able to set up Simrad's catch monitoring sensors so that they can operate on different communication channels. Several vessels equipped with Simrad's PI catch monitoring systems may then operate simultaneously in the same area without interference.

The PI Configurator utility also allows you to change the update rate on each PI sensor. This is the time elapsed between each data transmission from the sensor to your host PI system. The update rate can not be changed on PS sensors.

This document describes software version 4.3.X.

Topics

Basic information

This section provides basic information about the PI Configurator utility.

Default sensor settings

PI and PS sensors are delivered from Simrad readily set up with common default settings. When required, the individual sensors may be programmed with regard to:

- Communication channel
- LED control
- Ping control
- Data update rate
- Remote and Mini-R
- Show channel with LED flash at start up

The default settings provided with the individual sensors are specified in section *Default communication channels and update rates* on page 7.

Who can program PI sensors?

Sensor configuration is normally performed by authorized Simrad technicians. However, individuals with basic computer skills and access to the necessary equipment should not find it difficult.

Necessary equipment

The following hard- and software is required to use the PI Configurator utility:

- PI Configurator software
- A personal computer with a serial line and/or USB communication port

  The following operating systems are supported:

  – Microsoft® Windows XP®

  – Microsoft® Windows 7
- A sensor programming cable for either a stationary (desktop) or portable (laptop) computer (if computer's RS-232 serial line interface is used).
- PI CIC Interface unit (if computer's USB interface is to be used)

Note that the sensor programming cables for stationary and portable computers are designed differently and are not interchangeable.

Equipment available from Simrad

The following equipment are available from Simrad. The order numbers are provided in brackets.

- Instruction manual [**857-164924**]
- Software [**889-204037**]
- Programming serial cable for stationary [desktop] computers [**380-204624**]
- Programming serial cable for portable [laptop] computers [**380-208429**]
- PI CIC Interface unit for USB communication [**326157**]
- Service hydrophone [**314-204480**]

The configuration equipment is also is available in kits:

- KIT 1: Instruction manual and software [**KIT-208780**]
- KIT 2: Instruction manual, software and programming cable for stationary [desktop] computer [**KIT-208781**]
- KIT 3: Instruction manual, software and programming cable for portable [laptop] computers [**KIT-208782**]

About sensor configuration

All sensors are provided from Simrad with predefined communication channels and update rates. By means of the PI Configurator utility, these default parameter settings may be modified to suit your preferences.

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 Fast Fast
PI Height	14	Normal
PI Height/Depth Mk.1	Depth 300M: 5 Depth 600M: 9 Depth 1000M: 1 Height: 14	Fast Fast Fast Fast
PI Height/Depth Mk.2 PI SeineSounder	Depth 300M: 3 Depth 600M: 9 Depth 1000M: 1 Height: 14	Fast Fast Normal Same as depth
PI Remote/Depth	Depth 300M: 11 Depth 600M: 15 Depth 1000M: 13	Normal Normal Normal
PI Spread	2	Normal
PI Spread/Depth	Depth 300M: 16 Depth 600M: 12 Depth 1000M: 10 Spread: 2	Normal Normal Normal Normal
PI Twin Spread	2 and 7	Normal
PI Temperature	8	Normal
PI Geometry	Standard: 1 and 3 Extended range (XT): 1 and 3 Differential (DF): 1	Normal Normal Normal

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 7

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 7

Spread and Remote sensors configuration

Whenever you use the PI Spread and PI Remote sensors, you must make sure that these communicate correctly. Should incorrect transmission parameters be chosen, the sensors will not be able to communicate with each other, and the PI system will display “± ± ±".

Single trawl

- **Spread 1** must communicate with **Remote 1**.
- **Spread 2** must communicate with **Remote 2**.

Twin trawl

- **Twin Spread 1** must communicate with **Remote 1 and 3**.
- **Twin Spread 2** must communicate with **Remote 2 and 4**.

A Twin Spread sensor uses two channels to communicate with the Remote sensors; one channel for each Remote.

Dual twin trawl

- **Twin Spread 1** must communicate with **Remote 1 and 3**.
- **Twin Spread 2** must communicate with **Remote 2 and 4**.

To set up a dual twin trawl configuration, the two sets of Twin Spread sensors must work with different communication channels.

Geometry and Mini-R sensors configuration

Whenever you use the PI Geometry sensors, you must make sure that these communicate correctly. Should incorrect transmission parameters be chosen, the sensors and responders will not be able to communicate with each other, and the PI system will display "± ± ±".

The following PI Geometry versions exist:

- **Geometry Fine** – High resolution icon to detect smaller changes
- **Geometry Coarse** – Low resolution icon to detect larger changes
- **Geometry XT (Extended) Fine** – Extended range, high resolution icon to detect smaller changes
- **Geometry XT (Extended) Coarse** – Extended range, low resolution icon to detect larger changes
- **Geometry DF (Differential) Fine** – differential measurement (single channel), high resolution icon to detect smaller changes
- **Geometry DF (Differential) Coarse** – differential measurement (single channel), low resolution icon to detect larger changes

The **DF (Differential)** Geometry sensor setting will only use one channel on the PI system, but will not provided extended range.

The **Coarse** or **Fine** settings are not defined by the sensor configuration, but in the PI menu system.

On the PI44/54 systems the phrases **Sensitive** and **Coarse** are used.

All Geometry versions are set up according to the following principles:

Single trawl

- **Geometry 1** must communicate with **Mini–R 1** and **Mini-R 3**.
- **Geometry 2** must communicate with **Mini–R 2** and **Mini-R 4**.

Twin trawl

- **Geometry 1** must communicate with **Mini–R 1** and **Mini-R 3**.
- **Geometry 2** must communicate with **Mini–R 2** and **Mini-R 4**.

Programming modes

The PI Configurator configuration software has three programming modes:

- *User*
- *Distributor*
- *Factory*

The different modes will disable or enable various functions provided by the utility.

Caution

The use of PI Configurator software in the Distributor and Factory modes is for qualified Simrad personnel only. Improper use of PI Configurator software in these modes can cause permanent, irreparable damage to sensors. It must therefore never be activated by unqualified personnel.

This operator manual describes the *User* functionality.

Table 2 Available functions for the programming modes

Function	User	Distributor	Factory
Sensor	—	OK	OK
Update	OK	OK	OK
Measure 1/2	—	OK	OK
Channel 1/2	OK	OK	OK
Ping Control	—	OK	OK
Remote and Mini-R	OK	OK	OK
LED Control	—	OK	OK
Number	OK	OK	OK
Show Channel	—	OK	OK
Serial Number	—	—	OK
Programming Mode	—	OK	OK

Main dialog

Observe the illustration and descriptions below. Note that the appearance of function buttons will differ depending on the sensor type connected to the utility. When functions are unavailable, the fields are identified accordingly with a shaded appearance.

The menu system provided on the main dialogue is divided into three groups:

1 Communication

2 Configuration

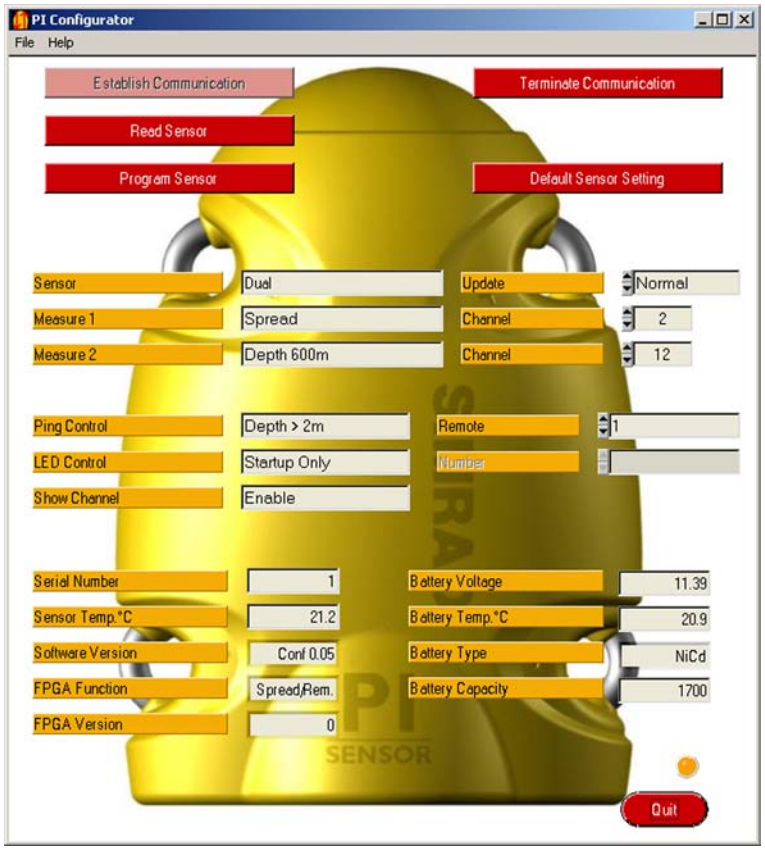
3 Parameters

In addition, the main menu on the top of the dialogue offers two choices; **File** and **Help**.

Topics

Screen capture

Figure 1 PI Configurator



This screen captures shows the appearance of the PI Configurator's Main dialog when it is connected to a PI Spread/Depth sensor. The functions related to specific sensors are only activated when the relevant sensor is connected. For other sensors, depending on sensor type, the buttons are faded down to reflect unavailability.

Communication

The following communication options are available. These are easily recognized due to the red background colour in the buttons.

1 **Establish Communication**: Once the sensor is physically connected to the computer, click to initiate sensor interface.

2 **Read Sensor**: Click to download the current parameter settings from the sensor. The information is shown in the **Configuration** and **Parameter** fields below.

3 **Program Sensor**: Click to upload the new configuration parameters you have defined for the sensor.

4 **Terminate Communication**: Click to disable the communication between the sensor and the computer.

5 **Default Sensor Setting**: Click to program the sensor with the corresponding factory default settings.

For more information, see:

- *Establish Communication* on page 31
- *Read Sensor* on page 31
- *Program Sensor* on page 32
- *Terminate Communication* on page 32
- *Default Sensor Setting* on page 32

Configuration

The following configuration options are available.

1 **Sensor**: This field displays the sensor type; Single or Dual.

2 **Update**: Select the time interval between the data transmissions from the sensor.

3 **Measure**: These fields display the measurements the current sensor is making.

4 **Channel**: Select the transmission channel number(s) to be uploaded to the sensor. If a dual or a Twin Spread sensor is connected, two communication channels must be defined.

5 **Ping control**: Click to control how often the sensor will transmit its information back to the vessel.

6 **Remote**: This configuration field is used during Twin Spread configuration, when it is used to define the Remote sensors combination to be used in the twin spread system. When a Remote sensor is connected, the button is renamed **Remote Number**, and it is used to define the sensor's number.

7 **LED control**: Click to control the behaviour of the sensor's internal LED.

8 **Number**: Select the number for the Remote sensor.

9 **Show channel**: Click to activate or deactivate the sensor's internal LED identification flash.

10 **Listening Mode**: Click to change listening mode (for single or dual trawl) for the Remote Mk.1 sensors.

For more information, see:

- *Sensor* on page 34
- *Update* on page 34
- *Measure* on page 35
- *Channel* on page 35
- *Ping Control* on page 36
- *Remote* on page 36
- *Mini-R* on page 37
- *LED Control* on page 37
- *Number* on page 38
- *Show Channel* on page 39
- *Listening Mode* on page 40

Parameter displays

The following parameter display options are available.

1 **Serial number**: This field displays the sensor's serial number. Note that this parameter is not available for PS sensors.

2 **Battery voltage**: This field display the current battery voltage.

3 **Sensor temperature**: This field displays the current temperature inside the sensor.

4 **Battery temperature**: This field displays the current temperature of the sensor battery.

5 **Software version**: This field displays the current version of the sensor's control software.

6 **Battery type**: This field displays the type of battery currently installed in the sensor.

7 **FPGA function**: This field displays the function(s) supported by the sensor software.

8 **FPGA version**: This field displays the current version of the sensor's processing software.

9 **Battery capacity**: This field displays the capacity of the battery.

For more information, see:

- *Serial Number* on page 41
- *Battery Voltage* on page 41
- *Sensor Temperature* on page 42
- *Battery Temperature* on page 43
- *Software Version* on page 43
- *Battery Type* on page 43
- *FPGA Function* on page 44
- *FPGA Version* on page 44
- *Battery Capacity* on page 44

File menu

The following options are available on the **File** menu.

1 **Com.port setup**: This command allows you to set up the communication port used to interface the sensor.

2 **Language**: This command allows you to select the language used on the main dialogue.

3 **Quit**: This command closes the PI Configurator utility.

For more information, see:

- *Communication Port Setup* on page 45
- *Language* on page 45
- *Debug window* on page 45
- *Quit* on page 45

Help menu

The following options are available on the **Help** menu.

1 **Help**: This command opens the on-line help.

You can also right-click on any button to open the help system.

2 **About**: This command provides information about the current software version.

For more information, see:

- *Help* on page 47
- *About* on page 47

Operational procedures

The following procedures are provided to offer you easy use of the PI Configurator utility.

Topics

Connecting the sensor

Before you can program the sensor, you need to connect it to the computer. Observe the procedures below.

- *Initial setup* on page 18
- *Connect the sensor* on page 18

Initial setup

This procedure explains how to set up the communication between the computer and the sensor to be set up.

Whenever you prepare a sensor for configuration and/or charging, make sure that mounting material attached to the charging lugs do not form an electrical connection, as this will short the charging current.

This procedure is only required the first time the sensor is connected to your computer.

Note

*If you use the **PI CIC** interface unit, make sure that you have installed the required software driver. The driver is provided on the CD that follows the **PI CIC** unit.*

1. Plug the serial programming cable into a vacant serial line socket on your computer.

   If you use the **PI CIC** interface unit, plug the USB connector into a vacant USB socket on your computer.

   Note

   If you unplug the programming cable, remember which socket you used. The next time you plug it in, use the same socket.

2. Start the PI Configurator utility.
3. On the PI Configurator main menu, select **File →Com.port Setup**.
4. Click to select the serial COM port the programming cable is plugged into, then click OK.

   If you use the **PI CIC** interface unit, you may need to try out several ports to find the right one.

Connect the sensor

This procedure is used every time you connect a sensor to the computer.

1. Plug the serial programming cable into a vacant serial line socket on your computer.

   If you use the **PI CIC** interface unit, plug the USB connector into a vacant USB socket on your computer.

Note

If you unplug the programming cable, remember which socket you used. The next time you plug it in, use the same socket.

2 Start the PI Configurator utility.

3 Ensure that the sensor to be connected is switched off.

Check that the sensor's internal LED does not flash, and that the sea water switch is not activated in any way.

4 Attach the programming cable's positive (red) alligator clip to one of the sensor's positive fastening lugs (designated with a plus symbol).

5 Attach the programming cable's negative (black) alligator clip to one of the sensor's negative fastening lugs (designated with a minus symbol).

6 Click **Establish Communication**, and wait for the PI Configurator utility to interface with the sensor.

When communication is established, the PI Configurator utility will automatically adapt to the sensor type currently connected. This means that buttons and displays that are not applicable for the sensor will be unavailable.

7 Observe that the information provided by the sensor is read and displayed by the PI Configurator.

If there is a malfunction, you will be notified accordingly.

Sensor configuration

This section provides standard procedures related to sensor configuration.

How to do basic configuration

Once the sensor is connected to the computer, and you have established communication, you can use the PI Configurator utility to change the basic sensor parameters.

Note

When the PI Configurator is set up for use in User mode, these are the only settings you are permitted to change.

→ *About sensor configuration* on page 7

1 Start the PI Configurator utility, and connect the sensor to the computer with the programming cable.

→ *Connect the sensor* on page 18

2 Click **Establish Communication**, and wait for the PI Configurator utility to interface with the sensor.

When communication is established, the PI Configurator utility will automatically adapt to the sensor type currently connected. This means that buttons and displays that are not applicable for the sensor will be unavailable.

3 Click the **Read Sensor** button.

Observe that the current sensor configuration parameters are displayed in the appropriate fields.

4 If required, select new communication channel in the **Channel** spin box.

5 If required, select a new update rate in the **Update** spin box.

6 Click the **Program Sensor** button to upload the new parameters.

7 Click the **Terminate Communication** button to disable the communication between the computer and the sensor.

8 Disconnect the alligator clips from the sensor.

If you do not wish to program additional sensors, disconnect the entire programming cable, and close the PI Configurator utility.

How to do Twin Spread configuration

These procedures explain how to set up a Twin Spread sensor with its corresponding Remote sensors.

Observe the information about Spread and Remote sensors provided in the *Introduction* chapter.

Topics

- *Twin Spread sensor configuration* on page 21
- *Remote sensors configuration* on page 22

Related topics

- *Spread and Remote sensors configuration* on page 8

Twin Spread sensor configuration

This procedure explains how to set up a Twin Spread sensor.

1 Start the PI Configurator utility, and connect the sensor to the computer with the programming cable.

→ *Connect the sensor* on page 18

2 Click **Establish Communication**, and wait for the PI Configurator utility to interface with the sensor.

When communication is established, the PI Configurator utility will automatically adapt to the sensor type currently connected. This means that buttons and displays that are not applicable for the sensor will be unavailable.

3 Click the **Read Sensor** button.

Observe that the current sensor configuration parameters are displayed in the appropriate fields.

4 If required, select new communication channels in the two **Channel** spin boxes.

Two communication channels are used to read the information from the Twin Spread sensor. These are simply identified as **#1** and **#2**.

5 If required, select a new update rate in the **Update** spin box.

6 If required, select Remote sensor combination in the **Remote** spin box.

a You can use Remote combinations **1 and 3** or **2 and 4**.

b The number identifies the Remote sensor to be used, and the Remote sensor must be set up with the corresponding number.

c The combination you select here must match the two Remote sensors you wish to use. For example, if you select combination **1 and 3**, the two Remote sensor to be used must be set up as #1 and #3.

7 If applicable, click to set **Listening Mode** to *Dual*.

8 Click the **Program Sensor** button to upload the new parameters.

9 Click the **Terminate Communication** button to disable the communication between the computer and the sensor.

10 Disconnect the alligator clips from the sensor.

If you do not wish to program additional sensors, disconnect the entire programming cable, and close the PI Configurator utility.

Remote sensors configuration

This procedure explains how to set up the Remote sensors for use with a Twin Spread sensor..

1 Start the PI Configurator utility, and connect the sensor to the computer with the programming cable.

→ *Connect the sensor* on page 18

2 Click **Establish Communication**, and wait for the PI Configurator utility to interface with the sensor.

When communication is established, the PI Configurator utility will automatically adapt to the sensor type currently connected. This means that buttons and displays that are not applicable for the sensor will be unavailable.

3 Click the **Read Sensor** button.

Observe that the current sensor configuration parameters are displayed in the appropriate fields.

4 If required, select the Remote sensor's number in the **Remote** spin box.

- The Twin Spread sensor can use Remote combinations **1 and 3** or **2 and 4**.
- The selection you make here must match the combination you have selected for the Twin Spread sensor. For example, if you have selected combination **2 and 4**, you must set up one Remote sensor as #2, and one as #4.

5 Click the **Program Sensor** button to upload the new parameters.

6 Click the **Terminate Communication** button to disable the communication between the computer and the sensor.

7 Disconnect the alligator clips from the sensor.

8 Repeat the same procedure for the second Remote sensor.

9 Disconnect the alligator clips from the sensor.

If you do not wish to program additional sensors, disconnect the entire programming cable, and close the PI Configurator utility.

How to do Geometry configuration

These procedures explain how to set up a Geometry sensor with its corresponding Mini-R units.

Observe the information about the Geometry sensor provided in the *Introduction* chapter.

Topics

- *Geometry configuration* on page 24
- *Mini–R configuration* on page 25

Related topics

- *Geometry and Mini-R sensors configuration* on page 9

Geometry configuration

This procedure explains how to set up a Geometry sensor.

1 Start the PI Configurator utility, and connect the sensor to the computer with the programming cable.

→ *Connect the sensor* on page 18

2 Click **Establish Communication**, and wait for the PI Configurator utility to interface with the sensor.

When communication is established, the PI Configurator utility will automatically adapt to the sensor type currently connected. This means that buttons and displays that are not applicable for the sensor will be unavailable.

3 Click the **Read Sensor** button.

Observe that the current sensor configuration parameters are displayed in the appropriate fields.

4 If required, select new communication channels in the two **Channel** spin boxes.

Two communication channels are used to read the information from the Geometry sensor. These are simply identified as **#1** and **#2**.

5 If required, select a new update rate in the **Update** spin box.

6 If required, select the Mini–R combination in the **Mini-R** spin box.

a You can use Mini–R combinations **1 and 3** or **2 and 4**.

b The number identifies the Mini–R sensors to be used, and the Geometry sensor must then be set up with the corresponding number.

c The combination you select here must match the two Mini–R sensors you wish to use. For example, if you select combination **1 and 3**, the two Mini–R sensors to be used must be set up as #1 and #3.

7 Click the **Program Sensor** button to upload the new parameters.

8 Click the **Terminate Communication** button to disable the communication between the computer and the sensor.

9 Disconnect the alligator clips from the sensor.

If you do not wish to program additional sensors, disconnect the entire programming cable, and close the PI Configurator utility.

Mini–R configuration

This procedure explains how to set up the Mini-R sensors for use with the Geometry sensor.

1 Start the PI Configurator utility, and connect the sensor to the computer with the programming cable.

→ *Connect the sensor* on page 18

2 Click **Establish Communication**, and wait for the PI Configurator utility to interface with the sensor.

When communication is established, the PI Configurator utility will automatically adapt to the sensor type currently connected. This means that buttons and displays that are not applicable for the sensor will be unavailable.

3 Click the **Read Sensor** button.

Observe that the current sensor configuration parameters are displayed in the appropriate fields.

4 If required, select the Mini–R sensor's number in the **Mini–R** spin box.

- The Geometry sensor can use Mini–R combinations **1 and 3** or **2 and 4**.
- The selection you make here must match the combination you have selected for the Geometry sensor. For example, if you have selected combination **2 and 4**, you must set up one Mini–R sensor as #2, and one as #4.

5 Click the **Program Sensor** button to upload the new parameters.

6 Click the **Terminate Communication** button to disable the communication between the computer and the sensor.

7 Disconnect the alligator clips from the sensor.

8 Repeat the same procedure for the second Mini–R sensor.

9 Disconnect the alligator clips from the sensor.

If you do not wish to program additional sensors, disconnect the entire programming cable, and close the PI Configurator utility.

How to upload factory defaults

Once the sensor is connected to the computer, and you have established communication, you can use the PI Configurator utility to upload the applicable sensor's factory settings.

Note

When the PI Configurator is set up for use in User mode, these are the only settings you are permitted to change.

→ *About sensor configuration* on page 7

1 Start the PI Configurator utility, and connect the sensor to the computer with the programming cable.

→ *Connect the sensor* on page 18

2 Click **Establish Communication**, and wait for the PI Configurator utility to interface with the sensor.

When communication is established, the PI Configurator utility will automatically adapt to the sensor type currently connected. This means that buttons and displays that are not applicable for the sensor will be unavailable.

3 Click the **Read Sensor** button.

Observe that the current sensor configuration parameters are displayed in the appropriate fields.

4 Click the **Default Sensor Setting** button to retrieve the default settings for the current sensor.

5 Click the **Program Sensor** button to upload the new parameters.

6 Click the **Terminate Communication** button to disable the communication between the computer and the sensor.

7 Disconnect the alligator clips from the sensor.

If you do not wish to program additional sensors, disconnect the entire programming cable, and close the PI Configurator utility.

Software procedures

Software upgrades are useful if your PI Configurator fails, and you suspect a software error. An upgrade is also required whenever the PI Configurator software is modified.

If you experience problems during a software installation or upgrade, write down the installation parameters. Remove the PI Configurator software entirely, then reinstall from scratch.

- *How to install the PI Configurator software* on page 27
- *How to obtain the PI Configurator license* on page 28
- *How to upgrade the PI Configurator software* on page 28
- *How to remove the PI Configurator software* on page 28

How to install the PI Configurator software

Use this procedure if you need to install the software on a computer.

1 Power up the computer.

2 Insert the PI Configurator 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 installation program to run. Follow the instructions provided.

5 Once the installation has been completed, double-click the program 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**.

How to obtain the PI Configurator license

No license is required. The PI Configurator utility is free.

How to upgrade the PI Configurator 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 PI Configurator software* on page 27

How to remove the PI Configurator software

You may wish to remove the PI Configurator software from your computer.

1 Observe the operating system's functionality for software removal.

Command references

Which features that are made available when using the PI Configurator utility depend on the current operational mode and the type of sensor that is interfaced. All commands are described here.

Topics

Communication commands

The commands in the **Communication** group are described below.

Establish Communication

This button initiates contact between the computer and a well charged sensor by sending it a "wake-up" command.

Once two-way communication is established the following occurs:

- The indicator lamp (in the lower right-hand corner of the dialogue) will be turned on and off every two seconds.
- The LED inside the interfaced sensor will illuminate every two seconds.
- The sensor will upload its current configuration data to the computer. The information is shown in the various fields in the main dialogue.

To operate, click the **Establish Communication** button. Check that the fields show the interfaced sensor's current configuration parameters.

To terminate the communication with the sensor, click the **Terminate Communication** button.

Related topics

- *Terminate Communication* on page 32

Read Sensor

This button requests that the current configuration data in the sensor are sent from the sensor to the computer.

When the **Read Sensor** button is clicked, the sensor will automatically download its information to the computer. This data is then shown in the dedicated parameter fields.

To operate, click the **Read Sensor** button. Check that the appropriate fields are populated with the interfaced sensor's data.

Note

Prior to read the sensor's data, the communication between the computer and the sensor must have been established.

Program Sensor

This button is used to download the currently interfaced sensor with the new parameters selected (those presently displayed).

This operation can not be undone, however, the sensor's previous status information and parameter configuration is still available in the main dialogue box and may be re-entered if necessary.

To operate, click the **Program Sensor** button. Check that the appropriate fields are populated with the interfaced sensor's data.

Note

Prior to upload new sensor configuration, the communication between the computer and the sensor must have been established.

Terminate Communication

Press this button to terminate the serial data flow between the sensor and the computer.

To operate: click the **Terminate Communication** button to disable the communication, then disconnect the cable. If you disconnect the cable before you terminate the data flow, the PI Configurator will issue a error message.

Default Sensor Setting

This parameter is used to restore a sensor's factory default values, according to the type of sensor currently connected.

Factory default settings include:

- Communication Channel.
- LED control
- Ping control

- Update rate
- Remote
- Show channel at start-up

To operate, click the **Default Sensor Setting** button to load the parameters. Then, click the **Program Sensor** button to program the interfaced sensor with the new parameters.

Related topics

- *Default communication channels and update rates* on page 7
- *Program Sensor* on page 32

Configuration commands

The commands in the **Configuration** group are described below.

Sensor

This field displays if the type of sensor currently connected to the computer and the PI Configurator utility is a Single or Dual sensor.

You are not permitted to change this parameter.

Update

This parameter is used to select an interfaced sensor's data update rate.

Note

This is a key parameter. Unless the data update rate defined in the sensor matches the rate defined on the host PI system, the communication will not work!

The data update rate is the time interval between individual transmissions from the sensor containing measurement data. The rate selected must match the corresponding setting in the PI system's setup.

To operate, click the **Update** spin box next to select the desired rate. Then, click the **Program Sensor** button to program the interfaced sensor with the new data update rate parameter.

Related topics

- *About sensor configuration* on page 7
- *Program Sensor* on page 32

Measure

This field displays the type of measurement made by the sensor currently connected to the computer and the PI Configurator utility.

- If the sensor currently connected is a “single” type, only one of the **Measure** fields will be populated.
- If the sensor currently connected is a “dual” type, both **Measure** fields will be populated.

You can not alter the contents of this field.

Channel

This parameter allows you to redefine the sensor’s communication channel.

- If the sensor currently connected is a “single” type, only one of the **Channel** fields will need to be populated.
- If the sensor currently connected is a “dual” type, both **Channel** fields will need to be populated.

Note

This is a key parameter. Unless the communication channel defined in the sensor matches the channel defined on the host PI system, the communication will not work!

Sensors send information using specific frequencies, each designated as an individual channel. PI and PS sensors have 30 channels to choose from, and the FA701 sensors have four. The frequency range of these channels are of from 43.5 to 49.5 kHz for PI and PS systems, and 70 to 80 kHz for FA710 systems.

To operate, click the up or down arrow in the **Channel** spin box until the desired channel is shown. Click the **Program Sensor** button to program the interfaced sensor with the new channel number parameter. Finally, check that the field is updated with the new parameter.

Special settings

1 Spread sensors can be programmed to communicate with Remote sensors #1 or #2. These must also be labelled accordingly because they must be used in pairs and can not be interchanged. It is important to remember to redefine the Spread 2 communication channel.

2 Spread sensors programmed as Twin Spread have two communication channel settings.

3 Dual sensors have two communication channel settings.

Related topics

- *About sensor configuration* on page 7
- *Program Sensor* on page 32

Ping Control

This parameter is only available for depth sensors.

The parameter is used to control when a sensor will “ping” (transmit an acoustic signal). For example, it is possible to disable the sensor from being inadvertently activated when lying in a wet net on deck (a depth of less than two meters) to prolong its battery life. The available parameters are:

- **Always**: The sensor will “ping“ at all depths during normal operation.
- **Depth > 2 m**: The sensor will “ping“ only when it is at a measured depth of more than two meters (deployed).

You are not permitted to change this setting.

Remote

This parameter is only available for Spread, Twin Spread and Remote sensors. The parameter allows selection of the channels used to communicate between the Spread and Remote sensors.

Note

These are key parameters when you work with Spread and Remote sensors. Make sure the correct channels are selected for all the sensors. Should incorrect parameters be chosen, the sensors will not be able to communicate with each other, and the PI Operator Unit will display “± ± ±".

- When a Spread sensor is connected, the **Remote** spin box is used to select which Remote sensor(s) the Spread sensor shall communicate with. In a single trawl system, you can select **1** or **2**. In a twin trawl and a dual twin trawl system, you must select either **pair 1 and 3** or **pair 2 and 4**.
- When a Remote sensor is connected, you must use the **Remote** spin box to define the identification number to be used by the sensor. This can be any number between 1 and 4.

To operate, click the **Remote** spin box next to select the desired rate. Then, click the **Program Sensor** button to program the interfaced sensor with the new parameter.

Related topics

- *How to do Twin Spread configuration* on page 21
- *Program Sensor* on page 32

Mini-R

This parameter is only available for the Geometry sensor. The parameter allows selection of the Mini-R responders used to make the sensor measurements.

Note

These are key parameters when you work with Geometry sensors. Make sure the correct Mini-R responders are selected. Should incorrect parameters be chosen, the Geometry sensor will not be able to communicate with the responders, and the PI Operator Unit will display "± ± ±".

When a Geometry sensor is connected, the **Mini-R** spin box is used to select which two responders the Geometry sensor shall communicate with.

To operate, click the **Remote** spin box next to select the desired rate. Then, click the **Program Sensor** button to program the interfaced sensor with the new parameter.

Related topics

- *How to do Geometry configuration* on page 23
- *Program Sensor* on page 32

LED Control

This button displays the current behaviour of the interfaced sensor's internal LED during normal operation, charging and communication modes. The setting can not be altered.

Sensor LED parameters are:

- **Start-up Only**: The LED will only illuminate (flashing its identification code) when it is energized. It will not be turned on during normal operation.
- **Only when Pinging**: The LED will only illuminate when it transmits data.
- **When <2 m**: The LED will flash every time the sensor transmits data, but only when it is at a depth of less than two meters. This parameter is only available for depth sensors.
- **Always**: If the sensor is disabled from transmission at depths less than two meters by the **Ping Control** parameter being set to **Depth < 2 m**, this **Always** parameter causes the sensor's LED to illuminate at depths of less than two meters even when the sensor does not transmit.

Number

This parameter is only available for Remote and Mini-R sensors. The parameter allows selection of the Remote or Mini-R number; 1, 2 3 or 4.

For the Remote sensors, this parameter is applied as follows:

- Remote 1 is used with a Spread sensor set up to communicate with a Remote 1, and as one of the two Remote sensors used with a Twin Spread 1.
- Remote 2 is used with a Spread sensor set up to communicate with a Remote 2, and as one of the two Remote sensors used with a Twin Spread 2.
- Remote 3 is used with a Spread sensor set up to communicate with a Remote 3, and as one of the two Remote sensors used with a Twin Spread 1.
- Remote 4 is used with a Spread sensor set up to communicate with a Remote 4, and as one of the two Remote sensors used with a Twin Spread 2.

The Geometry sensor uses Mini-Rs in combinations **1 and 3** and **2 and 4**.

Note

These are key parameters when you work with Geometry, Spread and Remote sensors. Make sure the correct channels are selected for all the sensors. Should incorrect parameters be chosen, the sensors will not be able to communicate with each other, and the PI Operator Unit will display "± ± ±".

To operate, click the **Number** spin box next to select the desired value. Then, click the **Program Sensor** button to program the interfaced sensor with the new parameter.

Related topics

- *About sensor configuration* on page 7
- *Program Sensor* on page 32

Show Channel

This button shows if the sensor when first connected will flash its channel identification code using the internal LED. The setting can not be changed.

Show Channel	Disable

When this feature is enabled, the sensor will flash its presently programmed communication channel number at start-up when in the normal mode (not in the charge or communication modes). This feature may also be activated by touching a sensor's lid and charging lug simultaneously. When activated, the sensor will respond by flashing its individual LED identification codes, as follows:

1 One long flash: It has a duration of approximately 1 second.

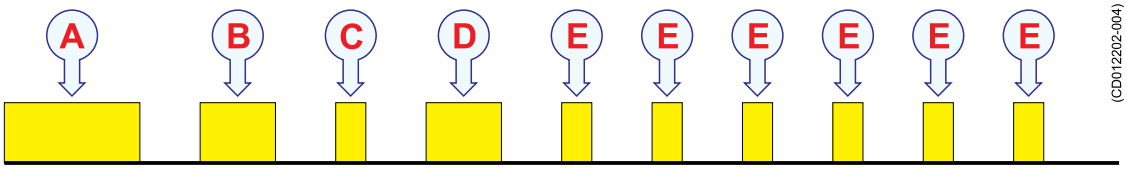
2 One start flash: This signals that the first digit of the channel number is next.

3 None, one, two or three short flashes: The number of short flashes signifies the first digit of the programmed channel number.

4 A second start flash: This signals that the second digit of the channel number is next.

5 None to nine short flashes: The number of short flashes signifies the second digit of the programmed channel number.

Figure 2 Show channel, example; Channel #16 at start-up



A *A one second "long flash"*

B *A start "flash"*

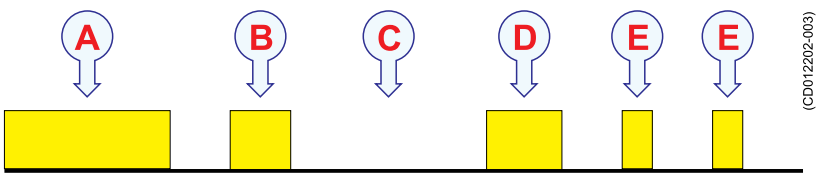
C *One "quick flash" (first digit of 16 is 1)*

D *A start "flash"*

E *Six "quick flashes" (second digit of 16 is 6)*

Normal operation starts.

Figure 3 Show channel, example; Channel #2 at start-up



A *A one second "long flash"*

B *A start "flash"*

C *No short flashes (first digit of 02 is 0)*

D *A start "flash"*

E *Two short flashes (second digit of 02 is 2)*

Normal operation starts.

Listening Mode

This parameter is only valid for Remote Mk.1 sensors.

It is used to define how often the sensor listens for acoustic requests from the Spread sensor. In a single trawl system, these requests appear less often than in a dual trawl system.

If you use the Remote sensor in a single trawl application, you can select *Single* to conserve battery. If you use the sensor in a dual trawl application, you must set this parameter to *Dual*.

Parameter displays

The displays provided in the **Parameter** group are described below.

Serial Number

The **Serial Number** field displays the serial number of the sensor that is currently connected to the PI Configurator utility.

You can not change this information.

Note

*The serial number on **PS Sensors** can not be investigated by means of this function.*

Battery Voltage

The **Battery Voltage** field displays the voltage of the battery in the sensor that is currently connected to the PI Configurator utility. You can not change this information.

The voltage displayed will depend on the type of sensor. A summary of the sensor and battery types is provided in the tables.

Note

If the voltage on a recently charged sensor battery is no higher than the 50% capacity value, the battery should be replaced.

If the sensor battery is allowed to discharge to a voltage less than approximately 9 Vdc, it will be damaged.

Table 3 Battery types in PS Sensors

Sensor	Battery type	Fully charged	50% capacity	Fully discharged
PI Bottom Contact	Normal charge	> 13,5 V	≈ 12,8 V	< 11,5 V
PI Depth	Normal charge	> 13,5 V	≈ 12,8 V	< 11,5 V
PI Catch	Normal charge	> 13,5 V	≈ 12,8 V	< 11,5 V
PI Temperature	Normal charge	> 13,5 V	≈ 12,8 V	< 11,5 V

Table 4 Battery types in S-Type PI Sensors

Sensor	Battery type	Fully charged	50% capacity	Fully discharged
PI Bottom Contact	Fast charge	> 13,5 V	≈ 12,8 V	< 11,5 V
PI Depth	Fast charge	> 13,5 V	≈ 12,8 V	< 11,5 V
PI Catch	Fast charge	> 13,5 V	≈ 12,8 V	< 11,5 V
PI Temperature	Fast charge	> 13,5 V	≈ 12,8 V	< 11,5 V
PI Remote Mk.1	Fast charge	> 13,5 V	≈ 12,8 V	< 11,5 V
PI Remote Mk.2	Remote Mk.2	> 13,5 V	≈ 12,8 V	< 11,5 V

Table 5 Battery types in L-Type PI Sensors

Sensor	Battery type	Fully charged	50% capacity	Fully discharged
PI Height	PI Height	> 12,1 V	≈ 11,5 V	< 10,3 V
PI SeineSounder	PI Height	> 12,1 V	≈ 11,5 V	< 10,3 V
Pi Spread/Depth	PI Height	> 12,1 V	≈ 11,5 V	< 10,3 V
PI Remote/Depth	PI Height	> 12,1 V	≈ 11,5 V	< 10,3 V
PI Spread Mk.1	Spread Mk.1	> 13,5 V	≈ 12,8 V	< 11,5 V
PI Spread Mk.2	PI Height	> 12,1 V	≈ 11,5 V	< 10,3 V

Sensor Temperature

The **Sensor Temperature** field displays the temperature measured inside the sensor that is currently connected to the PI Configurator utility. You can not change this information.

The temperature is always given in °C.

Note

Observe the temperature limitations provided for charging the sensor. These are provided with the charger.

Battery Temperature

The **Battery Temperature** field displays the temperature of the battery in the sensor currently connected to the PI Configurator utility. You can not change this information.

The temperature is always given in °C.

Note

Observe the temperature limitations provided for charging the sensor. These are provided with the charger.

Software Version

The **Software Version** field displays the current version of the control software in the sensor currently connected to the PI Configurator utility. You can not change this information.

Tip

This field does not display the current software version of the PI Configurator utility. In order to find this information, select **Help →About** on the main menu.

Battery Type

The **Battery Type** field displays the type of battery in the sensor currently connected to the PI Configurator utility. You can not change this information.

FPGA Function

The **FPGA Function** field displays the current function of the processing software in the sensor currently connected to the PI Configurator utility. You can not change this information. Typical values are:

- Height
- Spread/Remote
- Remote
- Geometry

The abbreviation FPGA means “Field Programmable Gate Array”.

FPGA Version

The **FPGA Version** field displays the current version of the processing software in the sensor currently connected to the PI Configurator utility. You can not change this information.

The abbreviation FPGA means “Field Programmable Gate Array”.

Battery Capacity

The **Battery Capacity** field displays the capacity of battery in the sensor currently connected to the PI Configurator utility. The capacity is provided in mA. You can not change this information.

File menu commands

The commands on the **File** menu are described below.

Communication Port Setup

This command on the **File** menu opens the **Com Port Setup** dialogue. The integrated slider bar is used to designate which COM port (COM1 to COMn) the programming cable is plugged into. COM1 is the factory default setting and recommended parameter.

To operate, click the **Com.port setup** command on the **File** menu. Then, use the available **Port number** spin box to choose the correct communication port. If the chosen COM port is unavailable on the computer, a corresponding message will inform you about this.

Note that when if you change communication port, the computer may use some time to identify the new communication.

Language

This command on the **File** menu opens the **Language** dialogue.

The **Language** dialogue allows you to select operational language. Selecting a different language will convert the PI Configurator's buttons, information, help functions and interfaced sensor data to the respective language.

To operate, click the **Language** command on the **File** menu. Click to select language, or click **Cancel** to close the dialogue without replacing the present language in use.

Debug window

This function is only available for *Distributor* and *Factory* users. The window allows you to monitor the traffic on the RS-232 serial line between the sensor and the computer.

Quit

You can exit the PI Configurator application from two places:

- Select **Quit** on the **File** menu.
- Click the **Quit** button in the bottom right corner of the main window.

Both options will close down the PI Configurator application immediately. If you have a sensor connected, the communication will be aborted. If you have entered parameters, but have not yet clicked the **Program Sensor** button, the parameters will not be saved in the sensor.

Help menu commands

The commands on the **Help** menu are described below.

About

This command on the **Help** menu opens the **About** dialogue.

The **About** dialogue provides information related to the current PI Configurator software version you have installed.

To operate, click the **About** command on the **Help** menu.

Help

This command on the **Help** menu opens the PI Configurator context sensitive on-line help.

The PI Configurator documentation is provided in two versions; on-line help on the CHM format, and a printable version on PDF format. The PDF version is also interactive. It is provided on the PI Configurator CD, and it can be downloaded from our web site at www.simrad.com. The contents of these two versions are identical!

On on-line help can also be opened by right-clicking any of the command buttons in the main window.

Maintenance

This chapter contains information related to maintenance, setup and troubleshooting.

Topics

PI CIC interface cable for USB

The PI Configurator Interface Cable (CIC) offers a simple method to connect any sensor to your computer using the common USB interface format.

Purpose and preparations

The PI Configurator Interface Cable (CIC) allows you to connect any PI sensor to a USB port on your computer for sensor setup and configuration.

The PI Configurator Interface Cable (CIC) comprises a small black box with two cables:

- One cable is fitted with a standard USB “A” cable. This cable is connected to any vacant USB socket on your computer.
- The other cable is fitted with to crocodile clips. These connect to the sensor. The red clip must be connected to the positive fastening lug on the sensor, while the black clip must be connected to the negative fastening lug.

Whenever you prepare a sensor for configuration and/or charging, make sure that mounting material attached to the charging lugs do not form an electrical connection, as this will short the charging current.

Figure 4 PI Configurator Interface Cable (CIC)

In order to use the PI Configurator Interface Cable (CIC) you must install a software driver on your computer.

The software driver is available on the **PI Configurator** software CD. The CD can be downloaded from www.simrad.com.

Instructions for use

This procedure assumes that you have installed the software driver for the PI Configurator Interface Cable (CIC).

1. Power up your computer.
2. Connect the USB "A" plug on the PI Configurator Interface Cable (CIC) to a vacant USB port on your computer.

   If possible, use the same USB port every time.

   If necessary, observe *COM port identification* on page 50.
3. Start the PI Configurator application.
4. In the PI Configurator application, identify and select the communication port to be used for sensor setup and configuration.
5. Attach the positive (red) alligator clip to one of the sensor's positive fastening lugs (identified with a plus symbol).
6. Attach the negative (black) alligator clip to one of the sensor's negative fastening lugs (identified with a minus symbol).
7. Observe the operational procedures for the PI Configurator program.

Software driver

This procedure explains how to install the software driver required for the PI Configurator Interface Cable (CIC).

The software driver is available on the **PI Configurator** software CD. The CD can be downloaded from www.simrad.com.

1 Insert the PI Configurator CD.

2 Open a file manager utility to access the files on the CD.

3 Locate the `setup.exe` installation program for the software driver.

It is located in folder `pi_cic_driver` on the PI Configurator CD.

4 Double-click on `setup.exe` to start the installation.

5 Follow the instructions given by the installation program.

COM port identification

When you use the PI Configurator utility with the PI Configurator Interface Cable (CIC), the computer will automatically assign a COM port. If you change the physical USB socket you use, or if you use other USB devices in the same USB port, the operating system may assign a different COM port the next time you wish to use the PI Configurator Interface Cable (CIC). Since the PI Configurator application requires you to identify which COM port you use, you may need to investigate this.

1 Observe the following procedure for Windows® XP®:

- **a** Click the **Start** button in the lower left corner of your display, select **Settings**, and then **Control Panel**.
- **b** Double-click on the **System** icon.
- **c** Click the **Hardware** tab, and then click the **Device Manager** button.
- **d** Open **Ports (COM & LPT)**, and locate the PI Configurator Interface Cable (CIC) device on its assigned COM port.
- **e** Close all windows, and identify the COM port when you start the PI Configurator application.

2 Observe the following procedure for Windows® 7:

- **a** Open the **Control Panel**, and select **Classic View**.
- **b** Observe the same procedure as for **Windows XP**.

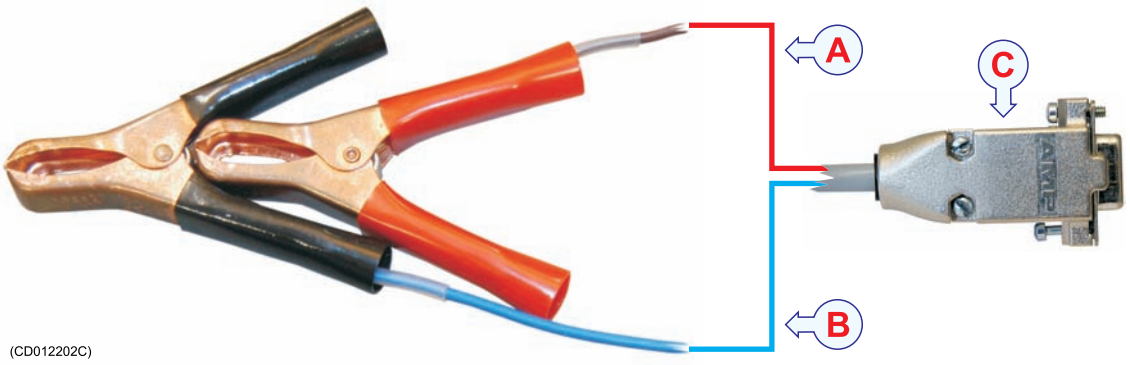
Programming cable for RS-232

Should a PI Configurator programming cable not be available, it is possible to make an adequate substitution as described below.

Note however that not all computers and sensors will work with this cable!

It is only possible to make programming cables for stationary computers. If you wish to use a portable computer the cable must be ordered from Simrad. Some new stationary computers have been found to provide the same output specifications as portable computers using lower voltage on the serial line. On these computers, a “portable“ cable is also required.

Figure 5 Programming cable



A *Red cable connects to pin 3 in the D-Connector*

B *Blue cable connects to pin 5 in the D-Connector*

C *9-pin female D-Connector*

Observe the following procedure to manufacture a programming cable for desktop computers.

You will need the following parts:

- A 9-pin, Sub-D female connector
- Approximately one to two meters of 2-wire cable
- A 3 kohm resistor
- Two alligator clamps

Proceed as follows:

1 Connect pin number three (-3-) of the 9-pin, Sub-D female connector to one end of the positive (+) lead of the 2-wire cable. At the other end of the positive (+) lead, connect the positive (red) alligator clamp.

2 Connect pin number five (-5-) of the 9-pin, Sub-D female connector to one end of the negative (-) lead of the 2-wire cable. At the other end of the negative (-), connect the negative (black) alligator clamp.

3 Connect the 3 kohm resistor between pins number two (-2-) and three (-3-) of the 9-pin, Sub-D female connector.

4 Check both alligator clamps and respective pins for continuity.

Troubleshooting

Most problems are easily solved. Investigate the interface, configuration or other complications by means of the following guidelines.

- The interfaced sensor is sufficiently charged.
- The correct PI sensor programming cable is used and in good condition.
- The PI sensor programming cable is connected to the computer's COM port correctly.
- The PI sensor programming cable is connected to the sensor correctly.
- The PI sensor programming cable is connected to the COM port selected in the **Com Port Setup** dialog box.
- The mode of operation for the PI Configurator software has been correctly selected.
- The type of sensor interfaced has the features and/or parameters attempting to be set up.
- The latest version of PI Configurator software has been correctly installed.

U

ISBN-13: 978-82-8066-040-4